



# The Road Less Travelled: The Decline of Vocational Pathways and Variety of Hybridization Across Four Countries, 1995-2016

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The Road Less Travelled: the decline of vocational pathways  
and variety of hybridization across four countries, 1995-2016

A dissertation submitted by  
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to

The Committee on Higher Degrees in Education

in partial fulfilment of the  
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in the subject of

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Abstract

Education scholars have long debated the relative merits of vocational pathways in high school, weighing apparent employment benefits against the risk of foreclosing academic opportunities. Yet scholars are no closer to a consensus and the literature on vocational education has fragmented: economics, comparative political economy, sociology and education have given rise to diverse ways of understanding vocational pathways, what they entail and why students choose them. This study integrates these perspectives as a basis for comparative analysis of contemporary vocational pathways in four countries: two representing traditionally strong vocational provision and uptake (Germany and Austria) and two in which we would expect to find weaker provision and lower uptake (Australia and New Zealand).

This study finds that across these diverse contexts, vocational pathways have dramatically declined and been replaced by *hybrid* pathways that combine elements of vocational and academic education. In only one context, however, does the hybrid amount to the *addition* of vocational and academic qualification pathways. In the other three cases, hybrid paths are better characterized as the *substitution* of vocational learning for academic curriculum, or vice versa. These substitutive pathways have low rates of transitions to industry-recognized credential paths or higher education. Separate chapters set out the factors which explain this variation, including the way in which school policies concerning school choice and assessment design shape the variation in hybrid pathways.

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In memory of  
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and Alec,  
and those they loved

## Introduction

At some point in education, young people move from what is compulsory to what is post-compulsory. At this stage, they start to make our own choices about what they want to learn, or whether they want to learn in a formal setting at all. This study is about the institutional factors that shape those choices. While, for those who govern education systems, there is some ambiguity as to what these choices should reflect, there is a general view that people should stay in education long enough to prepare them for a job or occupation, or render them highly-qualified enough that they will be desirable in any labor market. And yet, many people do not choose this, instead leaving school early or pursuing some kind of general qualification which it turns out does not help them in the labor market. This contributes to a widespread sense that we are not doing enough to value *vocational education*. This study set out to examine this sense, by undertaking an analysis of variation in vocational enrolment trends over time in four countries. The motivation was that if we can explain this variation, we might find what it is that is being valued or not valued about vocational pathways.

The first key finding is that it is no longer appropriate to analyze upper secondary vocational pathways as a distinct upper secondary option. I document, across four cases, the mass *hybridization* of academic and vocational pathways over the past two decades. Across diverse systems, the majority of young people now have the option of an upper secondary pathway which could lead to *both* academic and vocational qualifications. If we adopted a human capital approach to understanding young people's upper secondary choices, we might expect widespread utilization of such pathways, which offer the opportunity to keep work options open and get valuable occupational experience while working towards higher education entry; in other words, to develop both *general* and *occupationally-specific* skills. But the second key finding of this study is that in three out of four cases hybrid pathways are *not* widely utilized in this way and are not leading to higher rates of

skill development, whether of occupational or general skills. The rest of the study is devoted to identifying the factors which explain this variation across the cases. The end result is a set of three factors which I propose should be included in future analysis of upper secondary education: the timing of origin of hybrid pathways; the degree of tracking in lower secondary; and the structure of skill signals. This introductory chapter provides an overview of these concepts, starting with the concept of upper secondary education itself.

### **Upper secondary education and the beginning of educational choice**

Upper secondary forms a special phase of education that straddles compulsory and post-compulsory structures. The institutions of this phase look quite different across countries. In some, like the United States, almost all upper secondary education is located within comprehensive high schools. In others, it is comprised of different kinds of organizations, including schools, colleges (course-based and aimed at an older age group), and part-time schools for apprentices. Whatever the building it is located in, however, it represents a phase of *curricular differentiation*. What distinguishes upper secondary from earlier phases is that students no longer follow a common curriculum, but pursue different subjects or qualifications depending on their interests, aspirations and prior attainment.

In simplified models of decisions young people make at upper secondary, their choice is characterized as one between *academic* or *vocational* education. This distinction, which can also just be called “general” or vocational,<sup>1</sup> represents the divide between pathways which lead to higher

<sup>1</sup> Often, a “general” track denotes one for students who are not expected to go to higher education, but are also not in any kind of specialist vocational program. This is most common in the U.S. due to the longer history of comprehensive high schools where all young people are expected to remain in school through 12th grade, even if they are not transitioning into higher education or “skilled” work. The notion of non-vocational, non-academic upper secondary is becoming more common as other countries extend expectations for compulsory education.

education and those which lead into the labor market. The assumption is that, across different kinds of upper secondary systems, at some point young people have to decide as to whether they are aiming for university or not, and then pursue particular curriculum or credentials accordingly. For some theorists, this decision is viewed as a “stick or split” choice about remaining in formal education. For others, it is a decision that says something about the relative value of vocational or academic skills in a given system. This latter position highlights the need to understand upper secondary choices from a systems perspective.

### *The need for a systems perspective*

The nature of upper secondary education as a phase of differentiation and choice demands that we view it from a systems perspective. In earlier phases, whether our interest is in explanation or evaluation, we can characterize education in terms of the performance of individual classes, schools or districts. While we might doubt that these indicators can capture all of the educational goals that we value, there is always the option of reverting to a system’s curricular and mandated tests as a means to indicate success. At the upper secondary level, however, what counts as a positive outcome is relative. It depends on a student’s individual aspirations and capacity, and the composition of aspirations and capacity in that given class, school or district. Consequently, only a system perspective on education can account for the totality of impacts, taking into account the possibility of trade-offs (Bol and van de Werfhorst 2013a).

More specifically, at the upper secondary level, whether something is a “good outcome” or not is inherently context-specific. If I am in a country (or even just a city) where very few people go to college, getting to college would be a fantastic outcome that would likely give me much better employment opportunities and social status. On the other hand, if I am in a country (or city) where the *majority* of people go to college, it is just an average outcome and I might aspire to something

more or something different; I might try to go to a particularly good college, or, if I did not think I could do that, I might choose to train for some specific occupation that might give me a stable job and some status, such as a nurse technician.

This insight creates the fundamental complexity of upper secondary education systems. Whether we see upper secondary attainment as the acquisition of skills or just the acquisition of a signal, the value or meaning of that outcome is defined by a market (G. S. Becker 1964; Stiglitz 1975).

Consequently, the definition of a good outcome is *relational*. It is not surprising then that scholars often use comparative methods to study upper secondary education from a systems perspective.

Yet this comparative study of upper secondary education does not form a cohesive body of literature, as different disciplines have used different frames. Within the field of education, the comparative study of upper secondary is framed as the study of “school completion” (Lamb et al. 2011) or “transitions systems”, referring to the diverse sets of pathways across countries that mark the “transition” from school to work (Raffe 2003, 2008, 2014; Shavit and Müller 1998). While the transition systems approach has tried to draw from multiple disciplinary perspectives, and incorporates sociological insights on socioeconomic stratification, observers note the absence of political economy perspectives on different employer contexts students are ‘transitioning into’ (Raffe 2014, 179; Toner 2014). Meanwhile, political economists and political scientists have developed a body of work on “skill formation”, which studies education and training from upper secondary to adult learning, with little input from educationalists (Phillip Brown, Green, and Lauder 2001; M. R. Busemeyer and Trampusch 2011a, 3, 2011b; Estevez-Abe, Iversen, and Soskice 2001). Within the field of education there is a comparative body of work specifically on Vocational Education and Training (VET), but much of it is focused on post-secondary programs and institutions aimed at

adult learners, tending towards a program effectiveness perspective as opposed to attempting to explain from a systems perspective (L. Clarke and Winch 2007; Pilz 2012).

Despite limited academic exchange, these fields have given rise to similar typologies and categorizations of countries in their efforts to analyze the diversity of upper secondary systems.

Table 1 introduces the labels that have emerged to define the differences between groups of countries, which are represented by two archetypal countries of the USA and Germany. While the typologies have been formulated and are illustrated within these bodies of literature by a range of OECD countries, the USA and Germany consistently appear as illustrative opposite poles, and so are used here. The different labels refer to the distinguishing system feature highlighted by that body of literature.

Table 1. Typologies of upper secondary systems and their characterization of two archetypal countries

	USA	Germany
Political economy; varieties of capitalism (P. A. Hall and Soskice 2001)	produces “general” skills	produces “specific” skills
Comparative education; transition systems (Raffe 2014)	shaped by an “education logic”	shaped by an “employment logic”
Political economy; skill formation (M. R. Busemeyer and Trampusch 2011b)	“Liberal” approach to skill formation	“Collective” approach to skill formation
Comparative sociology; inequality studies (Blossfeld et al. 2016; Bol and van de Werfhorst 2013a)	Comprehensive / Undifferentiated	Tracked / Differentiated

We can see that while the literature highlights different features, there is some consistency. For example, political economy focuses on the type of skills produced and distinguishes between upper secondary systems which lead to more “general” skills – indicated by number of people entering college – as opposed to those which produce more “specific” skills, indicated by those attaining a

vocational qualification. The transition system literature highlights essentially the same difference, but characterizes it in terms of the logic that informs the system: upper secondary systems shaped by an “education logic” are characterized by more classroom-based learning, while those shaped by an “employment logic” make greater use of apprenticeship or specialized vocational training.

*The vocational orientation of upper secondary*

The distinctions drawn in these typologies are justified on the basis of comparative statistics. A key statistic for understanding differences between upper secondary systems is its *vocational orientation*, or more specifically, the share of upper secondary enrolment that is vocational. The share of upper secondary that is vocational is interpreted as “an indicator of the importance of vocational education and training in a given educational system” (M. R. Busemeyer and Jensen 2012, 534). More generally, it is taken to indicate the extent to which people in a population value specific over general skills, and consequently their susceptibility to rising inequality and liberalization (Estevez-Abe, Iversen, and Soskice 2001; Iversen and Soskice 2019); the quality of school-to-work linkages and risk of youth unemployment (Bol et al. 2019); and the strength of occupational labor markets and possibility for middle class wages (M. R. Busemeyer 2009; Marsden 2015).

With so many interpretations loaded on this indicator, there are a variety of reasons why its fluctuation should draw attention from across the social sciences. Indeed, as recorded in the International Database on Education Systems (UOE)<sup>2</sup>, upper secondary enrolment rates have been declining in one of the archetypal vocationally-oriented countries, Germany. Equally of interest, the key liberal, general skills, comprehensive system – the USA – shows signs of rising youth apprenticeships and trade education in high schools (Dougherty and Lombardi 2016; B. A. Jacob

<sup>2</sup> “UOE” as it is maintained through joint data collection of UNESCO, OECD and Eurostat. Appendix A includes more information on UOE data collection.



2017). But the United States, like Canada, does not in fact record separate rates of academic and vocational education at upper secondary. It is therefore impossible to know in comparative terms whether these reports are warranted. Moreover, given the range of interpretations of what a changing share of vocational enrolment might mean, it is necessary to look beneath trends if we want to explain what is actually going on.

### *This study*

This study documents and explains a set of contemporary changes in upper secondary education in four country case studies – Australia and New Zealand, and Germany and Austria. My starting assumption was that it would be possible to explain changes in upper secondary education in terms of changes in the share of upper secondary enrolment that is vocational, in which academic and vocational programs are distinct and lead to distinct destinations in further study or the labor market, and where the decision as to whether to pursue vocational programs might be explained in terms of features of the labor market. The findings adjust this picture significantly.

First, upper secondary educational enrolments can no longer be modelled as a binary choice, where we might see more or fewer students choosing a vocational program. As described in chapter three, what I observe across the cases is increased *hybridization* of academic and vocational pathways at this phase. To understand variation in young people's choices, therefore, we have to take much greater account of the structure of choices and the option of delaying choice within a hybrid pathways.

Second, hybrid pathways are generally *not* leading to higher rates of skill development, whether of occupational or general skills. In only one out of my four cases, Austria, is there a hybrid pathway which reliably leads students to both higher education entry and a recognized vocational qualification. In the other cases, while students could use hybrid paths to attain both of these during

their time at school, they use hybrids primarily as a means to gain a required school-leaving credential. Rates of vocational qualification from upper secondary have fallen across the cases, and general skills, as measured by standardized international assessments, have either improved only very marginally (in Germany) or declined (in Australia and New Zealand).

Given the poor reputation of vocational education in some countries, the mixed success of hybrid pathways could be explicable in terms of cultural factors: where vocational education is stigmatized we would not expect a hybrid to be successful. But a cultural explanation does not match the pattern of cases: many fewer students in Germany than Australia pursue hybrid pathways, and the shift to pure academic pathways has been stronger in Germany. In addition, in New Zealand, where a hybrid pathway was created in the form of a credit-based general qualification which allows students to work towards university entry and an occupational credential without actually having to select a ‘vocational pathway’, the utilization of occupational units remains low and has declined over time.

The third key finding therefore is that the mixed success of hybrid pathways is explicable in terms of three factors: the timing of development of the hybrid pathway, the level of tracking in lower secondary, and what I call the structure of skill signals, which refers to the timing, nature and degree of centralized assessment and reporting. Table 2 summarizes the main differences in these factors across the four cases in this study. Chapters four to six set out how these factors explain the variation in hybrid success, and here I provide a brief introduction to each.

Chapter four describes how, across these diverse cases, from 1960 onwards we can observe similar impulses to introduce hybrid pathways as upper secondary education was expanded from an elite to a mass educational phase. Differing politics across the cases (specifically the relative power of parties on the left) led to differences in the timing with which hybrid pathways were fully developed. The pathway developed earlier benefitted from the first wave of upper secondary expansion, while the

Table 2. Summary of the cases: institutional conditions impacting the supply of students into upper secondary programs

Case	Timing of development of hybrid pathway	Level of tracking in lower secondary	Structure of skill signals
Austria	Additive hybrid developed in 1960-70s. High-investment hybrid pathway through distinct 5-year institutions leading to a vocational and an HE (higher education) entry qualification.	Formal tracking, two school types. Lower strata is still majority strata, though evidence of residualization in Vienna where the split between school types is more 50:50. Lower track students do not have academic option; choose between hybrid and vocational paths	Little centralized assessment (until 2016). Standardized report cards at end of lower secondary allow for selective entry to apprenticeships and vocational schools that are stratified by occupation.
Australia	Substitutive hybrid developed in 1980-90s. Vocational courses can be taken as part of HE entry, with option for attainment of a vocational qualification. Vocational courses mostly “substitute” for academic to gain just the required school leaving certificate.	Quasi-tracked. Stratification of schools into three sectors and school choice restricted by income and geography. Close association between strata and upper secondary paths. Lowest strata is also the largest and feeds substitutive hybrid.	Centralized assessments at end of secondary contribute to a tertiary entrance ranking. Vocational course outcomes downweighted relative to academic in composite scores, disincentivizing hybrid pathway for high-prior-attainment students.
Germany	Substitutive hybrid developed in 1990-00s. Vocational schools offer pathway to HE entry and a vocational qualification. Mostly used to get just HE entry status whereby academic courses “substitute” for vocational preparation.	Quasi-tracked, with residualized lowest-track. Formal tracking of schools into two or more school types, amounting to quasi-tracking through choice of comprehensive and multi-track schools. All but lowest track include option to pursue HE entry.	Centralized assessment introduced into school-leaving certificates at three levels: prior to, middle of and after upper secondary. Attainment of sufficient grades allows progress to the next qualification.
New Zealand	Substitutive hybrid developed in 1990-00s. Vocational credits can be taken as part of general certificate, and contribute to HE entry and a vocational qualification. Vocational credits mostly “substitute” for academic to gain just the required school leaving certificate.	Quasi-tracked, with residualized lowest-track. Stratification of schools into ‘deciles’. Amounting to quasi-tracking through close association between strata and upper secondary paths and stratified ability to choose school type.	Centralized assessments contribute to credits and ‘endorsements’ (merit, distinction). Endorsements only available for academic credits.

later pathways had to be designed to attract those taking refuge from poor youth labor markets later in the 20<sup>th</sup> century. These later pathways, rather than reliably leading young people to both academic and vocational credentials, operate more like *substitutes*: in these pathways, students use vocational credits, courses or schools in place of some academic requirements, in order to qualify for a school completion certificate. The timing of origin thus determines the initial constituency of a hybrid pathway, in terms of its character in the eyes of employers and the wider society.

Chapter five describes how the character of a pathway is further determined by the extent of lower secondary tracking. The last two decades saw an increase in the ability of students and their parents to choose a secondary school, but this increase in choice was stratified, leading to *residualization* of some lower secondary schools, lowering average socioeconomic status and attainment. The result is a kind of *quasi-tracking* in which schools are clearly stratified by socioeconomic status and attainment. Higher-attaining lower secondary schools feed the academic upper secondary pathways. Lower-attaining schools struggle to supply hybrid pathways because their students are not prepared for the demands of a combined academic and vocational path. Consequently, these schools feed substitutive hybrids. In contrast, systems with firmer tracking and less choice feed young people into a hybrid pathway: those do not have an option of a pure academic pathway into higher education but are nevertheless sufficiently academically prepared to handle the demands of a hybrid path.

Finally, chapter six sets out how the *structure of skill signals* further shapes the different character of hybrid paths. In the past two decades, systems have grappled with credential inflation in upper secondary, leading to an increased role for centralized reporting or assessment of grades to allow for differentiation between those with the same credentials. Both the timing of skills signals and the degree to which they signal general or occupational skills appears significant. The cases suggest that where students receive an earlier signal of general skills, this increases willingness for occupational

specialization through hybrid or vocational courses; later centralized assessment is a deterrent, particularly when vocational courses represent a penalty in the way that assessments are aggregated. These factors operate together to shape the *supply of students into* particular upper secondary programs. Consequently, the final conclusion of this study is that if we want to understand upper secondary choices in ways that can inform the design of policy, we should consider student choices not only in relation to labor market factors beyond the school system, but to constraints and incentives created by the system itself. The choices offered in upper secondary are choices not only between different subjects or occupations, but also between different cohorts and different opportunities to signal general skills. The patterns across these cases – including the under-utilization of particular hybrid opportunities and the considerable utilization of others – become explicable when students’ choices are understood in this way. On the basis of this I would suggest that the above three factors be considered when designing any new reforms in upper secondary, and relatedly that we can learn from further research into these factors in a wider range of systems.

*Why this matters: arbitrating competing demands on upper secondary education*

While explaining any kind of major change, we would typically expect to have some kind of valence attached to what we find. If vocational enrolment has declined here or there, is that a good thing or not? But the desirable outcomes of upper secondary education are a shifting target. Two narratives, each underpinned by economic research, exist side-by-side. One advocates for improved academic upper secondary, to serve the continued expansion of higher education as a means to moderate income inequality and allow human skills to keep pace with technological change (Atkinson 2015; Goldin and Katz 2008; R. J. Gordon 2016; Heckman and Krueger 2005; Mayer and Peterson 2010). The second points to the weaknesses of a “college for all” mentality, and the success of economies which complement higher education with a strong vocational or apprenticeship sector (Culpepper and Finegold 1999; Iversen and Soskice 2019; Rosenbaum 2001; R. B. Schwartz and Hoffman 2015).

Advocacy of vocational education rests not only on a political-economic perspective that there are “varieties of capitalism”, but also on sociological and economic evidence for its benefits in any context, including the U.S. (Symonds, Schwartz, and Ferguson 2011). Qualitative studies emphasize that work-based vocational education provides young people with sustained interaction with adults in the workplace, helping them both to mature and to signal their preparedness to future employers (Grubb 1996a; Halpern 1998). While it is difficult to evaluate the impact of vocational education due to selection effects, evaluations of vocational education in non-German-speaking countries have still found that it can reduce the chance of unemployment, and that any upper secondary vocational education is preferable to leaving school early (Brunello and Rocco 2017; Iannelli and Raffe 2007; Ryan 2001). For any given policy context, therefore, it is difficult to arbitrate between “college for all” and “let’s do voc ed better”.

Caught between these two perspectives, upper secondary systems have been pressed to produce more and more young people who are qualified for higher education, while sustaining some form of vocational provision. The United States is a key example of this situation. Preparing young people for college has for a long time been accepted as the *raison-d’etre* of high schools and is still accepted as the best way to monitor their success (Ginsburg, Noell, and Plisko 1988; Morse and Brooks 2019; Olson 2019). Yet, as the first country to reach 50% higher education enrolment, scholars have also long drawn attention to a dynamic between expansion and dropout (Boesel and Fredland 1999), as well as to the knock-on effects for the “forgotten half”, predominantly from lower-income backgrounds, whose transition from school into stable employment appears to become increasingly difficult in majority-college societies (Rosenbaum 2001; Rosenbaum et al. 2015; W. T. Grant Foundation 1988). Partly in response to such perceptions, after a long-term decline in CTE course-taking, U.S. states have seen a resurgence of Career and Technical Education in high schools (H. R.

D. Gordon 2014; B. A. Jacob 2017). Articles on this change imply that the biggest problem faced is one of cultural perceptions: young people simply do not *value vocational education*.

Before directing educational research and evaluation activity with that agenda, we need to understand more about the nature of vocational choices. Explaining differences in the current trends in education is one way to do that in order to discover whether vocational education is ever really a *choice*, and where it is, what exactly young people are choosing?

## **Chapter 1. A framework to analyze upper secondary change**

This chapter sets out a theoretical framework for understanding change in upper secondary enrolments. With the aim of constructing the most parsimonious possible theory, I start with theories of educational decision-making, in which educational enrolments are understood as the product of individual choices. In this perspective, educational goals and the incentives offered by the employment context form key explanatory factors. While changes in these incentives explain some part of change over time, their inability to explain well across countries requires us to consider other ways in which the incentives and constraints on educational choice can change. This leads me to theories of institutional change, concerning how and why the institutions of education might develop differently across different countries due to politics and path dependency. I consider what is missing to analyze the relationships between institutional change and individual choices. I propose a focus on a set of key educational institutions which mediate upper secondary choices and make visible the strategic interactions between students, parents, employers and wider stakeholders which may, ultimately, explain vocational trends.

### **Vocational enrolment as the product of individual decisions**

From a rational choice perspective, upper secondary enrolment trends originate in the decisions of young people. There are several competing accounts of what drives such decision-making. Perhaps the predominant means of understanding educational decision is human capital theory, which proposes that individuals invest in their education to the extent that they believe it will pay off in the labor market (G. S. Becker 1964). Here, the most desirable educational pathway may be that which develops the most in-demand skills. A variant of this is signaling or screening theory, whereby education levels are primarily a means to signal one's general ability (Stiglitz 1975). As hinted in this description, there is an important potential distinction between these two theories in what "skill"



means. Under human capital theory, skill can be both general and more “specific” to given jobs; in signaling, skill means something more like general ability to learn.

An alternative view of educational decision-making arises from social reproduction theories. In place of the focus on expected income, here the goal of educational decisions is to maintain one’s social status, where status is secured by one’s relative position in an educational hierarchy (Bourdieu and Passeron 1990; Breen, Van De Werfhorst, and Jæger 2014). Where human capital theory proposes a market-based relationship between skills or credentials, here the relationship is simply one of ‘keeping up with the Jones’. As above, exactly what this involves depends on whether education is a just signal (where credentials form a relatively fixed symbolic hierarchy) or if specific skill development is valued (so a certificate in a new field might be more valuable than an unfinished college degree).

Table 3 summarizes the predictions of prevailing theories as to how educational decision-making might result in changes in educational trends over time.

Table 3. Predictions from individualist theories of educational decision-making: proximate goal (x) ultimate goal (y)

Goals	Signal general ability	Develop specific skills
Maximize income	P <sub>1</sub> : secondary VET relates to HE, declining as more individuals pursue HE to signal higher ability	P <sub>2</sub> : secondary VET relates to employment, declining as manufacturing declines creating less demand for specific skills
Maintain social status	P <sub>3</sub> : secondary VET relates to parental education levels, with HE rise amongst parents related to VET fall amongst youth	P <sub>4</sub> : secondary VET relates to parental education levels, with HE rise related to secondary VET rise as an alternative means to attain educated status

I specify trends in the way that they are usually referred to in the literature and measured in international collections such as the OECD’s Education at a Glance: secondary Vocational Educational and Training (VET) refers to the share of upper secondary enrolment which is vocational; that is, vocational enrolment divided by total enrolment. Higher education (HE) refers to

the share of the youth cohort enrolling in higher education. The table identifies the predictions that different individualist theories would make about educational trends, depending on what that theory proposes are the goals of education. The first point of difference concerns the proximate goal of pursuing a particular education pathway: whether it is a means to signal a higher level of underlying ability or to develop a particular kind of skill. The second is the ultimate goal: whether it is to maximize the return to skill investments, or maintain a particular social status. The predictions specify what a theory would predict under contemporary conditions of higher educational expansion and a shift towards more service-based economies (Marginson 2016; Wren 2013).

P<sub>1</sub> arises from the perspective of signaling or screening theory. As the proportion entering higher education increases, employers become more skeptical about the general ability levels of the remaining vocational students, turn their attention to graduates, and in turn, the next cohort of young people try harder to enter higher education. This is a popular account of how employers work and of vocational decline (Philip Brown, Lauder, and Ashton 2011; M. R. Busemeyer and Trampusch 2011b; Culpepper and Finegold 1999, 30). If it held, as higher education enrolments increase, after a brief lag in which students and employers observe each other's behavior, vocational enrolments would fall.

P<sub>2</sub> differs in seeing education not as a means to signal general skill but a means to develop and signal particular kinds of skill that might be useful to employers. Consequently, what kind of education will pay off depends on the structure of the labor market. One important difference here is the One suggestion is the growth in Germany of *internal* as opposed to *occupational* labor markets. This distinction arises from the study of comparative study of industrial sectors in the 1980s (Marsden 1990): occupational labor markets (OLMs) are structured around defined jobs and associated credentials, and allow for employees to move between firms or clients at the same skill and pay level, supported by union- and government-backed regulations around the meaning of

particular credentials. Internal labor markets (ILMs), in contrast, are structured around firms, and aspiring employees compete with each other to enter a firm and then work their way up as far as possible in skill and pay levels. A variety of empirical studies support the theory that “co-ordinated market” countries like Germany have stronger “occupational” linkages in the school-work transition (i.e. young people get jobs based on what field they have studied), while “liberal market” countries like the USA have weaker occupational linkages and employment depends on the level of one’s education (i.e. diploma, AA, BA etc) (DiPrete et al. 2017; Estevez-Abe, Iversen, and Soskice 2001; Levels, Velden, and Stasio 2014; van de Werfhorst 2011a).

In the study of labor markets, therefore, scholars view a shift from manufacturing to professional services as a shift to greater predominance of ILMs, as the greater variety of interpersonal tasks demanded by the former is less compatible with highly standardized credentials and work tasks (Estevez-Abe, Iversen, and Soskice 2001; Marsden 2007; Wren 2013). Likewise, the varieties of capitalism perspective has traditionally proposed that larger manufacturing sectors and larger shares of vocational education are related, supported by the presence of labor market institutions like unions and business associations (M. R. Busemeyer and Trampusch 2011a; Estevez-Abe, Iversen, and Soskice 2001, 3). In theory, this position is substantiated by historical and qualitative studies documenting the particular relationship between manufacturing employment and high-quality vocational education. This literature gives rise to the view that the transition from industry to services as the largest employment sector would be expected to precipitate a decline in vocational enrolment (Wren 2013).

The third and fourth predictions derive from social reproduction theory. If education signals general ability, young people will opt less for vocational education if, over time, they are more likely to have university-educated parents ( $P_3$ ). If education develops specific skills, a rise in higher education

amongst the parental generation could produce a rise in both higher and vocational education amongst the young generation, as they seek whatever means possible to develop skills and attain educated status (P<sub>4</sub>).

#### *Testing micro predictions*

As we can see, micro-level theories offer us many ways of understanding vocational change. To see whether any provides a general explanation, we can compare these predictions to what we see in international comparative data. In the following, I measure the share of upper secondary enrolment which is vocational as vocational enrolment divided by total enrolment. Higher education (HE) refers to the share of the youth cohort enrolling in higher education.

If P<sub>1</sub> held, as higher education enrolments increase, after a brief lag in which students and employers observe each other's behavior, the vocational share would fall, as school students moved away from vocational and towards academic upper secondary pathways. But the observable patterns do not well match this account: Figure 1 illustrates that while almost all countries saw increases in academic tertiary enrolment in the years between 1995-2012, the lagged change in vocational enrolment share varied substantially.

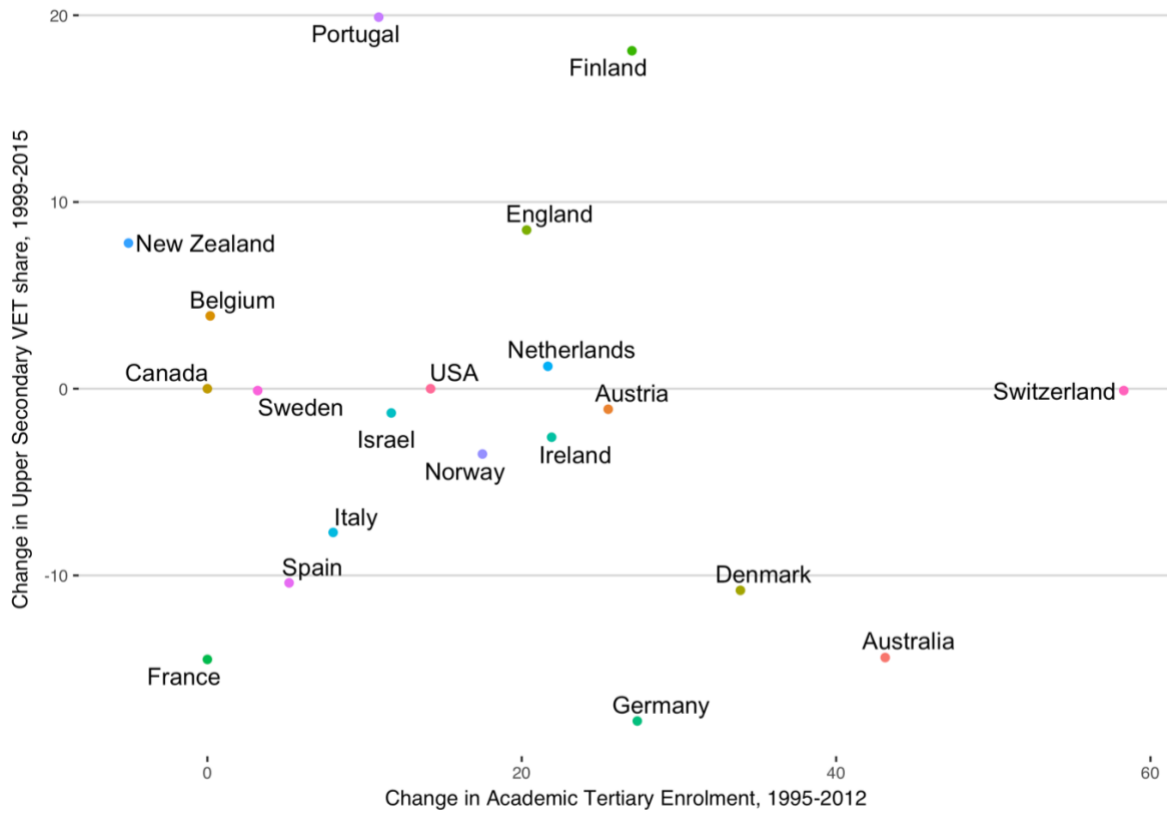


Figure 1. Change in upper secondary and tertiary enrolments across the 20 largest western economies.

Note: The Upper Secondary VET share refers to the proportion of all upper secondary enrolments that are vocational. This indicator is intended to capture change in student orientation, towards/away from vocational paths. Source: OECDstat and UNESCO World Development Indicators. The OECD archive database now begins only from the year 2000. 1995 is the only earlier year in which academic tertiary data is available for these countries, except Australia, for which the next figure (2000) is used. The two spans of time (1995-2012 and 1999-2015) do not match exactly (17 year and 16 years) because they reflect the years with the most available data.

According to  $P_2$ , which is derived from traditional varieties of capitalism literature, the transition from industry to services as the largest employment sector would be expected to precipitate a decline in vocational enrolment. Figure 2 suggests this explanation holds to an extent: countries that have had less of a decline in industry employment share tend also to have had less of a decline in vocational education. However, many countries buck the trend: Portugal and Spain have experienced similar declines in the industry share but opposite growth rates in the vocational enrolment share. The case of Portugal is potentially one of a vocational education boom in a poor

youth labor market. Australia, Germany and France fall below the trend, suggesting their vocational decline is in part but not entirely attributable to employment change.

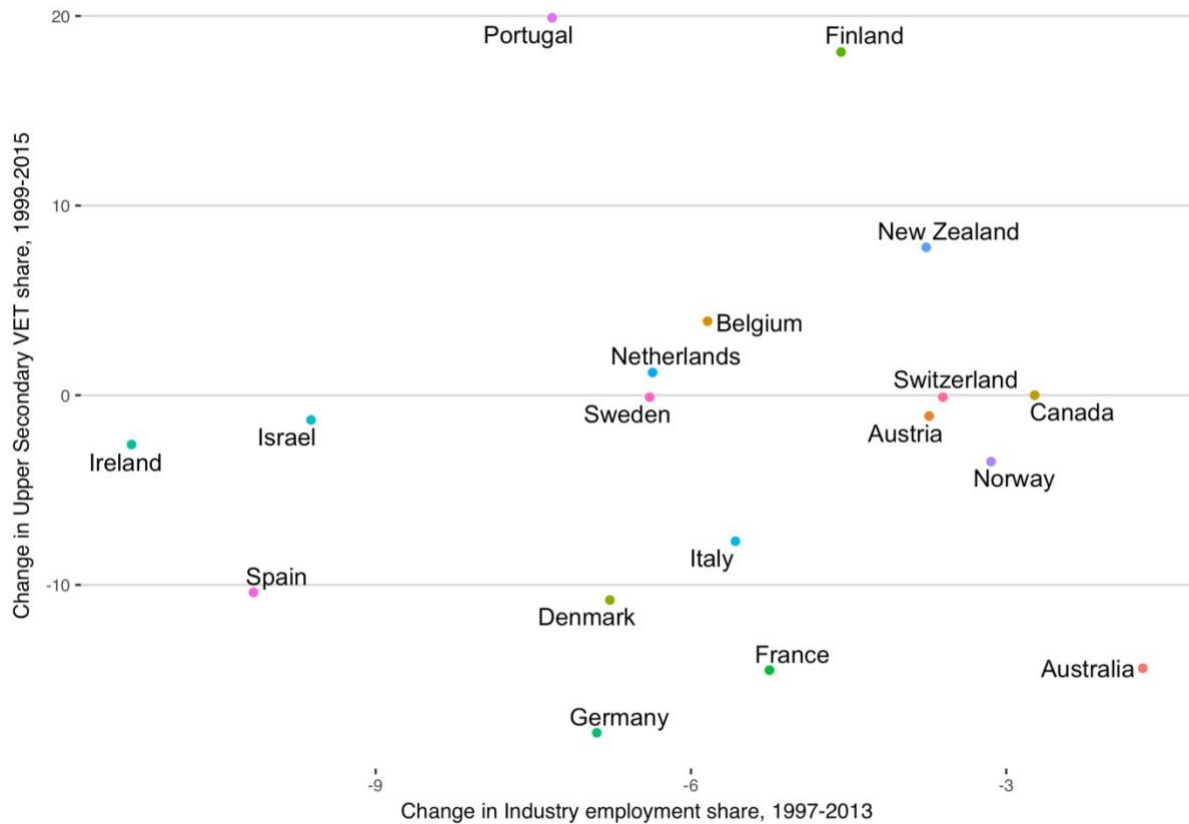


Figure 2. Change in upper secondary vocational and industry employment shares across the 20 largest western economies.

Source: OECD.stat and UNESCO World Development Indicators.

Figure 3 tests P<sub>3</sub> and P<sub>4</sub>. It shows the relationship between change in vocational enrolment in relation to change in higher education over the preceding 25 years, capturing the change in the likelihood that a child has a parent with a tertiary degree. Here, if there is any clear correlation it is a positive one, in which the vocational share increases in relation to earlier educational expansion, suggesting something more like hypothesis four. This explanation clearly cannot apply to Germany, however, and overall the array crosses the x axis, such that countries which had increases in tertiary degrees amongst the parental generation experience both declines and increases in vocational education

amongst the young. Thus, while the social reproduction thesis can successfully explain educational decisions in particular countries (Jæger and Breen 2016), it does not seem to conclusively explain the different degrees of vocational decline across countries.

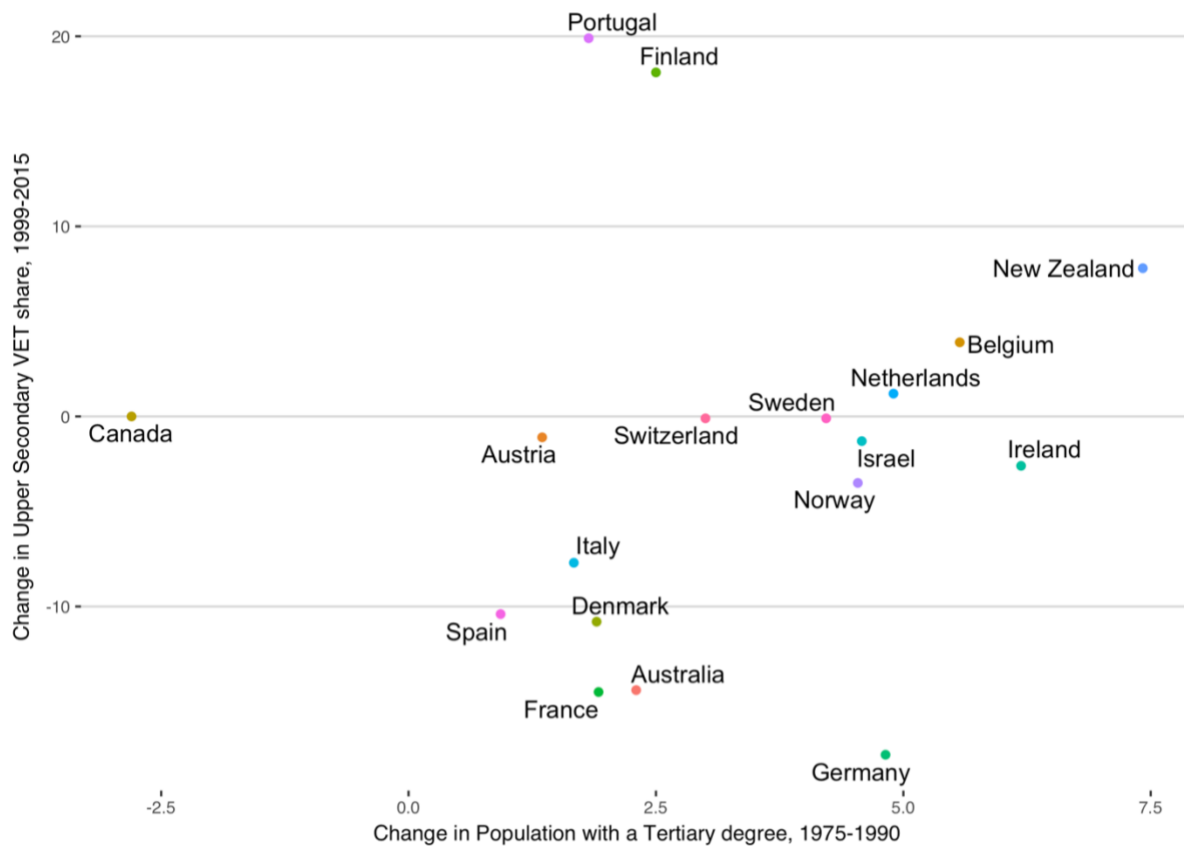


Figure 3. Change in upper secondary vocational share and the prior change in tertiary attainment across the 20 largest western economies.

Source: OECD.stat and UNESCO World Development Indicators.

From this analysis we can draw some tentative conclusions. Firstly, vocational decline does not follow automatically from tertiary expansion, either in the immediate past or in the parental generation. Equally, a decline in the industry employment share can be associated with a rapid growth in vocational education, as in Portugal, just as much as decline. Combining the explanations together it is possible to construct a reasonable story for some countries, but there is no way of

knowing what parts of these theories to extrapolate to other cases and the patterns do not allow one to discriminate between theories.

This exercise also highlights that the variety of underlying theories about the goals of educational decisions make it difficult to predict across countries. To predict we first need to know more about what a given choice represents in terms of real structures and institutions. To what extent could changes in structures explain the different patterns across countries?

### **The role of institutions in educational decision-making**

The decision to pursue vocational education may be conditioned by variation in the great many institutions – the “rules of the game” – that make up education and the labor market: schools, curricula, and regulations on the one hand, and firms, employment regulations, and credentials on the other (Lamb 2011; Raffe 2014). Comparative studies highlight that differences in institutions across nations seem to result in different educational calculus, in particular, whether employers place more value on signals of general ability or of specific skills (van de Werfhorst 2011a).

Three kinds of institutions shape the passage through upper secondary: qualification pathways, which determine at a national level what kind of choices people have to make; the organization of schools, in particular whether the secondary system is tracked or not; and assessments. Depending on the system, assessments can control both entry into and out of upper secondary pathways, and may determine the kind of ‘signals’ qualifications carry. We will see a lot more of these three institutions across the chapters.

These institutions may change over time. Qualification pathways may change through the introduction of qualification frameworks or modularisation into credit- unit-, or course-based systems (Allais 2011; Brockmann, Clarke, and Winch 2011). Such changes can border into “hybridization”: programs which combine academic and vocational content and modes and are



offered at the secondary and tertiary level (Brockmann, Clarke, and Winch 2011; Graf 2013). The programs take various different forms, but where they involve an increase of academic content and learning modes within vocational routes, this may make them less appealing for some students and induce drop-out (Polesel 2017).

The organization of schools can also change. Secondary systems have seen a trend towards later tracking and increasing student choice over courses (Blossfeld et al. 2016). Coupled with this, there have been attempts to increase parental school choice and transparency of standards to create “markets” for schools (Haberstroh 2016; Moe and Wiborg 2016). Standards and accountability movements can have impacts on the demands placed on and sometimes the designs of assessment (Koretz 2015).

What implications these reforms have for upper secondary choices is not currently clear. But if educational decision-making is subordinate to institutional conditions, changes in these conditions must become part of the analysis. The predictions above all roughly take the form of  $\Delta A \approx \Delta B$ . But it may be that A is itself undergoing some kind of institutional change, creating a new form, still recognizable as vocational education, but sufficiently different in its pathways and structures that we could call it A1. Then if  $\Delta A1 \neq \Delta B$  that might be because  $\Delta A \neq \Delta B$  or because  $A \neq A1$ . Moreover, if some parts of A are becoming A1 but some parts are becoming A2, A1 and A2 may have quite different relationships to B. This raises the problem of institutional change and how to study categories which do not necessarily remain stable over time (J. L. Campbell 2004).

#### *Interactions between the explanations*

Comparative studies typically assume stability in institutions, but the contemporary study of institutions in political science and sociology views institutions not as fixed equilibria but the

contingent product of strategic interaction between different groups (voters, employers, unions, parents etc.) (P. A. Hall 2009). Institutions can thus change gradually through shifts in the numbers, interests or resources of these groups (Fligstein and McAdam 2015; Mahoney and Thelen 2009). Consequently, even country case studies are not necessarily “macro” but rely on an understanding of micro-level processes (Mahoney and Thelen 2015, 6).

Within this strategic interaction, the explanations above may combine. It is in the nature of the school-work transition that changes in the domain of employment may affect the domain of school policy, and vice versa (Raffe 2014, 186–87). Consequently, we might ask of these perspectives whether both explanations apply, whether they interact in an important way, or whether one can be subsumed by the other. This question is worth asking because there are plausible stories as to how the two relate. Differences in schools policies around assessment and credentialing may themselves have firm-centred explanations; large employers have a track record as a powerful constituency in education policymaking (Graf, Lassnigg, and Powell 2012). On the other hand, if the school system changes its signalling so that education credentials emphasize the level of attainment (e.g. school completion, university entrance) over the occupational specificity of a pathway, employers may change their hiring strategies in response (cf. van de Werfhorst, 2011). We might therefore have to understand these relationships as circular, and interpretations have to take account of this possibility.

### **Strategic interaction around an “opaque good”**

So far, we have considered how the incentives outside the school system may change, and how the constraints created by the school system may change. But what of the way that the school system itself may change incentives? Strategic interaction may be influenced not only by material factors but cognitive (inter-subjective) ones, namely the way a group perceives their interests, goals or those of others (Culpepper 2002; Elster 2007). As such, institutional change can take the form not only of

new legal and organizational forms but also *cultural processes* which alter intersubjective categories, such as stigmatization and standardization (Lamont, Beljean, and Clair 2014).

It is only worth adding this layer of complexity because cultural processes may play a particularly important role in explaining changing educational preferences. As we saw above, notions of the proximate goals of education are contested and often confused. Education is arguably an “opaque good”, in the sense that its products – each individual’s combination of knowledge and skills – is unique (Karpik 2010). Consequently, decisions about education take the form of judgments, which are influenced by social and cultural processes, and by tools. In the case of education, this could take the form of reifying particular kinds of educational achievement with additional prizes, or undermining others with talk of “credential inflation” (Bills and Brown 2011; Collins 1979). As these examples illustrate, intersubjective changes are typically underpinned or embedded by other types of material, institutional change. Despite this connection, the study of institutional change and of cultural processes has mostly continued in parallel without enough exchange (Lamont and Pierson 2019; Zilber 2008).

One possibility in combining perspectives is that we can understand cultural processes as a form of strategic interaction. As proposed by Bourdieu and developed by Lucas in relation to education, battles for recognition and associated resources are often won more easily through hidden transformations than open contestation (Bourdieu and Passeron 1990; S. R. Lucas 2001, 2017). To break down cultural processes into constituent strategic interactions, we must look beneath accounts of the different cultural value of vocational or academic pathways to understand what specific constraints, incentives and changes underpin them. The advantage of this is the potential for better modelling of these processes.

### Three levels of institutional differentiation in upper secondary

To summarize the above, Table 4 presents three levels of factors relevant for analyzing upper secondary change. Each of the three educational institutions which shape upper secondary becomes a way for young people to *differentiate* themselves. I use the term “differentiate” here to stand in for all the key processes that occur at upper secondary: students choosing programs, putting effort into learning, performing, choosing subsequent destinations and being chosen. By setting these three together, the decision whether or not to pursue a vocational qualification is understood in relation to the other options for differentiation – both in terms of general as well as occupationally-specific skills – and how these may be changing. In investigating how each level may have changed, potential interactions between changes in the different layers may become visible.

Table 4. Three types of factors relevant for analysing upper secondary education: three levels of differentiation

Institution	Level of differentiation	Mode of change: key empirical observations
Qualification pathways	National (Macro)	Policy reform: historical events
Organization of schools	Local (Meso)	Cumulative choices: trends
Assessment	Individual (Micro)	Policy reform and professional practice: historical events and qualitative reports

### Summary

Before describing the empirical strategy, I will briefly clarify the core question at hand. The prevailing view of vocational decline is that it is a ‘natural’ response to expanding higher education, the service transition and decline of manufacturing. But as we have seen, changing external incentives cannot fully explain the variation we see in decline. This led me to consider the role of schools – and more specifically three mediating and differentiating institutions within the school system – in creating different constraints on upper secondary decisions. We then saw that changes in

these institutions influence not only constrains, but may interact with external factors to change incentives.

Looking at these factors collectively prompts the research question: *what explains the changing vocational share at upper secondary in four contrasting cases?* This question is worth exploring because, if it holds, it offers some prospect for policymakers to intervene, or at least to understand where policy histories may have driven vocational decline beyond what the employment market would demand. From a theoretical perspective, it provides an opportunity to link disparate sub-fields in the emerging political economy of education (Ansell 2010; M. R. Busemeyer 2014; Haberstroh 2016; Moe and Wiborg 2016), by considering how factors relevant in the study of secondary and post-secondary education add or interact.

## **Chapter 2: Empirical strategy**

The goal of this study is to explain changes in the vocational share of upper secondary education. As introduced above, the study of upper secondary requires a systems perspective to take account of the relational nature of education outcomes at this stage, as well as the variety of institutions which compose upper secondary provision. Consequently, I take countries as cases. An approach to such cases, which tries to take account of the particularities of time and place while also drawing more general conclusions, has become known in political science as comparative historical analysis (Mahoney 2003; Mahoney and Thelen 2015; Steinmo, Thelen, and Longstreth 1992). But CHA can be used in a variety of ways so in this chapter I introduce the particular logics I use and their underpinning assumptions. I detail my process of case selection leading to the choice of four countries: Australia, Austria, Germany, and New Zealand. I then detail my approach to data collection and analysis, framed in terms of three principles of validity in qualitative research in the form of transparency, triangulation and transferability.

### **The logic of comparing cases**

Historical analysis typically moves beyond pre-measured variables to investigate unmeasured concepts. The theoretical framework outlined above demands this approach. In particular, qualitative data will be necessary to take account of the particular structures and meanings that make up a given context (J. L. Campbell 2004; Mahoney and Thelen 2009; Steinmo, Thelen, and Longstreth 1992). Comparative analysis is then continually in a tension between explaining the particularities of a given case based on the best observable data, and generating explanations for variation across cases. Whether the two can meaningfully relate depends on sound case selection. Cases can be selected randomly or purposefully (Seawright and Gerring 2008). Probability sampling would imply that one sees all countries as a population and that explanations resulting from

randomly selected cases could be applied to the rest of this population. Given the many dimensions of variation across countries and the complexity of causal pathways, I do not think that country case studies can be representative of a population of cases, and so it is more appropriate to consider the relationship between my chosen cases and the wider set of countries as a historian would (Goertz and Mahoney 2012). The aim rather is therefore for *possible transferability* of an explanation; that is, an explanation has been developed and tested within a small body of cases, with sufficiently abstract specification of key details which can then be looked for when considering a larger set of cases. Maintaining this goal mitigates against over-fitting explanations to a small set of cases (Goertz 2017). When choosing a number of cases there is a trade-off between the depth and comprehensiveness of within-case analysis and the variation of country-specific factors one can incorporate in an explanation. As an international researcher, part of my goal is to explain the changing vocational share in a way that might be relevant to several countries, consequently, I am willing to make this trade-off to the extent that it does not compromise the quality of explanation. Others' experience suggests that 3-4 cases is plausible for a dissertation project.

I follow Goertz's approach to case selection which involves establishing an understanding of variation across as many cases as possible, before selecting cases which allow one to study key variation, that is, both "positive" and "negative" cases with respect to a dependent and key independent variable; that is, some cases which do and some which do not "fit" a given relationship between two variables<sup>3</sup>. This approach, which approximates a focus on outliers and on typical cases,

<sup>3</sup> Whether or not to select cases with respect to a dependent variable is one of the defining debates distinguishing epistemological paradigms in comparative social science. The argument that it introduces a form of selection bias is warranted when viewing cases as a sample from which one will generalize, based on claims about the representativeness of that sample (Geddes 1990). But purposeful selection with respect to a dependent variable makes sense as part of developing new explanations (Goertz and Mahoney 2012). The adjustment we need to make is in describing findings, and avoiding broad-brush conclusions from cases that are not representative.

seeks to generate new explanations. It does not seek to provide a definitive explanation, or to prove the causal relevance of any given factor in a deductive sense. Moving towards deductive testing requires the conceptualization of new relevant concepts in ways that could be operationalized and tested across a larger set of cases. This goal lends further discipline to the approach.

The starting point for case selection, then, is to establish a dependent and key independent variable against which the larger relevant population of countries can be arrayed.

### **Towards a dependent variable**

The logic of explanation requires that what is to be explained be one entity or concept. The “vocational share of upper secondary” is calculated as the total of vocational upper secondary enrolment over the total of all upper secondary enrolment. It is a statistic constructed through UOE data collection: a joint exercise by UNESCO, the OECD, and the European Commission. Country data is coded according to ISCED, the International Standard Classification of Education.

#### *What is upper secondary?*

ISCED is made up of levels; “upper secondary” corresponds to Level 3. ISCED notes propose that, “pupils enter this level typically between ages 14 and 16”. As discussed in the introduction, upper secondary education is comprised of different kinds of institutions in different countries. I have proposed that what unifies it as a concept is that it is a phase of transition from common curriculum (ending around age 15) to different post-school destinations (reached around age 19), and therefore one of differentiating curricular, cohort and credential pathways amongst an age group.

Operationalizing this concept using ISCED 3 is compromised, however, by the method of UOE data collection, which, despite the definition of Level 3 in terms of age, guides countries to use qualification level rather than age when recording enrolment numbers. Consequently, adults who are



enrolled in programs that are equivalent in difficulty or function to those at upper secondary are also coded at ISCED 3. Appendix A provides more detail on this problem in terms of the differences between upper secondary enrolment for all ages versus 15-19 year-olds.

When conducting case selection, I was not aware of the full extent of this problem. My starting point was the *educsys* indicator of vocational orientation across countries, which uses ISCED 3V enrolment for all age groups (Bol and van de Werfhorst 2013b). Consequently, figures used in case selection include all age groups. In chapter three I detail how the exclusion of older age groups changes the observations somewhat for some of my cases.

Programs at level 3 are then coded by their orientation as general (G) or vocational (V). (In 2013, ISCED was updated so that numeric codes replaced letter codes, but these retained the same meaning; Appendix A details this update). As a result of this coding, all enrolment at Level 3 can be divided into general and vocational. UIS.stat, which, along with OECD.stat hosts current and past UOE data collection, provides the indicator “share of all students in upper secondary enrolled in vocational programs.”<sup>4</sup>

#### *What makes education “vocational”?*

The range of programs that countries code as ISCED 3V encompasses a variety of models. Changes in the nature of vocational education may form part of the explanation for changes in enrolment, consequently, it is necessary to have some sense of what the different programs are and their qualities. But, it is not my goal on this study to *evaluate* the changes observed.

<sup>4</sup> The OECD does not provide the indicator in this form but for most years includes the enrolment figures for vocational and general education. Over time, the term that the OECD uses to refer to ISCED 3V has changed: “pre-vocational and vocational” (from 2004); to “vocational/professional” (from 2013). The second change is in line with changes to ISCED.

The first and perhaps archetypal model of vocational education is the apprenticeship, which combines learning on the job coupled with a smaller portion of time in school-based learning. Around the world, programs labelled as “apprenticeships” can vary in the length and quality of the employment contract, of training, and of final assessment. In the German-speaking countries with the most established procedures, this model is called – indeed branded – the “dual” system and has long served as a model for other countries (Culpepper & Finegold, 1999; Hansen, 1999; Heikkinen & Lassnigg, 2015). In relation to the special recognition of apprenticeship and work-based vocational learning more generally, reviews of research on vocational education often try to make distinctions based on the location of learning (Green, Oketch, & Preston, 2004; Ryan, 2001). UOE data collection has sporadically tried to report on school-based and work-based enrolment rates separately.

Across countries, not all apprenticeship education is recorded at ISCED 3; some is classified at the more advanced levels of ISCED 4, 5 or above. (The UK has recently introduced “degree apprenticeships”). We should therefore be alert to differences between Level 3 as opposed to other forms of apprenticeship. In many countries, the more common form of vocational education at the secondary level is a program taken predominantly at a school or college, with perhaps a short period of work experience or internships. A final type to differentiate is school-based vocational education courses which do not necessarily form part of a stand-alone qualification but are part of a high school diploma or general secondary certificate. This type would not necessarily be coded as ISCED 3V and so likely does not appear in international statistics, but may be what is referred to locally as vocational education (or the local equivalent term, e.g. CTE). The wider field would benefit from a clearer demarcation of this type to avoid eliding it with those above, as its mechanisms are quite different.

From this variety of structures, we can extrapolate some core features to distinguish between quasi-vocational-learning-in-schools, vocational courses, and apprenticeships. These sit on a spectrum which vary in the extent to which they provide (1) an employer-assessed credential which certifies occupationally-specific skills and (2) supervised experience in a workplace. Prior research has observed mechanisms linking these two features to good outcomes, and so would suggest that higher “values” on each of these variables be desirable (M. R. Busemeyer 2009; Grubb 1996a; Halpern 1998; Thelen 2004). But to reiterate from above, the purpose of highlighting these features is only to provide some frame for interpreting changes over time.

### **An independent variable**

The definition of vocational education provides an independent variable in the reform of the conditions for quality vocational education.

My case selection started with a larger set of cases to which explanations might transfer. I started with a set of 15 large post-industrial democracies. I specifically included all the large English-speaking countries which are more poorly represented in Euro-centric research on school systems (e.g. Anderson & Hassel, 2013; Busemeyer, 2014). I did not include any Asian or post-Communist countries on the grounds that historical differences are too great to make sense of in a small number of cases. Appendix B includes details of this set.

From these countries, I identified twelve examples of vocational pathways and coded each according to the features likely to make a successful pathway (see Appendix B2). Existing research would imply that those with the highest scores should be most sustainable over time. As it is, they vary considerably. Figure 4 shows the cases arrayed in terms of the observed change in the vocational share of upper secondary ( $y$ ) and the conditions for quality vocational education ( $x$ ). We can see that

some seemingly weaker pathways have had a big increase, and some seemingly stronger ones had a big decrease.

In line with the logic of my case selection, I seek a set of “diverse” cases that illustrate different values on these two variables. The four selected cases are in bold.

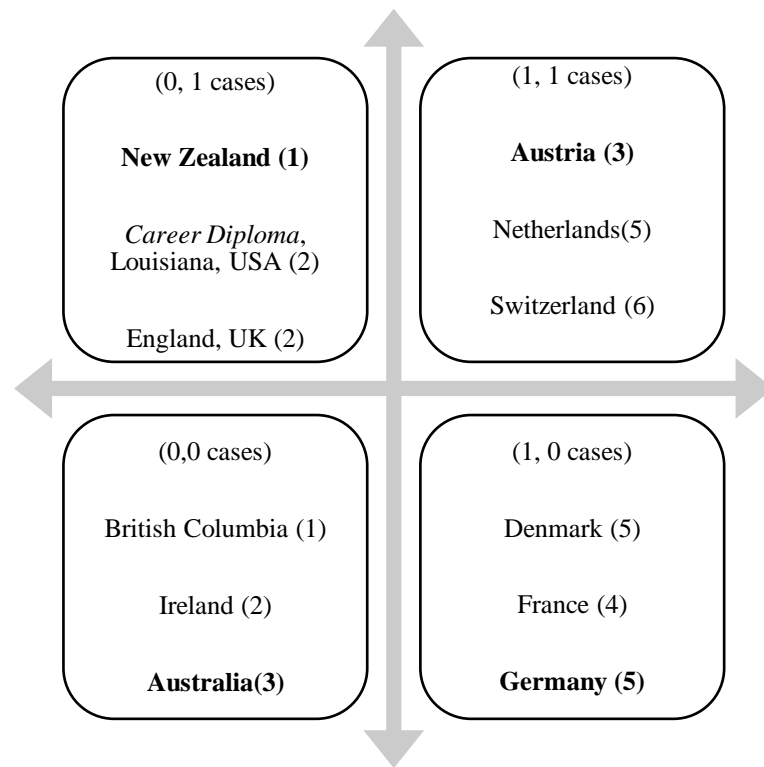


Figure 4. Case selection

In this graphic, the *x*-axis represents variation across countries in the conditions for viable high-quality vocational education, moving from weaker conditions on the left to stronger conditions on the right. Appendix B2 details the coding of this variable. The *y*-axis represents change in the vocational share of upper secondary. Cases in the top half have had a stable or increasing vocational share. Cases in the lower half have had a decreasing vocational share. Where OECD data was not available (as in the case of the USA or Canada) local data was used for specific programs.

As well as representing different conditions for vocational education, these cases are representative of the different archetypes of upper secondary systems. Within the school-work transitions literature, Australia and New Zealand represent an “education” logic, with a dominance of academic secondary education but a reasonable minority of vocational enrolment, while Germany and Austria represent an “employment logic”, with high levels of work-based secondary vocational education (Deissinger, Smith, and Pickersgill 2006; Iannelli and Raffe 2007; Polesel 2017). More broadly, in

comparative political economy, Australia and New Zealand are classic “liberal democracies” (or “liberal market economies”), where the processes and outcomes of public policy orient towards for a more free-market approach promoting individualism. Germany and Austria are archetypal of “corporatist democracies” (or “co-ordinated market economies”), where employers are closely integrated into regulatory politics and public policy assumes the stability of concepts such as the firm and the family (Esping-Andersen 1989; P. A. Hall and Soskice 2001; Schröder 2013).

While each of these typologies has their limitations, the consistent contrasting of these pairs of countries is testament to considerable differences between them and similarities within each pair. As such, according the logic of most *similar* cases, the diverging outcomes *within* each pair offer good leverage to refine a theory; and according to the logic of *dissimilar* cases, the differences *between* the pairs offer a good test of generalizability (Seawright and Gerring 2008). If there are explanations which apply across these two pairs of cases, there is a better chance that they would be transferable to different sets of institutional conditions.

To illustrate the current expectations of educational attainment between generations across these cases, I compare educational levels in census data which captures the attainment of individuals who were, roughly, entering upper secondary education at the start of my focal period (the oldest members of a 25-29 age group in a 2011 census would have been 14 in 1994). Table 5 represents consequences of the educational choices of those who went through upper secondary education at the start of the period of change, and also captures something of the preceding trends by comparing their attainment to that of the generation 20 years older. (See Appendix C1 for corresponding categories and an alternative table for the 30-34 age group).

While revealing some commonality, we can see differing rates of higher education attainment versus vocational attainment. Appendix C provides various other comparative baselines for understanding

differences between them. Appendix D provides further introduction to salient features of each of these countries.

Table 5. Change in highest qualification level from 45-49 year olds to 25-29 year olds (share amongst 25-29 year olds).

	Germany	Austria	Australia	New Zealand
Higher education	+0.29 (18.9%)	+5.7 (15.9%)	+10.1 (31.1%)	+7.9 (28.8%)
Post-secondary technical	-2.8 (10.8%)	+6.9 (14.1%)	-1.0 (8.9%)	-1.2 (8.1%)
Apprenticeship / vocational certificate	-4.7 (46.3%)	-8.4 (29.7%)	-0.1 (21.6%)	-4.2 (17.4%)
Compulsory education or below	-1.0 (12.8%)	-1.8 (16.3%)	-20.0 (22.8%)	-8.2 (19.4%)

Source: Census data (Germany, Austria, Australia: 2011; New Zealand: 2013)

### *Bounding the cases in time*

A final key decision to make when selecting cases is what time period to look at. I am focused on the most recent two decades of available data, roughly 1995-2016, but it is important not to be too rigid in this focus. Without an awareness of the historical context of each case, we are liable to ascribe to contemporary factors features which may be better explained by path dependency and other temporal processes unfolding in individual cases (Mahoney and Thelen 2015, 20–27; Pierson 2004). In this period in particular, major recessions at the start of the 1990s had economic impacts which might make 1995 look quite different from 1990; taking 1995 as a rigid starting point could therefore lead to a distorted conception of change over time. In general, while the change I have sought to explain is that which takes place in the 1995-2016 time span, in investigating foundational explanations of this change, I looked as far back in time as was warranted by available evidence.

With the view that a key criterion of validity in qualitative or mixed methods research is transparency on the process, the below describes key aspects of my fieldwork and analysis.

## **Data collection**

### *Quantitative and document sources*

I started by collecting available quantitative data at the country, state, and in some cases school level for each of the four cases, including program and apprenticeship enrolments and completions, school enrolments, and employment figures. Appendix E1 includes a full list of quantitative data sources, as well sources of official documents and reports.

To understand political and institutional changes I analyzed three main forms of data in each case: interviews with policymakers, school leaders, teachers and researchers (conducted between September 2016 and January 2019); newspaper archives from the 1990s onwards (primarily collected Fall 2018); and parliamentary records from the 1960s onwards (primarily collected Spring 2018). Further detail on use of these sources is below.

### *Fieldwork*

Fieldwork proceeded through a series of visits to each country, including visits to multiple cities/regions in each country (four in Australia, Germany, New Zealand; two in Austria). I conducted a total of 102 interviews (listed in appendix E2).

Interviews were not weighted evenly across the cases due to a better network of contacts and less of a language barrier in Australia and New Zealand; see below for an attempt to remedy this imbalance through media analysis. I did aim for a balance in types of insight across the cases, however. The main function of these interviews was as key informants. I located individuals who could enlighten me about changes in the employment and school conditions in the country. This included key

researchers but also policymakers, school leaders, and key stakeholder representatives. The list does not include informal conversations in each country.

In addition, I drew on the Teach First/Teach for All network to speak to teachers in less academic schools (non-selective schools, lower-SES schools, vocational schools), as I had less of an impression of their experience through my informal conversations and social networks. TFA now has programs (of different kinds) in all four of my case countries. While TFA teachers are not representative of the teaching profession as a whole, and their programs differ somewhat in each country, their network allowed me to interview similar kinds of teachers across Australia, Germany and Austria, and people who, with something of an insider-outsider role themselves in their schools, had interesting insights about the culture of teaching and schooling in their context.

#### *Alterations to the strategy*

My initial intention in approaching the cases was to treat Australia and New Zealand as my primary cases for investigation, and Germany and Austria as cases in which to test the generalizability of theories. I assumed that developing a complete explanation of vocational change over two decades in each of the four countries (three of which are federal systems) would be beyond the scope of an individual project. It became evident in the course of my investigations, however, that the similarities in experience across all four cases were worth more focus, and I therefore adapted my approach to spend more time understanding Germany and Austria. I adapted my qualitative data collection to focus on the urban areas of these countries which have experienced more rapid change.

I had noted at the outset that as English is my first language, it would be complicated to reach the same level of insight concerning Germany and Austria. Given the above, I employed two tactics to approximate a similar level of understanding. The first was to make extensive use of newspaper



comment archives and google translate. While google translate is far from perfect – particularly when working on newspaper comments written in slang or shorthand – coupled with my prior German vocabulary and continual diligence with online dictionaries it allowed me to take in much larger volumes of information in German than I would otherwise have been able to. Newspaper comment archives provide insight into social perceptions over time. While one cannot interpret any given comment as representative of public opinion – it is not a typical person who comments on newspaper articles – select detailed comments often provided insight into a phenomenon of the past that I could then go and investigate. I focused on two newspapers: *Die Zeit* (Germany) and *Der Standard* (Austria), primarily for the quality of their archives: [derStandard.at](http://derStandard.at) is a web portal of articles starting in 1995. [Zeit.de](http://Zeit.de), for a fee, provides access to a searchable archive starting in 1946. *Die Zeit* also has the advantage that it has an Austrian version, allowing for some comparison of coverage across the countries. I also chose these papers because, while they are considered “newspapers of record”, they are acknowledged to be somewhat left-leaning and approximate the norms and beliefs of my general cultural milieu, including in Australia and New Zealand. Had I focused on more center-right newspapers, I might have developed an inaccurate sense of cultural differences across the cases.<sup>5</sup>

<sup>5</sup> It would be easy to illustrate what appear to be cultural differences through quotations, but my impression, developed over the course of my fieldwork and analysis, is that there is as much difference in cultural beliefs within these countries as there is between them. The views of someone from rural southern Germany and from Hamburg seem as different – and as similar – to those of people from rural Queensland and Melbourne. For this reason, while I believe I have a proclivity to cultural explanations due to my background studying literature (I find compelling, for example, Cathy Jo Martin’s explanation of different educational beliefs between Denmark and the UK using descriptions in children’s literature), I try to view such differences as indicators of – i.e. epiphenomenal of – underlying structural differences. As appears in the cases, I found differences in policy and structure can go a long way to explaining perceived cultural differences.

I searched these archives for key terms such as “*Ausbildung*” or “*Hauptschule*”. My collection based on the search term “*Bildungsstandards*” in the German *die Zeit*, for example, which is the largest, include extracts or entire text from 109 articles, from 2018 to 2002 (prior to that, the earliest reference is from the 1970s). I subsequently added these extracts with my interview texts in Atlas.ti, where I conducted thematic coding.

### **Data analysis**

My analysis proceeded in two phases: a stage of within-case analysis to establish explanations of vocational change fitting for each case, and then a stage of cross-case analysis to develop a more transferable explanation.

These phases operated with different logics. The first is that of process tracing. As I worked through my data, I hypothesized about what could explain a particular change and what would be observable if that hypothesis were true, and then sought contradictory evidence for those hypotheses (Bennett and Checkel 2014; P. A. Hall 2006, 20). In essence, I looked at two kinds of evidence: evidence as to whether there is a correlational change in enrolments related to the proposed cause, and evidence on whether proposed mechanisms of change are present. In explaining different longitudinal trends, I sought to understand not relationships between variables but how variables relate *over time*. While I was alert to factors operating as necessary conditions for a change to be possible, the key factors of interest were the kinds of mechanisms or processes that were causing something to *develop* in a particular way, taking into account the perspective of strategic interaction whereby earlier decisions change the choice architecture for later decisions.

The second logic is that of comparison. In explaining an individual case, there are many kinds of factors that could be thought of as explanations. To develop cross-case explanations, however, one wants to understand to what extent a factor explains variation across cases. Consequently, a

consistent logic of comparison is deployed; in the second stage of analysis, I formulated hypotheses in a way that they could explain not only change in one case but the different kinds of change observed across all four cases. I then carried out the same approach of seeking contradictory evidence that would rule out that explanation.

The triangulation of qualitative insights with quantitative and media data illustrates the benefits of a mixed methods approach. In general, many of my informants represented atypical relatively extreme positive or negative perspectives on the education system: researchers or policymakers were more informed about trends and policy than the typical citizen or educator, and educators often worked in schools that were much 'better' or 'worse' than the average. They were also primarily based in cities. Quantitative data helped to highlight the role of urban/rural divides, as well as of slower demographic change. In contrast, interview data also prompted early refinements of my course, by alerting me to misconceptions created by study of the international trends. For example, I realised that OECD data was not telling the whole story of Australia, when I mentioned to an Australian friend that I was looking at changes in vocational education and got the response, "oh it's out of control isn't it!" I had thus far had the impression that vocational enrolment was in decline in Australia).

Data analysis can be unending. I have tried to settle on the explanation that is most parsimonious whilst still accurately explaining variation across the cases.

### **Limitations**

Comparative data on secondary vocational education is imperfect; while figures are available for many countries, the underlying methods of producing these figures may not be comparable. This in turn stems from the messiness of the concept: secondary vocational education can refer to multiple types of programs in different contexts, each of which may be open to different influences. I have

tried to limit these difficulties by focusing on a reduced number of cases on which there are relatively detailed datasets, to decompose this messy central variable into its constituent parts. In taking this approach, the methods of this study cannot match a large-n analysis in terms of the precision or reliability of conclusions. A key danger is that a proposed explanatory framework may explain these cases at this point in time but no others, or that other, unaddressed variables or processes would have equal explanatory power in these cases and be preferable for applying to others. To mitigate against this limitation, the goal is to frame the theory with sufficient parsimony and set out the empirical detail of the cases sufficiently clearly that testing could be replicated in other cases.

The second major limitation is in my knowledge of the cases: I did not live long-term in any of the case countries and so my understanding is reliant on informants and primary and secondary sources. A key danger here was that I would develop an unbalanced understanding of cases and bias my conclusions by comparing deep analysis of one context with surface analysis of another. I have addressed this limitation by selecting cases where I have a relatively comparable level of knowledge: countries I have visited several times and where I have the benefit of existing contacts. In this way, I aim for a medium level of depth in all cases.

A note on language and formatting: as is typical, I have placed German-language words in italics when first used. For words which are used frequently, such as “Hauptschule” or “Gymnasium” (secondary school types) once they have been introduced I used them without italics to allow for easier reading.

### **Chapter 3. Beyond the binary: the merging of academic and vocational pathways**

Chapter two introduced potential problems with the comparative indicator for upper secondary vocational education. This chapter uses alternative data sources to provide a fuller picture of changes in vocational enrolment over time in the four country cases. I use this data to construct within-case explanations of vocational change in the period 1995-2016, taking into account earlier trends and accounting for the influence of employment conditions. These mini-cases provide the basis for later cross-case explanations.

The key finding of this chapter is that in contrast to what is implied by the division in comparative statistics, *academic and vocational education no longer form distinct pathways in any of these cases*. Diverging statistical trends consequently emerge as much from different approaches to coding hybrid pathways as they do from actual differences in young people's educational choices. And yet, these coding approaches are not arbitrary. There are important substantive differences in the hybrid pathways that have emerged in terms of their vocational content. The subsequent three chapters explain why this is the case.

#### **Within-country enrolments in upper secondary education**

In chapter two we observed puzzling patterns in upper secondary enrolment rates as recorded by UOE. The first step towards explaining these patterns is to peel back the coding process through which UOE creates comparative statistics. This process involves civil servants creating concordances to map their various educational programs to particular ISCED classifications. These decisions determine whether a given program is classified as Level 3 (upper secondary) and as

“general” or “vocational”. For Germany and Austria, ISCED mappings are logged each year by the European commission. The tables below use the mappings for 2017 (CIRCABC 2018). For Australia and New Zealand, ISCED mappings are available from UNESCO (UNESCO 2016). Only a 2013 mapping is available (recording the new classifications after revisions to ISCED).

By consulting these mappings, we can reverse engineer the process and construct more detailed accounts of the share of enrolment in different level 3 programs as it currently stands. The sections below present a decomposed picture of ISCED 3 enrolment for each of the country cases in the most recent year available, before moving to consider how this balance of enrolment has been reached over time. In each case I establish the key change that has occurred in upper secondary over the past two decades and how it relates to the overall picture of enrolment.

### **Germany: vocational change 1995-2016**

Table 6 shows enrolment across different ISCED 3 programs in Germany (all programs that include more than 1.0% of level 3 enrolment). The largest share of level 3 enrolment is in apprenticeships (the dual system). For comparative purposes, the table also includes the two types of programs which are aimed at upper secondary age students, but are allocated to ISCED level 2.

As we saw in chapter two, amongst OECD countries, Germany registers one of the most pronounced falls in the vocational share of upper secondary. If we limit ourselves to the period from 1998 to 2012, before the introduction of the new ISCED coding method, the proportion of students who were in a vocational as opposed to general pathway at the upper secondary level declined from 65% to 48%. This change comprised an increase of 375,000 students in academic pathways, and a decline of 400,000 students in vocational pathways. As we see below, in terms of program changes this shift is larger than that of only the change in Abitur takers, and is comprised of the movement of students into general school types, including vocational high school and comprehensive schools.

Table 6. Upper secondary (ISCED 3) enrolment in Germany by program type, 2017

Program/school	ISCED code (1997 / 2013)	Enrolment (2014/15)	Share of Level 3
Dual System: <i>Berufsschulen</i> and apprenticeship	3V / 354	1,015,825	39.5
Upper secondary schools (general)	3G / 344	994,994	38.7
...in a grammar school, grades 11-13 or 10-12 ( <i>gymnasiale Oberstufe</i> )		872,305	33.9
...in a comprehensive school, grades 11-13 ( <i>Integrierte Gesamtschulen, gymnasiale Oberstufe</i> )		105,945	4.1
Upper secondary general programmes at vocational schools ( <i>Allgemeinbildende Programme im Sekundarbereich II an beruflichen Schulen</i> )	3G / 344	372,189	14.5
...in a two-year specialised vocational high schools ( <i>Fachoberschulen zweijährig</i> )		123,432	4.8
...in a vocational gymnasium ( <i>Fachgymnasien</i> ), with the objective of a University entrance qualification ( <i>Studienberechtigung</i> )		179,106	7.0
Basic vocational training ( <i>Berufsgrundbildende Programme</i> ) replaces first year in Dual System	3V / 351	93,892	3.7
Specialised vocational school ( <i>Berufsfachschulen</i> ) studying for an occupational qualification	3V / 354	35,962	1.4
General programmes in full-time vocational schools to obtain a lower secondary diploma (16- 18 year olds)	2G / 244	67,900	na
Pre-vocational programs (16-18 year olds)	2G / 254	118,537	na

*The key indicator of change: academic upper secondary becomes the new normal*

The major change in Germany's upper secondary phase of education is the increased number and share of young people working towards the general higher education qualification, the *Hochschulreife*, known informally as the *Abitur*. In the two decades from 1995 to 2015, the number of students who acquired the *Hochschulreife* from a general school increased by around .4, from 207,290 to 287,547.

We can also see in this figure the increase in acquisition of the *Fachhochschulreife*, entry to a “university of applied science” (a polytechnic). These increases his took place in a period of demographic decline, during which the number of 18 year olds decreased by 12,000. Overall, by 2017, 53% of 20-24 year olds in Germany held a “study-qualification” (*Hochschulreife* or *Fachhochschulreife*), up from 36% in 1995 (Destasis: microcensus).

<sup>6</sup> The *allgemeiner Hochschulreife* translates as “general qualification for university”: “reife” attaches to the type of institution it grants entry to. “Hochschul”, while it looks like it would just translate as “high school”, refers to universities.



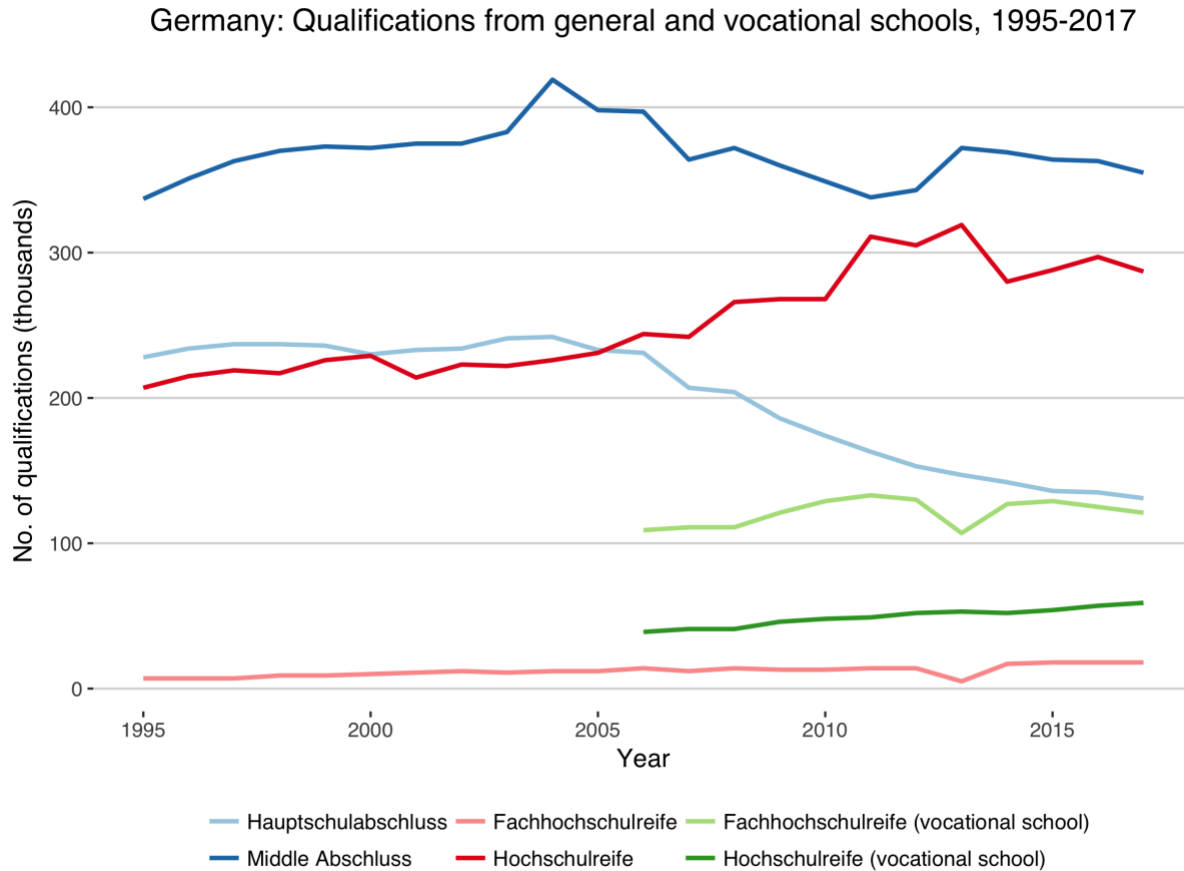


Figure 5. Germany: qualifications from general and vocational schools, 1995-2017.

Data source: Statistik der allgemeinbildenden Schulen: Absolventen/Abgänger (graduates/leavers) nach Abschlussarten (qualification type), available by state and region. Note: A hump is visible where the number receiving the Abitur was higher, peaking at 310,811 in 2011. These were years of “double” cohorts exiting the Gymnasien in various states, associated with the reduction in the length of the school type from nine to eight years (the “G8” reform). Different states underwent this reform at different points, creating larger cohorts of school leavers from 2007 to 2012. By 2015, most of the impact had faded, and some states had reversed the reform. The 2017 figure is very similar to 2015 (286,790)

These figures only capture students who *attain* a study-qualification, however, so do not capture all those who are on an academic pathway. By 2017, 58% of 17 year-olds were working towards a higher education qualification, either in a Gymnasium, comprehensive school or vocational high school.<sup>7</sup> The path to higher education represents a new normal as the late adolescent experience. In contrast, 19% of 17 year olds were in the dual system of apprenticeship.

<sup>7</sup> It is now possible to see the location of all of a given age through an integrated dataset of the education and training systems (*Integrierte Ausbildungsberichterstattung*, iABE, held by the *Statistisches Bundesamt*). iABE separates out people by

*A related change: upgrading of the modal pathway to apprenticeship*

The change in school pathways has not replaced apprenticeship but shifted it upward. The share of new apprentices with a study-qualification has been steadily growing by a percentage point a year since 2009 (when robust data collection on school degrees began) and the share with the *Hauptschulabschluss* has been declining in sync; it now stands at 29.2 : 24.7 (BIBB 2019, 141). This shift is consequential for German's share of vocational enrolment as indicated by ISCED 3V. Students who enter an apprenticeship *after* completing the Abitur can be registered in UOE collection at ISCED Level 4 (454) as "second cycle" apprentices. In the latest detailed entry of UOE collection (2014/15 school year) there were 274,056 such apprentices, a quarter as many as are registered at Level 3 but still a substantial number.

The changes to young people's modal qualification and to the modal pathway into apprenticeship can be understood as occurring in-step. On the one hand, employment changes lead: decline in the manufacturing sector in the early 1990s, following reunification and in line with an international recession, required adaptation of the dual system of apprenticeship towards new occupations (Thelen 2014). More of these were in the sector where it was already the case, in the 1990s, that apprentices held the Hochschulreife or Fachhochschulreife.<sup>8</sup> In addition, the decline in manufacturing employment contracted the apprenticeship market and created a context where there were insufficient training places for the number of young people seeking apprenticeship. This

"sector", the dual system being the first. The third sector is those pursuing a tertiary entrance qualification: "Sektor III: Erwerb HZB (Sekundarstufe II)"; HZB = *Hochschulzugangsberechtigung*, another term for both types of tertiary entrance qualifications.

<sup>8</sup> Pilz (2009) refers the phenomena of Abitur holders going into the training system is a long-term one, around since at least the 1990s. As an informal combination, it appears to have been around for longer: according to the last national census in 2011, between 15% (men) and 20% (women) of all five year age groups between 25 and 49 held a university entrance qualification and an apprenticeship qualification (implying that people going through secondary school in the 1980s were combining). The share is lower for older age groups. It is also lower in the former west German states (e.g. 10 to 15% in Bavaria); higher school qualifications were always more common in East Germany.

registered publicly as the emergence (really the growth) of the “transition system” (*Übergangsbereich*): a series of short-term courses (often one year) which ostensibly provide preparation for apprenticeship, but which teachers report observing young people cycle through without reaching any further destination [DE2, DE9] (Solga 2002; Solga et al. 2014).

On the other hand, there is evidence that employers were not the drivers of qualification upgrading. Employers have not demanded higher attainment but have adapted to the qualifications young people come with [DE3]. The majority (61%)<sup>9</sup> of advertised apprenticeships still make explicit that they accept holders of the *Hauptschulabschluss*, the lowest school degree (BIBB 2018, 21). The apprenticeship system corrected quite quickly after the financial crisis in 2008; by 2010 already the number of new contracts in companies was growing, while publicly-funded places were declining (BIBB 2011). The overall size of the transition system has declined by about a quarter (c. 115,000) from 2005 when collective data began; as of 2016, 15% of 17 year olds are in the transition system.<sup>10</sup> This is in line with the fact that, looking across state-level data, many states have had stable manufacturing employment for the last 25 years (Figure 6). While the manufacturing sector in many states contracted considerably in the years after 1989, with the exception of NRW this decline was over by the mid 1990s. In a number of states, including Bavaria, Baden-Württemberg and Lower Saxony, it has been gradually growing again.

<sup>9</sup> The *Bundesagentur für Arbeit* (federal agency for work) started in 2017 to collect statistics on what school certificate is expected by training places. I was interested in whether this fluctuated over time and conducted my own search of the main online apprenticeship portal (<https://www.ausbildung.de/>). On 6/12/19, there were 91,431 advertised training places open to someone with the Abitur, 88,211 for someone with the Fachabitur, 72,787 for someone with the Mittlerer Reife, and 45,371 for someone with the Hauptschulabschluss (c. 50%). On 1/23/20, these around 5% less overall but 5% more for those with a Hauptschulabschluss. This might imply that these become scarcer over the course of the year, contributing to a sense of limited options.

<sup>10</sup> iABE: *Sektor II: Integration in Ausbildung (Übergangsbereich)* (see endnote 7).

Germany: Manufacturing employment by state, 1991-2017

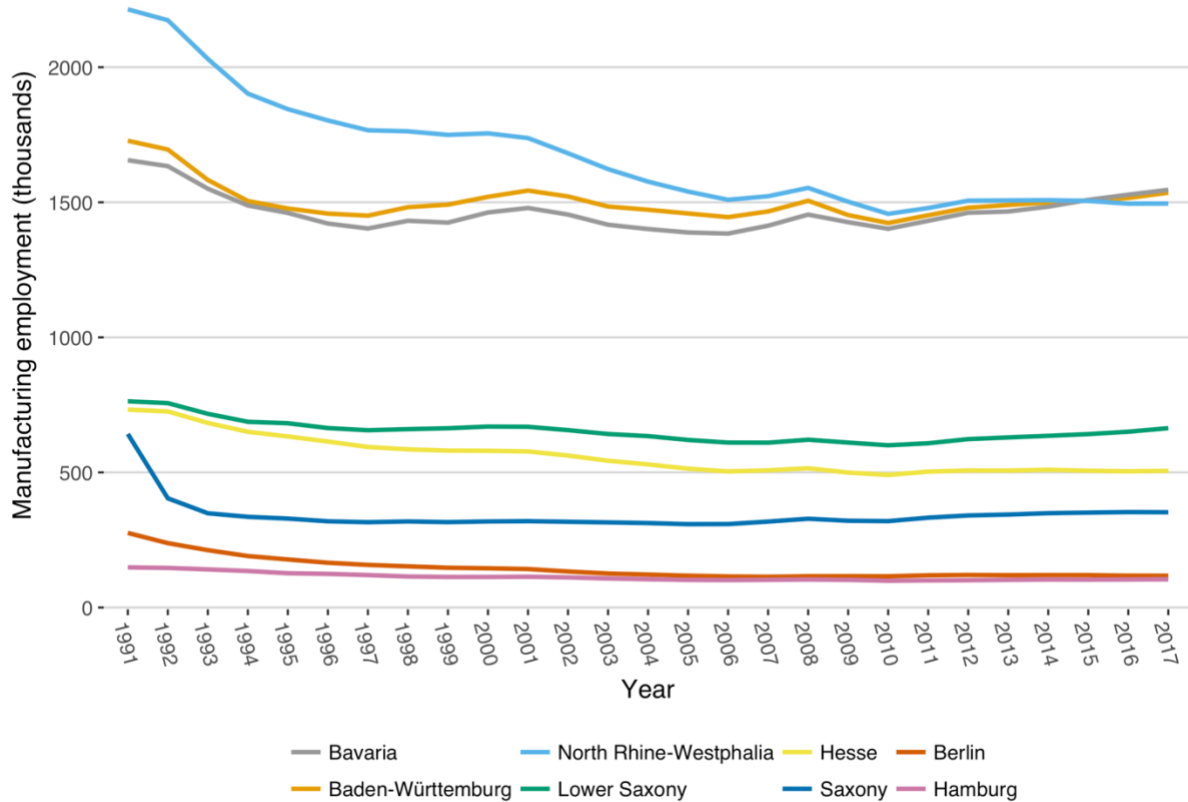


Figure 6. Germany: Manufacturing employment 1991-2017, six largest states and the two city states  
 If the picture of the apprenticeship market is increasingly one of stability, what explains the rest of the dramatic change in upper secondary enrolments.

*The key change? New academic pathways in the school system*

Additional sources of change appear in changes in enrolment across major school types (Figure 7). We saw from ISCED data that the vocational high schools (coded as general education) are now an important location at upper secondary. Looking in national data, they appear to have had only a small rise, but their development is somewhat disguised from trends below due to alternative names. They are also mostly hidden from ISCED, as some are located at level 4 (Table 7). While these programs are relatively small numerically, they are mostly state-specific and are increasingly significant in those states. For example Bavaria’s *Fachoberschule* play an equivalent role to the

*Fachgymnasium*, providing 13% of Abitur attainment by 2010. By 2010, over 30% of young people in Baden-Württemberg and Hamburg were receiving the Abitur from a vocational gymnasium (Helbig and Nikolai 2015, 111–16). This development is explored in chapter four.

Table 7. Additional programs enrolling youth at the upper secondary level, but coded as post-secondary (ISCED 4), Germany ISCED mapping 2017

Program/school	ISCED code (1997 / 2013)	Enrolment (2014/15)
Vocational programs offering an occupational and study-certificate <sup>11</sup>	4V	59,826
Fachoberschulen, 1 year leading to the Fachhochschulreife	4G	16,198
Berufsoberschulen/Technische Oberschulen	4G	20,739

<sup>11</sup> Defined in the ISCED mapping as: “(Vocational programmes offering both an occupational qualification [*Berufsabschluss*] and a university entrance qualification [*Studienberechtigung*] (simultaneously or one after the other)”

In addition to the growth of vocational high schools, Gymnasien grew in the 1990s, while comprehensive schools expand from 2010s. Complementary declines occurred in the lower secondary schools which feed the vocational sector: between 1998, the start of national statistics, to 2015, the number of students in *Hauptschulen* and *Realschulen* declined by just under a million (979,437). If half of those students previously would have gone directly into apprenticeships or vocational school (as opposed to an upper secondary school), this alone explains the change observed at upper secondary.

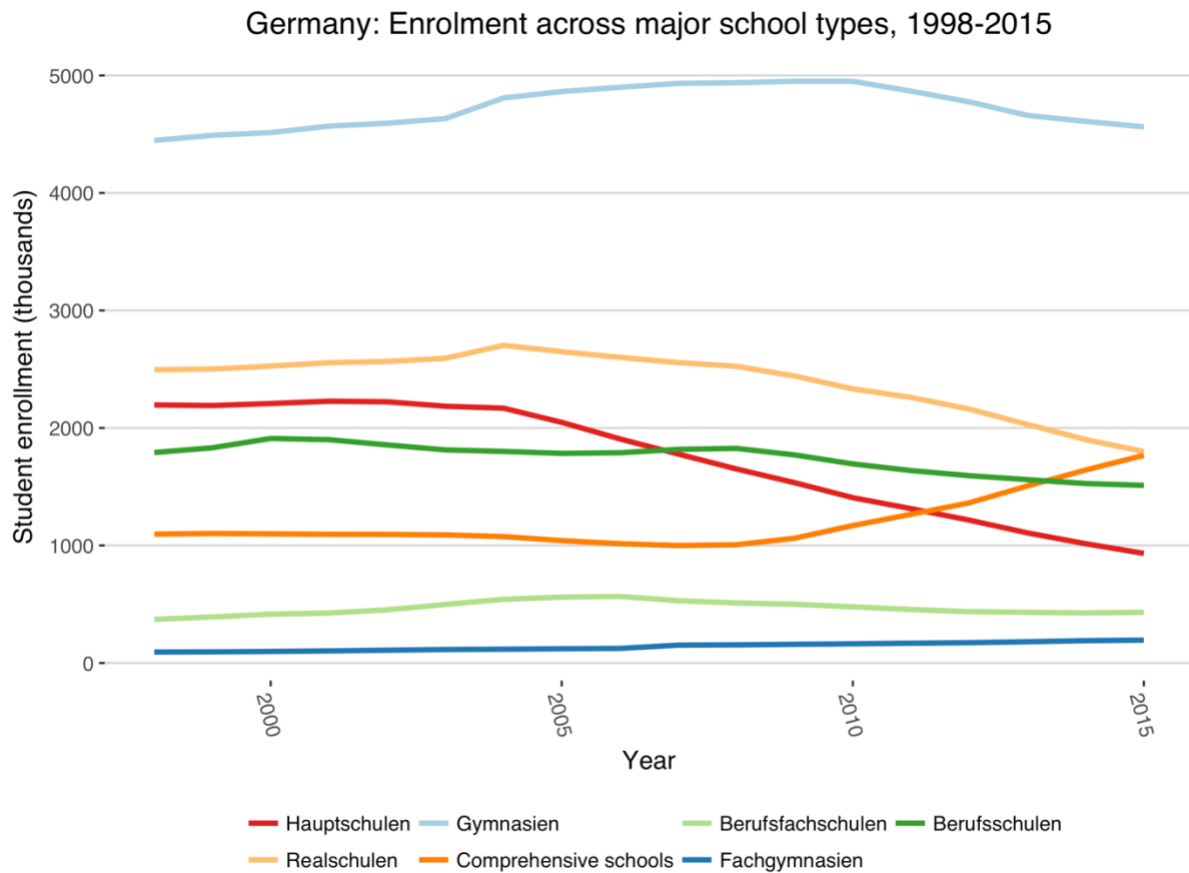


Figure 7. Enrolment in major school types in Germany, 1998-2015.

Data source: Schulen und Schüler, Statistische Ämter des Bundes und der Länder, Deutschland, 2018.

The shift that has taken place means that overall, there has been no decline in young people choosing apprenticeships, rather they are no longer choosing the schools which traditionally fed it.

The best indicator of this is the relative stability of overall apprenticeship numbers (at around 0.5 million new starts each year), coupled with their changing age profile. In 1995, almost half (49%) of new apprentices were *under* 18 year old; by 2016 (the most recent year of statistics) this proportion had fallen to almost a quarter (27%).<sup>12</sup> Likewise, the number starting apprenticeships over the age of 20 has doubled, and the share starting over the age of 24 has risen six percentage points since 2007 (BIBB 2018, 165–67).

*Summary: vocational change in Germany – why is Abi+Lehre a new normal?*

This section provides an explanation of what we observe in German’s international comparative statistics. The shift experienced is not simply one of young people moving from vocational to academic education, but one of upgrading: more people are getting a tertiary entrance qualification and then going onto an apprenticeship. They are combining higher levels of academic education to develop general skills and still maintaining the system to develop occupationally-specific skills.

On the other hand, it has created problems. Local informants see the growth in Abitur-seeking and decline in younger apprentices as part of a undesirable development in exacerbating inequality of opportunities [DE11, DE9, DE6] cf. (M. Jacob and Solga 2015; Protsch and Solga 2016). Young people who do well in school are now more likely to end up doubly-advantaged, with an entry qualification for higher education and for the labor market. Meanwhile, those with the lowest school qualification seem increasingly pushed out. And yet, in the most recent years of monitoring, the proportion of unsuccessful apprenticeship applicants with a tertiary entrance qualification has been

<sup>12</sup> 1993 was the first year that age was recorded in VET statistics, based on surveys of apprentices. From 2007, age was collected for all participants. Statistics across this time span are not directly comparable therefore, but the age increase has been steady across this period, including from 2007 on (BIBB 2016, 35).

*higher* than that with the lowest school degree (BIBB 2019). There appear to be insufficient places for these increasingly qualified young people.<sup>13</sup>

The important question is how this development has happened if it is not in the interests of employment. If a large part of the increased attainment of the study-qualification comes through vocational high schools, why are these not providing a perfect segue for young people into occupational training? And why do so few appear to be taking up the double-qualifying opportunities at these schools, in ways that would prompt higher rates of vocational enrolment? The next chapters examine how changes in school policy have enabled and incentivized qualification upgrading. Chapter four examines the rise of vocational high schools and how they have become an academic pathway. Chapter five investigates why there has been such change in lower school enrolment and why it has had some unintended consequences. Chapter six explains key changes in assessment that made the extent of qualification upgrading possible.

### **Australia: vocational change 1995-2016**

The next largest country, Australia, has around one million people in upper secondary, about half that of Germany, while its population is less than a third. This is because Australia has large numbers of adult education courses that are positioned at ISCED Level 3.<sup>14</sup> In the 2000 to 2015 period of OECD data which, for Australia, can be disaggregated by age, 15-19 year olds comprise

<sup>13</sup> A recent large study in North-Rhine Westphalia finds that apprenticeship applicants with a study qualification do not want to take up apprenticeship places that are associated with the *Hauptschulabschluss* (Granato, Milde, and Ulrich 2018).

<sup>14</sup> A second, more country-specific source of weakness in the data is a break in the trend in 2006 (according to UNESCO) or 2009 (according to the OECD) in which an increasing trend turns suddenly into a declining one, and, amongst the 15-19 age group, one quarter of the volume of vocational students drop out. This was caused by a removal of the ISCED Level 3V designation by Australian coders from a number of their vocational courses (personal communication, NCVET). While this change is recorded in an abrupt way (and one which threatens the robustness of the many existing international comparisons based on this data), it has its basis in a substantive change in the nature of vocational education in Australia during this period, which had previously resulted in a proliferation of short courses that were subsequently removed.



just 50-60% of the overall enrolment levels recorded at the ISCED 3. Vocational enrolment is 46 to 66% for the full age cohort, but amongst 15-19 year olds is 18 to 26%. We must keep this in mind when translating Australia's UOE enrolment figures into individual programs (Table 8).

Table 8. Upper secondary (ISCED 3) enrolment in Australia by program type, 2013.

Program/school	ISCED code (1997 / 2013)	Enrolment (2012/13)	Share of Level 3
Certificate III (Advanced vocational courses for recognised trades, technicians and other skilled professions)	3V / 353	549,245	50.5
Upper secondary or college (Secondary school, second stage)	3G / 344	501,764	46.1
Bridging or supplementary courses provided by universities to students, who require specific prerequisites prior to admission into an award programme.	3G / 344	37,357	3.4

Note on the source: For countries outside Europe, ISCED mappings are available from UNESCO (UNESCO 2016). The latest year for Australia is 2013

To construct a picture of the educational orientation of *adolescents*, the subsequent sections rely on state-level data held by the National Centre for Vocational Research (NCVER). NCVER holds student, program and course-level enrolment information.

*One side of change: an unstable rise in vocational courses*

NCVER has reconstructed a time-series of students numbers in vocational education from 1986 onwards (Figure 8). Changes in recording practices mean that 1996 is the first reliably recorded year.

From this point, there were steadily increasing numbers of 15-19 year olds enrolled in courses working towards vocational qualifications until the late 2000s<sup>15</sup>.

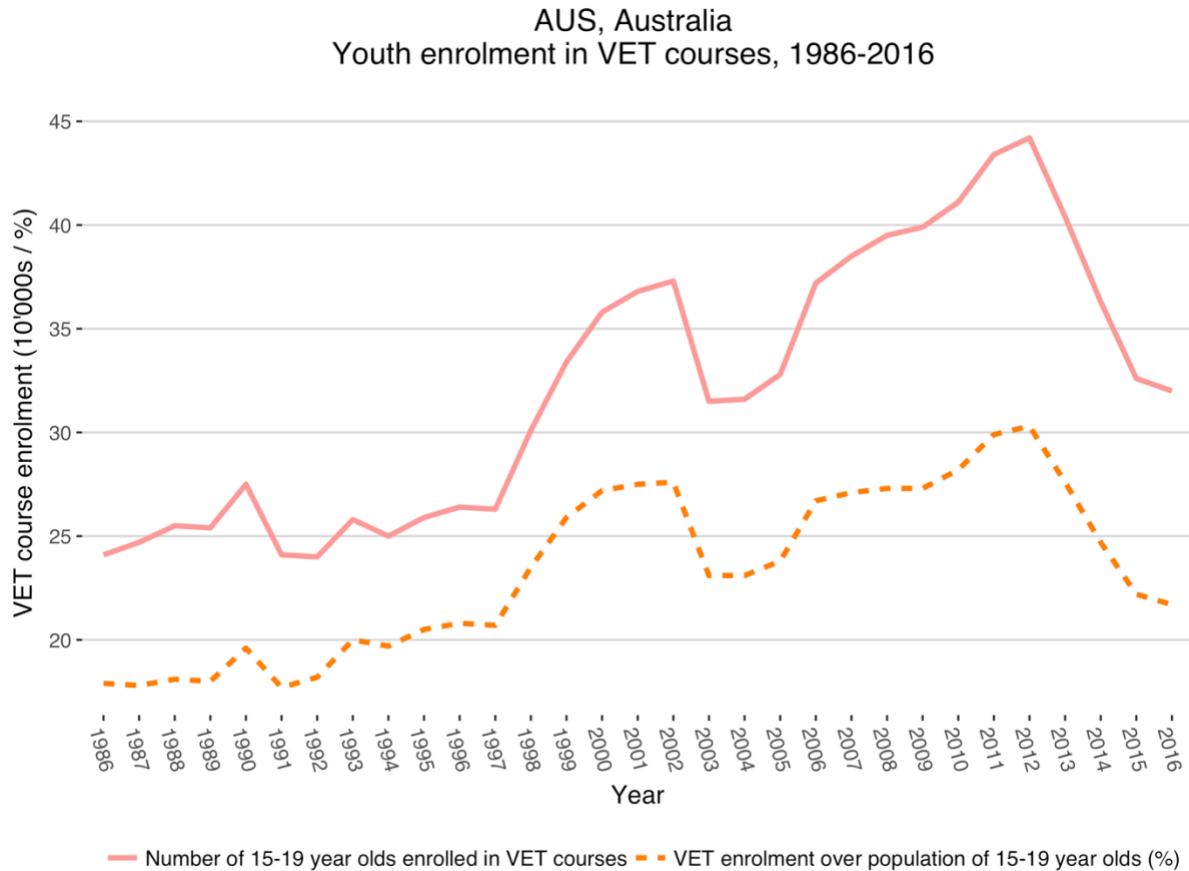


Figure 8: Overall course enrolments (NCVER) and course enrolment over the annual 15-19 population (ABS).

The fall from 2002 to 2003 represents a break in the time-series associated with the introduction of registered training organisations with unique reporting codes. As a reference point, the population of 15-19 year olds in Australia to three significant figures of 15-19 year olds was 1.35 million in 1986 and 1.48 million in 2018

Population growth was fairly low and steady at this point so this rise tracks above it; as a share of the 15-19 age group, VET enrollees rise about ten percentage points from 1995 to 2012. The resulting

<sup>15</sup> In New South Wales, Victoria and Queensland – the three largest states – the peaks comes late in 2011-12; in Western Australia, Tasmania, the Northern Territories, and the Australian Capital Territory (ACT) it is in 2008-9; South Australia peaks in the early 2000s but otherwise has a similar pattern to the other states.

share of 30% is slightly larger than that in OECD figures as it captures all certificate levels, not only certificate III. The majority of these courses were at level 2 or 3, representing one or two years of part-time study at TAFE or with a private provider. From 2003 onwards, it is possible to disaggregate by age and course level, revealing a change in the type of certificates young people were enrolled in. The share of enrolment by 15-19 year olds at Level 4 and Diploma level declined steadily, while that in level 2 and 3 qualifications increased. Higher level qualifications pushed up to the older age group: amongst 20-24 year olds, the share of enrolments in Level 4 courses increased (although the share taking diplomas declined). Up until 2012, certificate IIIs were by far the most popular level to study for the younger age group, representing double the enrolment of any other level.

From 2012 to 2016, VET enrolment as a proportion of the 15-19 population fell back to 22%. From 2012 onwards there was a period of real decline, against a continued rise in the population of 15-19 year olds. 2012 marks the peak in the rate of participation in VET for all age groups, which has been much commented on in Australia, but is located primarily in declining enrolment amongst the 15-19 and 20-24 age group. The primary explanation for this decline is the introduction in 2009 of a “demand-driven system” in higher education, which involved new student loan opportunities and lifting of a previous cap on places. Over the next few years university numbers rapidly increased and VET numbers declined.

*Decline in specificity and duration: apprenticeships, traineeships and subject choice*

Australia’s enrolment data as submitted to UOE implies no existence of apprenticeships, but apprenticeships are each associated with a certificate level and consequently a proportion of certificate enrolment is made up of apprenticeship. Amongst those aged 19 and under, starts in apprenticeships increased from 1994. This growth is associated with incentives for “New

Apprenticeships” developed by the Liberal-led Howard government from 1996-1998, targeted at the youth age group (Knight 2012; Ray 2001). Apprenticeships amongst this age group then declined again from 2003 onwards. The subsequent years saw a shift from “trade” to “non-trade” apprenticeships, the latter also called “traineeships”.<sup>16</sup> Where the trades refer to the traditional apprenticeship industries (construction, automotive, service tradesmen and skilled manufacturing), non-trade apprenticeships and traineeships cover all other fields. The distinction arose following the 1985 Kirkby report, which had, among other things, highlighted the greater occupational coverage of apprenticeships in Germany and proposed that Australia needed a larger system of apprenticeships that would include sectors outside the “trades” (Ray 2001, 23). Part of the appeal of a separate model was that traineeships could expand without having to expand the subsidies for employers associated with taking on apprenticeships. As it was, the government had committed to subsidizing traineeships to the same extent, but as traineeships were introduced to last around a year, and primarily in sectors without sector-wide wage bargaining, they represented a cheaper option. In 1994, trade apprenticeships dominated non-trades by a ratio of 5:1. From the late 1990s onwards, numbers in non-trade apprenticeships began to increase rapidly, resulting in ratios of 1:1 in Victoria and ACT by the late 2000s. Non-trades are particularly common amongst 17 year olds, where they began to outnumber trade apprenticeships in all states except New South Wales by the late 2000s (Trade apprenticeships in New South Wales are primarily in the construction sector, and so can be related to an ongoing housing boom).

<sup>16</sup> Traineeships officially are of shorter length (typically one year). While the exact distinction between trade and non-trade and traineeships and apprenticeships is different, the two are often conflated, and it appears that most non-trade apprenticeships are in effect traineeships. NCVET data records the trade/non-trade distinction from an earlier time point.

The supplanting of trade apprenticeships with non-trade traineeships follows a trend of decline in youth employment in manufacturing, to be replaced by employment in construction, accommodation and food services, and health and social care. In addition, there is evidence of young people informally organizing ways to combine work with study, outside of the structure of an apprenticeship. The number of part-time employees in the 15-24 age group quadrupled from 1985 to 2016, while the number of full-time employees fell by a third.

As an indication of the declining relationship of VET specific occupational preparation, Table 9 shows the top fields for VET certificates (regardless of location), by the level of enrolment amongst 15-19 year olds. (The completion rate shows the total number of awards over the total number of enrolments, 2015-18).

Table 9. Top 10 fields by 2015 Certificate III enrolments, 15-19 year olds.

Program field (four digit code)	Enrolments	Completion rate
Sport and recreation	35403	29%
Human welfare studies and services	25304	28%
Food and hospitality	31548	22%
Building	24622	5%
Office studies	17913	38%
Sales and marketing	12844	30%
Automotive engineering and technology	11345	6%
Personal services	9983	17%
Electrical and electronic engineering	9573	2%
Performing arts	9676	27%

We can compare this with Figure 9, showing employment change over time. While there are matches on key fields – human welfare with healthcare as the top-growing field, and Building with Construction, and Food and hospitality with retail trade, more popular than any of these is “Sport and recreation”. The generic “Office studies” is also popular, and has the highest

completion rate.

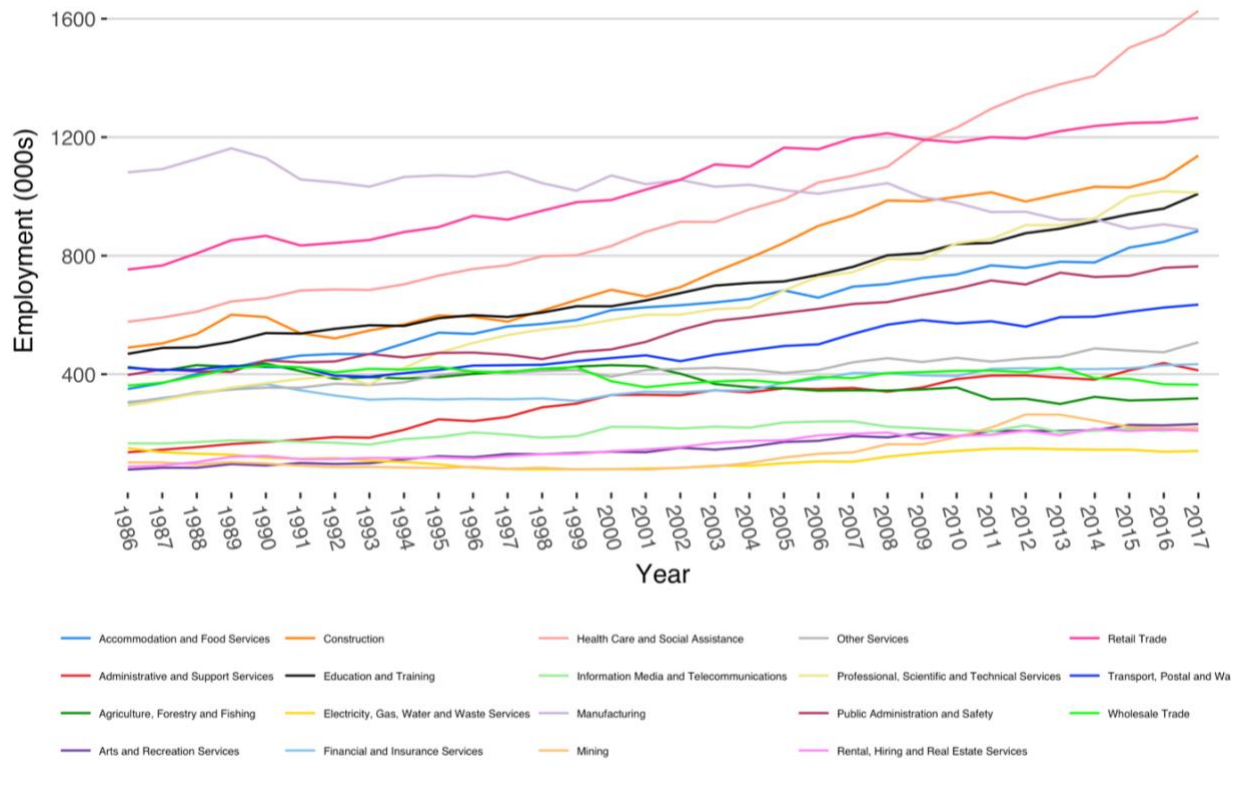


Figure 9. Australia: Employment by sector, 1986-2018 (ABS)

In considering the content of different fields, the age at which completion is typical indicates the nature of the course as primarily a school-led as opposed to occupational endeavor. Completions in Office studies and Sales and Marketing completely drop off after the age of 19, whereas completions in engineering remain steady or in some fields increase at age 20 and 21.

*Changes related to the education system: investment and school-based vocational education*

While the shift from apprenticeships to traineeships relates closely to the employment market, both program types together remain a stable and small part of youth VET enrolment. The overall increase in vocational enrolment in the 1990s is related to easier access to vocational courses in this period and a response to the 1990s recession, where youth unemployment continually tracked above adult

unemployment. To avoid this poor labor market, young people appear to have chosen vocational education instead of staying on at school: despite a target for school retention set in 1991, the school participation rate for 17 year-olds peaked in 1992 at 77% and did not go above this level again until 2010 (ABS 2001, 2019). In addition, the steep rise in enrolments from 1998 is associated with the introduction in that year of the “user-choice system”, which provided government funding for any training provider which could set up and encourage students to enrol. Overall, the shape of vocational enrolment into the 2000s suggests it was fuelled by the availability of funding and lack of desirable alternatives.

In addition, the vocational share is increasingly represented by VETiS.

#### *The key change: VET in Schools*

The rise observed in vocational course-taking is not the limit of change, however. Part of the increase in VET course taking arises from a program called “Vocational Education and Training in Schools” (VETiS), whereby students can work towards one or more vocational certificates as part of their senior secondary certificate (SSC; similar to a state-based high school diploma in the U.S., an Australian SSC includes a mixture of requirements and options). As described in the 2006 New South Wales Annual report, which included a commitment to enable more VETiS, Vocational subjects within the SSC and vocational qualifications at TAFE exist on the same qualification framework, and so in theory a student can transfer course units acquired in school towards a full vocational qualification.

Numbers enrolling in VETiS increased throughout the past decade (Figure 10). This was an active goal of states administrators.<sup>17</sup> Across the states, 30-50% of each school cohort take one vocational subject, with enrolment levels highest at government schools and in the state of Queensland<sup>18</sup> (Misko, Korbel, and Blomberg 2017). The majority of courses are at the Level II level but there has been a gradual upgrading across all states in the form of an increase of students in Level III courses and decrease in Level I courses. By 2017, 47% of the senior secondary school cohort was enrolled in a VETiS course (see Appendix F6).

<sup>17</sup> For example, from the New South Wales Department of Education Annual Report (which also gives an impression of how the potential of this hybrid was claimed at the time: “Improving the proportion of students who study VET subjects as part of their HSC in Years 11 and/or 12 is a priority for the Department. To support the increase in participation of students a wide range of industry specific VET in Schools courses is available within the NSW Higher School Certificate (HSC). Achievement in these courses contributes both to the HSC and to nationally recognized VET qualifications. Some VET courses can also contribute to university entrance. Courses are delivered by schools and by TAFE NSW (on a fee for service basis), and most include a mandatory work placement component. Some students choose to combine a school based traineeship, including part-time paid employment, with a VET in Schools course. VET in Schools courses provide students with real work skills and assist them in the transition to post-school training and work. By broadening subject choices in Years 11 and 12 these courses also encourage many students to complete their HSC.” (p. 52)

<sup>18</sup> Queensland schools also offer the greatest relative proportion of Level IV and Diploma courses within VETiS, but is criticized anecdotally for offering courses which cannot be delivered within a school certificate structure [AU11; AU22].



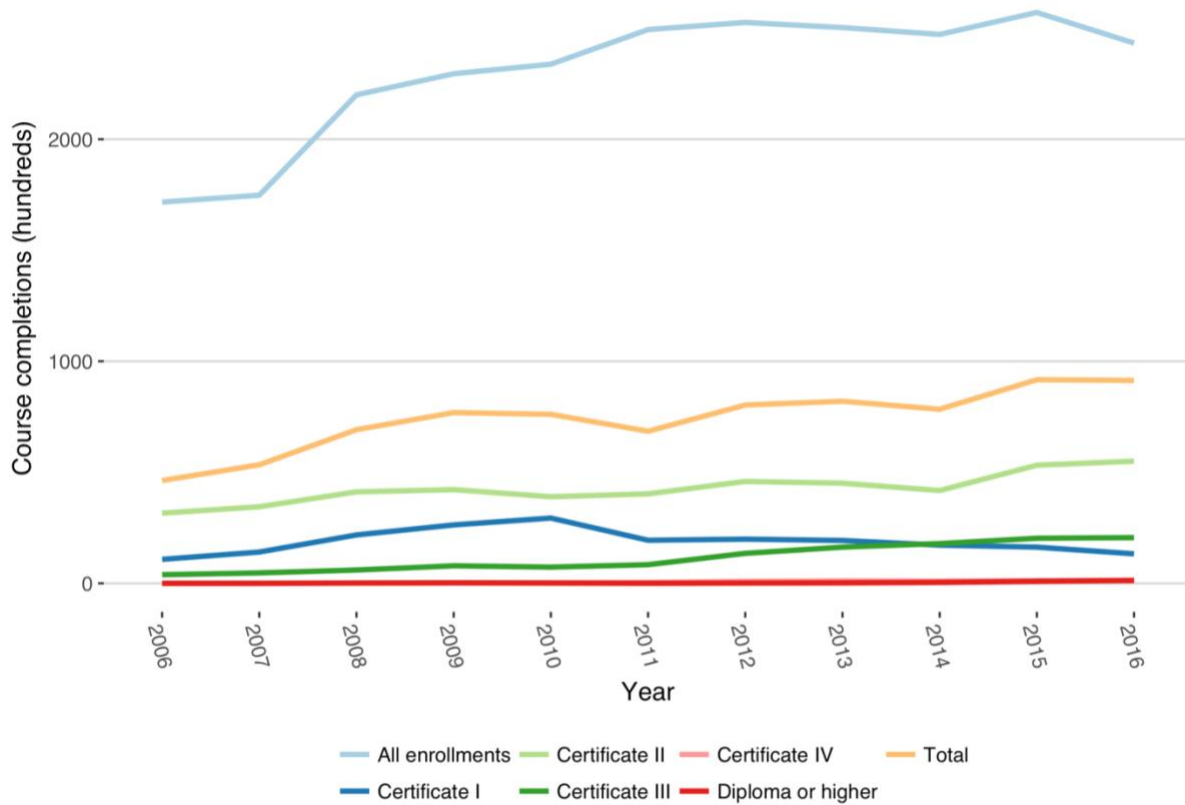


Figure 10. VETiS enrolments (all courses) and course completions (by certificate level), 2006-2016 (NCVER)

Figure 11 shows enrolments in full VET courses (typically at TAFE) and that in VETiS by field. In this clustered chart, we can see that Food and hospitality and Sports and Recreation are now more popular as VETiS options. Even Building (construction) is becoming increasingly popular as a school-based option.

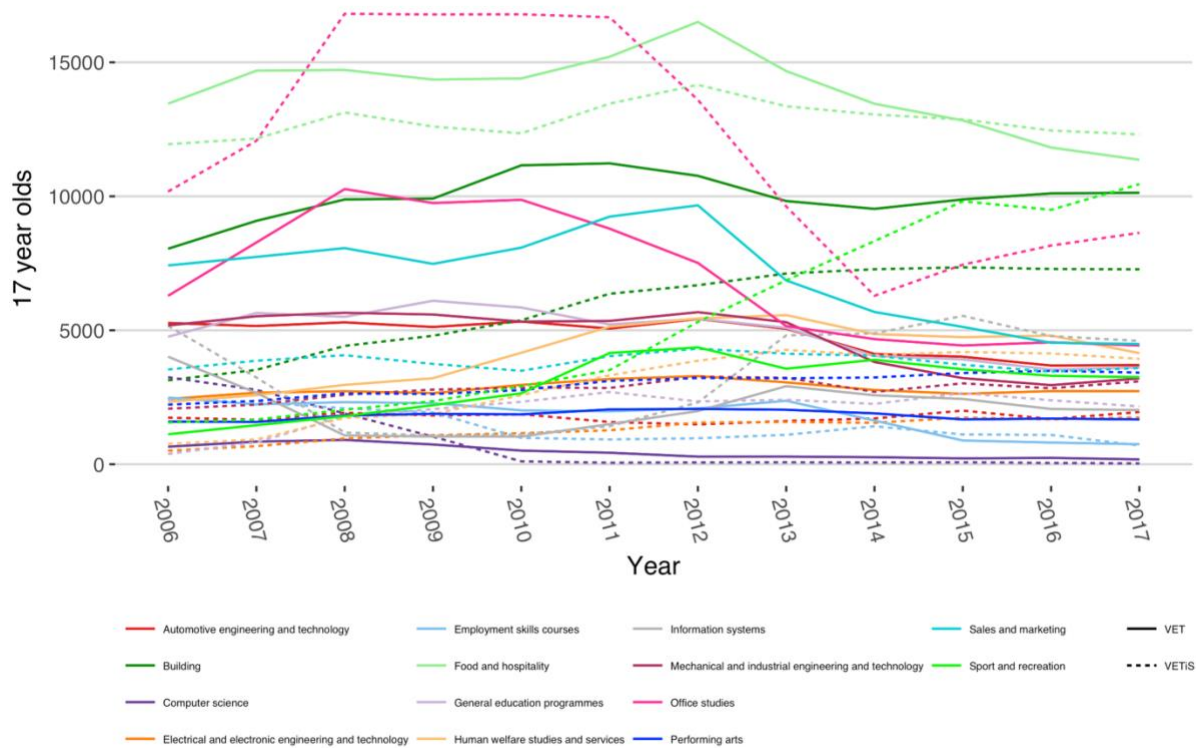


Figure 11. VET and VETiS students across popular fields, 2006-2017.

Data source: NCVER: VET and VETiS collections, program enrolments

The rise in VETiS is related to an additional portion of the age cohort remaining in schools. During the second half of the 2000s, states gradually raised the school leaving age to 17 years, an effort coupled with a drive for school retention by the Labor government from 2009. Policy changes occurred in Queensland: 2006; South Australia: 2007; Western Australia and Tasmania: 2008, New South Wales and Victoria: 2010. While there was no immediate impact (Audit Office of New South Wales 2012; Victoria n.d.), from 2011 to 2016, year 12 retention slowly increased from 77 to 84% (ABS 2019).

Increased retention in schools also explains a growing part of apprenticeship enrolment. The 1998 New Apprenticeship reform also expanded support for the establishment of “school-based apprenticeships”, as well as shorter school-based traineeships, allowing students to begin a contract

with an employer whilst still enrolled at school and working towards a senior certificate. Amongst 17 year olds (the oldest age group predominantly in school), school-based traineeships outstripped non-school-based in Queensland and South Australia starting in 2010, and in Victoria in 2014. This combination of school and apprenticeship training has implications for what kind of apprenticeship training young people pursue. Schools report difficulty working with the construction industry because of the levels of sub-contracting. In contrast, traineeships related to accommodation and food services were easier to arrange [AU30, AU35, AU43].

*What of this is “vocational”?*

The shift from apprenticeships to traineeships, and more recently to school-based traineeships, is a key change in the constitution of upper secondary vocational education in Australia in this period. It represents a gradual decline in the component of vocational training taking place in a work environment and an increase in a classroom environment, as well as increased combination of the pursuit of vocational and academic qualifications simultaneously.

*Summary: vocational change in Australia*

As in Germany, the trend in Australia is one of increased combination of academic and vocational programs. But in contrast to Germany, this combination is taking place within schools as opposed to sequentially. From 2006 to 2016, there was a four-fold increase in students taking a certificate III as part of a VET in Schools (VETiS) course. Yet the number of students completing this certificate – the required level for entry to an occupation – still represents a small portion of the age cohort. In 2017, the proportion of those aged 19 and under who completed a certificate III qualification was 3% (just over half of these did so through VETiS).

VETiS, and the smaller-scale combination of apprenticeships and school, are invisible from the perspective of international comparative statistics. Students working towards a senior secondary certificate are all coded as enrolled in a general program which provides entrance to higher education, Level 3G, regardless of whether they are also working towards a vocational certificate. This is an understandable decision given that many such students will never receive a full vocational qualification, and their vocational learning represents a small part of their weekly timetable. To code in this way, however, risks a vast discrepancy between the international picture of vocational provision and the internal impression of government, schools, parents and students.

Within Australia, dissatisfaction with the school-based system is growing and formed part of a recent federal inquiry into the school-to-work transition (Australian Parliament 2018). The next three chapters explain how the dominance of VETiS enrolment came about in terms of the design of hybrid pathways, changes in the distribution of students across school, and incentives created by the assessment system. Despite the different structural features of the system from Germany, similar factors ultimately explain why 15-19 year olds are engaging with only a very limited form of vocational provision – but are doing so in a mass way.

### **Austria: vocational change 1995-2016**

Austria, with a population about a quarter the size of Australia, has around a third the amount of Level 3 enrolment. This is not because of over-age enrolment, however, but because almost all of the 15-19 age cohort are in this level. Table 10 shows enrolment across different level 3 programs in Austria, as recorded in UOE. In addition to those shown, 1.4% of level 3 enrolment is in the upper level academic schools (*Allgemeinbildende höhere Schule*, AHS) for adults, and 2.3% is in a variety of short courses or schools for medical and nursing assistants.

Table 10. Upper secondary (ISCED 3) enrolment in Austria by program type, 2017

Program/school	ISCED code (1997 / 2013)	Enrolment (2015/16)	Share of Level 3
Dual System ( <i>Duale Ausbildung</i> )	3V / 354	111,046	31.7
Upper secondary academic schools (AHS), upper level ( <i>Oberstufe</i> )	3G / 344	85,779	24.5
Higher vocational college (BHS), grades 1-3	3V / 354	80,891	23.1
Intermediate vocational school (BMS)	3V / 354	26,927	7.7
Vocational school for agriculture and forestry	3V / 354	11,891	3.4
Polytechnic school ( <i>Polytechnische Schule</i> )	3V / 341	16,062	4.6

Austria has no level 2 programs which are aimed at the 15-19 age group. As in the case of Germany, the largest share of enrolment is in apprenticeships, but as detailed below, in contrast to Germany, most of these apprentices are of upper secondary age. From this table we also see the significance in Austria's upper secondary education of the higher vocational education schools, the *Berufsbildende höheren Schulen* (BHS). Representing almost a quarter of all upper secondary enrolment, they nearly equal the various kinds of Gymnasium, known formally as *Allgemein bildende höheren Schulen* (AHS).

Thus far, as we would expect based on studies of the contrasts between Germany and Austria, part of the explanation for Austria's higher vocational enrolment rates is the larger share of enrolment in vocational schools (M. R. Busemeyer 2009; Graf, Lassnigg, and Powell 2012). What we cannot tell from this table is the relative shares of the BHS, AHS, middle vocational schools and apprenticeships over time. For this, we have to turn to national data.

#### *The key change: The rise of the BHS*

The Austrian statistical office provides school enrolment data for each of the nine Austrian states from 1990 onwards. Looking further back, the census provides a picture of the distribution across school types every ten years from 1971 (though it combines higher and middle vocational schools so

that the growth of the BHS is somewhat masked). From this, we can see continual growth in the BHS over time (Figure 12. Over the course of the 1990s there was a 26 per cent increase in attendance at the BHS (104,000 to 130,000 students<sup>19</sup>). BHS continued to grow gradually over the next fifteen years to 143,000 in 2016, but this growth was mostly keeping pace with the youth population.

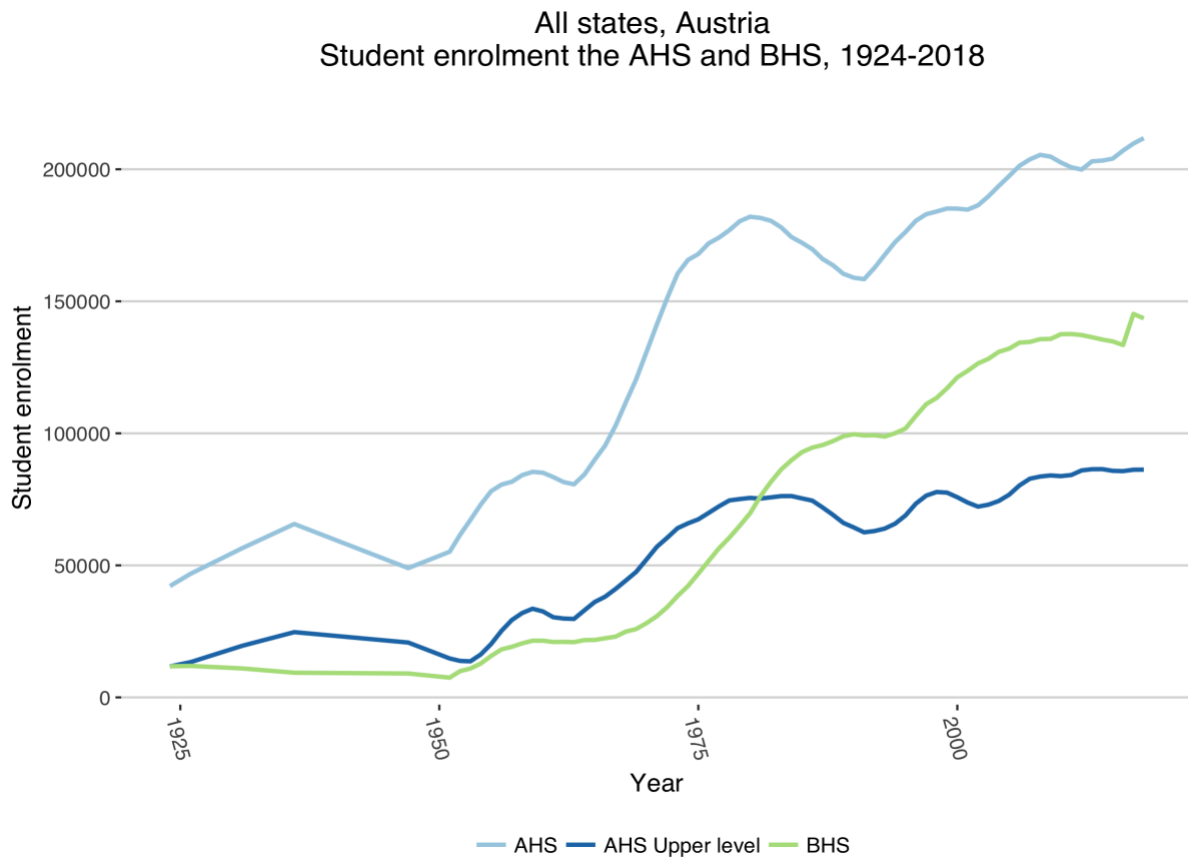


Figure 12. Austria: Enrolment in the AHS and BHS, 1924-2018.

The different year group composition of AHS and BHS need to be taken into account in these comparisons: the upper level of the AHS is four years, compared to five years in the BHS. The additional year of the BHS makes it expected that the BHS will have higher rates (contrast Graf, 2013; Lassnigg, 1998). In more recent time periods it is possible to isolate and compare individual year groups.

<sup>19</sup> There are slightly different sets of figures in the state-level data but the same trend. This seems to be because aggregate figures include a slightly different set of specific school types as “BHS”.

The first way to understand the growth of the BHS is that they provide a direct alternative to the AHS when young people are making their decision at fourteen as to where to pursue upper secondary education. Both BHS and the separate upper-level AHS schools provide preparation for Austria's higher education entrance qualification, the *Matura*. Time to this qualification in the BHS is five years, as opposed to four in the AHS. But students at the BHS also work towards a sector-specific vocational qualification in a wide variety of occupations, including in the manufacturing sectors (such as electrical engineering) and non-manufacturing sectors (such as tourism).

Unlike apprenticeships, the appeal of the BHS is not reliant on any given occupational sector. The BHS do, however, appear to be more successful in more industrial regions. Figure 13 shows enrolment in BHS and AHS in Upper Austria, the country's main industrial region, with a population of 1.5 million. Here, BHS enrolment has continued to expand through a decline in manufacturing employment, albeit more gradually in the 2000s. Figure 14 shows Lower Austria, the state surrounding (but not including) Vienna. It has a similar population of 1.6 million. Here, where manufacturing employment started lower, BHS enrolment levelled off in the 2000s and AHS enrolment increased. Nevertheless, in both states, BHS enrolment sustained. (Note: Lines are smoothed to emphasize general trends over year on year change; Austria relies on imputed school enrolment data for the years 2002-2005).

We can compare the common stability of the BHS to that of the part-time vocational schools (*Berufsschule*). Enrolment in the part-time vocational schools is a direct indication of participation in apprenticeships. As we see in Figure 14, in Lower Austria, participation in apprenticeships declines directly in line with decline in manufacturing.

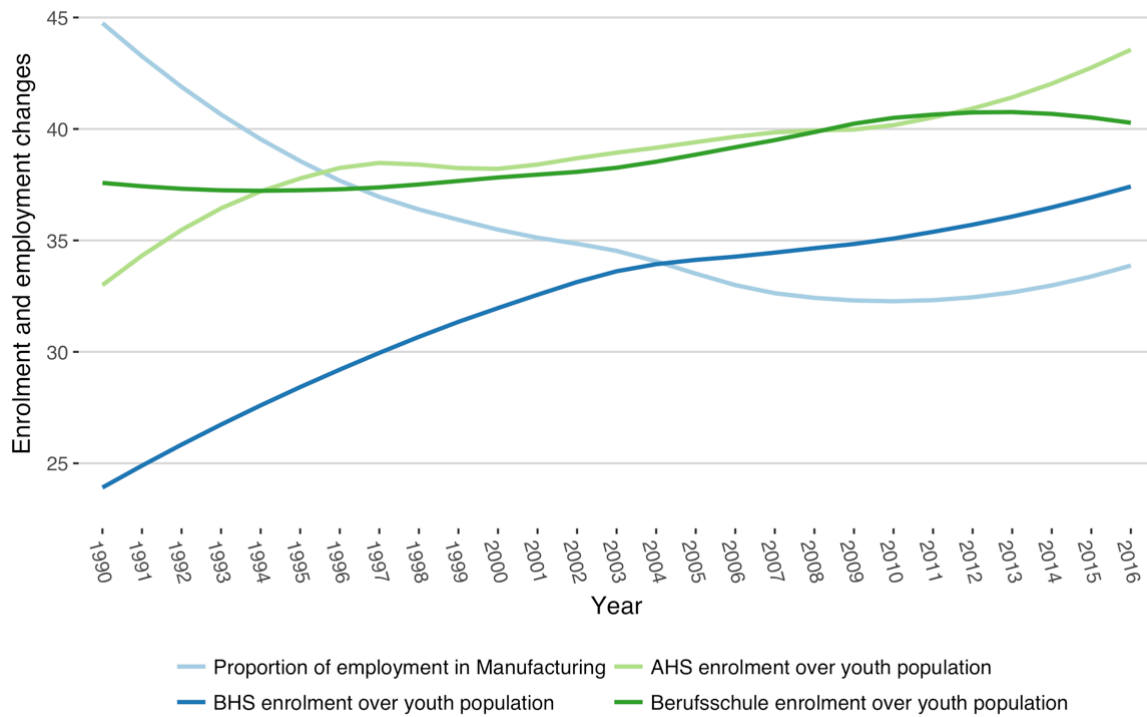


Figure 13. Vocational enrolments and manufacturing employment in Upper Austria, 1990-2016.

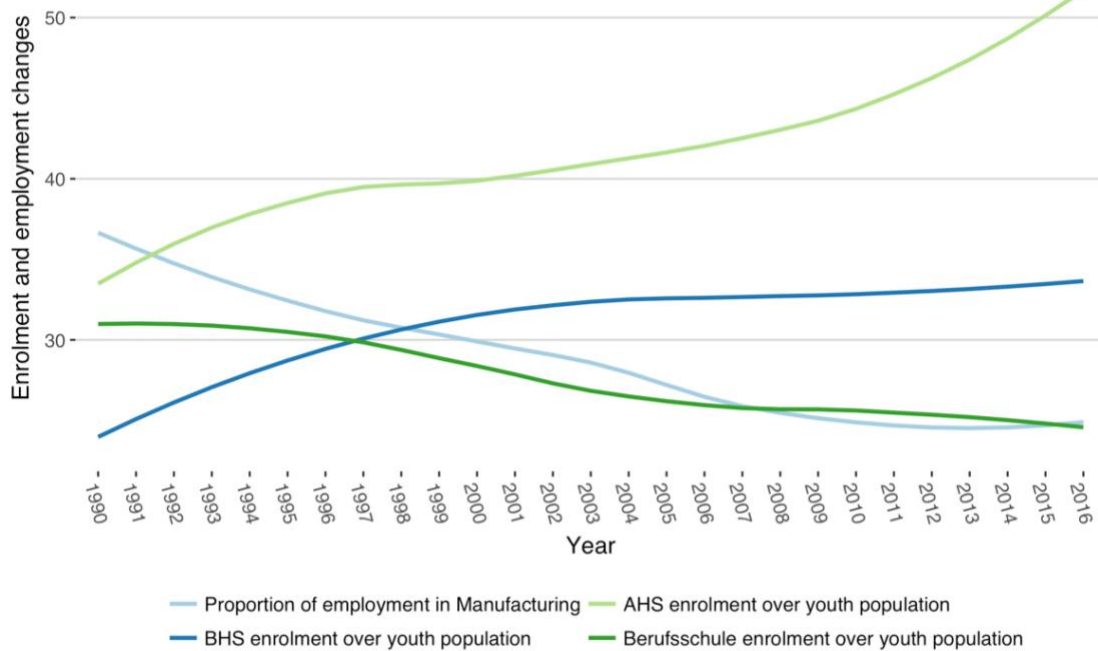


Figure 14. Vocational enrolments and manufacturing employment in Lower Austria, 1990-2016.



In Figure 13 we see the same decline of manufacturing, but enrolment in the part-time vocational schools remains stable. To explain why this is, we need to turn to changes in the nature of apprenticeship.

*An invisible change: slight de-specificity of apprenticeships*

Figure 1 shows the overall number of apprentices over time, and the number of first year apprentices as a share of the national population of 15 year olds.

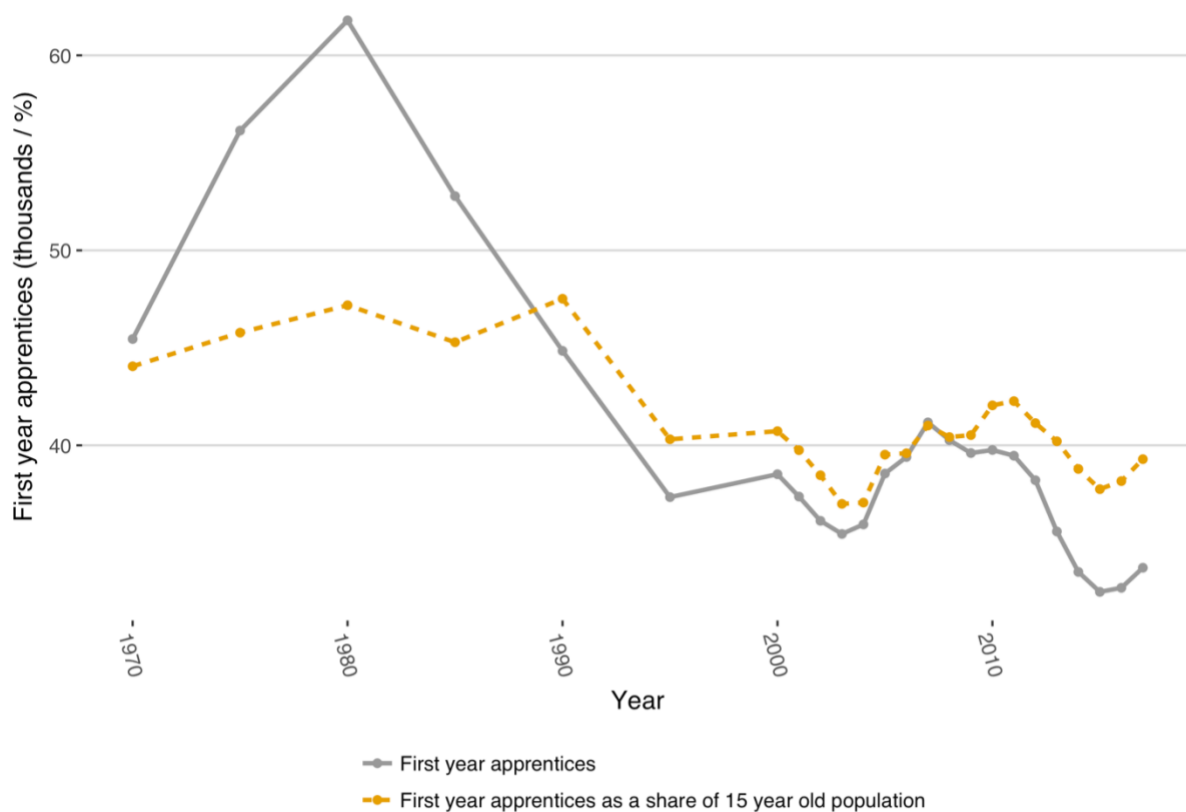


Figure 15. Austria: Apprentices as a share of the youth population, 1970-2016.

Data source: WKÖ: Lehrlingsstatistik, verschiedene Jahrgänge. Up until 2000 data points are available only every five years.

Apprenticeship statistics are held by the Chamber of Commerce (*Wirtschaftskammer Österreich*, WKÖ), and have been maintained for decades, with increased demographic information from 2006. It is no

longer the case that starting apprentices are typically aged 15; while 74% of starting apprentices were under 17 in 2006, ten years later this was 60%, and the average age of first-year apprentices was 16.7 years old (*WKO: Lebrlingsstatistik, verschiedene Jahrgänge*). This aging up change is much smaller than in Germany, however, and for comparative longitudinal purposes, and because it is the preferred national statistic, apprentices over the 15 year old population is useful. For the majority of the recent two decades, this share remained almost constant at around 40%.

Two important changes occurred beneath these figures. The first is that in 2009, the government introduced a new program of “inter-company training” (*überbetrieblichen Lebrausbildung*), which was essentially apprenticeship training provided by the state (AMS). This replaced a previous similar program, *Jugendausbildungssicherungsgesetz* (“youth training protection act”, or JASG), but unlike those in JASG, participants were recorded as “apprentices”. This is was justified on the grounds that, where JASG had been a short-term program designed to prepare young people for “real” apprenticeships, the new model was designed to mimic the experience of an apprenticeship and train people to the same level. Inter-company apprentices therefore made up for the greater decline in company-based apprentices, brought on by the recession in of 2009 (Dornmayr and Nowak 2017). The second important change is in the occupational domain of apprenticeships. Austria’s apprenticeship system has always covered a slightly different set from that of Germany, with far fewer apprentices in large-scale manufacturing (*Industrie*) or Banking or insurance. The largest sector is “*Handwerk* (crafts) and *Gewerbe* (commerce), which, along with *Handel* (trade) covers the range of shops, personal services and traditional industries. Tourism and leisure industries (*Tourismus und Freizeitwirtschaft*) also provide about a tenth of training companies. These sectors have struggled in the past decades, however, prompted by recessions in the early 1990s and late 2000s, and their number of companies offering apprenticeships has fallen by around half since 1990. They have been in part replaced by inter-company training or a (small but) growing number of unclassified

companies, as well as a small growth in newer domains of IT and consulting. Overall, however, over the period 1995-2016 the number of companies offering apprenticeship training fell by 27%.

The loss of companies offering training means that, while overall apprenticeship numbers and even number of apprenticeship qualification (the successful passing of a final exam) has fallen only slightly and recently, the number of young people completing an apprenticeship in an occupationally specific domain has fallen more than at first appears. As of 2016, one third of apprenticeship qualifications were received either through inter-company training, or fall under the growing category of “Other” (*Sonstige*). This category includes all exams that cannot be assigned to an occupation, many of which are in the “second pathway” of people completing training as part of efforts to return to work.<sup>20</sup>

*Summary: vocational change in Austria*

The Austrian case illustrates that upper secondary vocational education can survive the contraction of traditional industries by combining with academic education. Chapter four examines how the BHS came to become such an important part of the upper secondary sector and what conditions explain its different nature from the hybrid models observed in the other cases. The BHS success story is fragile, however; while they have survived they have not grown in the past ten years and the AHS has started to absorb the continued declines in the BMS and apprenticeship. Chapters five and six examine how school choice and assessment design threaten the BHS and are related to strain on the apprenticeship system.

<sup>20</sup> As detailed by Dornmayr and Nowak, 2017, p. 162 (translation): “Exams are included that cannot be assigned to any division due to the apprenticeship contract. This includes, among other things, examinations in the second educational pathway (in accordance with BAG § 23 (5) a), additional examinations and delegations. (Delegations are exams that were taken in a different federal state than the one in which the apprenticeship was completed. This would lead to double counting of exams, since these are counted in both federal states.)”

## New Zealand: vocational change 1995-2016

As in Australia, in New Zealand vocational education is certificate-based and divided into levels corresponding to a National Qualification Framework (introduced in 1994). The assignment of levels to ISCED is somewhat different, however. Table 11 shows enrolment numbers recorded in the latest ISCED mapping available for New Zealand (UNESCO 2016). For both NCEA Level 1 and certificates at Level 1, *attainment* of this corresponds to code 244 under the revised ISCED system, but *enrolment* at this level remains coded at 341/351.<sup>21</sup> This creates a more comparable picture, however, as, as with countries with a three year academic upper secondary (grades 10-12), all three years of NCEA are therefore included in upper secondary. Unlike in Germany, there are no level 2 programs aimed at 16-18 year-olds.

Table 11. Upper secondary (ISCED 3) enrolment in New Zealand by program type, 2013

Program/school	ISCED code (1997 / 2013)	Enrolment (2012/13)	Share of Level 3
National Certificate of Educational Achievement Levels 2-3 (normally completed in final two years of school)	3G / 344	166,500	66.7
...of which is Level 1	3G / 341	60,800	24.4
Certificates	na	83,000	39.4
...of which is Level 1	3V* / 351	15,000	6.0
...of which is Level 2	3V* / 353	29,000	11.6
...of which is Level 3	3V* / 353	39,000	15.6

New Zealand's UOE data are unsatisfactory both because of the large rates of over-age enrolment in certificates, as in Australia, and because it is missing years prior to 2002 and several years in the mid

<sup>21</sup> Even the Ministry researchers responsible for UOE collection believed that students studying at NCEA level 1 “are excluded” from Level 3, but correspondence between the enrolment figures recorded for Level 1 in the 2013 mapping and the figures recorded in oecd.stat only match when level 1 enrolment *is* included as upper secondary.

2000s<sup>22</sup>. In place of this, two other sources provide a picture of vocational enrolment in New Zealand. The first is certificate courses, recorded in the collection of annual “tertiary” participation rates, hosted by the Ministry of Education (Education Counts 2018b). As detailed in appendix D2, reforms in 1989-91 in New Zealand created a unified “tertiary system”, comprising universities, polytechnics, and wānanga (Maori institutions). All courses which in Australia might be in “TAFE” are consequently referred to as tertiary. Unlike in Australia, this enrolment is not referred to as “vocational education and training”; the word “vocational” was not used in New Zealand policymaking from the late 1990s through the 2000s [NZ8]. Nevertheless, “certificate level” courses correspond to VET courses in Australia; in both cases they cover a range of more and less occupationally- or industry-oriented fields<sup>23</sup> and range from courses which may last roughly a year (a 40 credit certificate course) to several years (a 120 credit diploma)<sup>24</sup>.

The second major form of vocational education is industry training, which comprises apprenticeships and traineeships, and is recorded in the Industry training register (Education Counts 2018a). Apprenticeships and traineeships are also assigned to a qualification level; the majority of apprenticeships are at Level 4, meaning they are not classified as “upper secondary”. Nevertheless, they have a role in youth vocational education.

<sup>22</sup> A Ministry researcher explained to me that in 2009 they changed the way that they classified general and vocational programs across different ISCED levels, and consequently removed time series data prior to that point. In the databases, it is only 2002 to 2008 that have actually been removed, leaving 1998-2001.

<sup>23</sup> Whilst the majority of national qualifications registered prior to 2000 were in manufacturing (253 of 495), these formed only a minority of course enrolments. Already in 1995, only 7% of students in the tertiary sector were enrolled in courses in “industrial trades and crafts” and 4.8% in engineering. The combined proportion fell below 10% by 1999.

<sup>24</sup> The level of a course determines its difficulty, not its length. All “certificates” require 40 or more credits at their corresponding level. Each credit is meant to be roughly 10 hours of learning, but learning could take place in a variety of settings. A diploma is 120 credits. where its credits sit on the national qualification framework does not directly correspond to how much

*What did not change: low youth enrolment in formal vocational education*

Figure 16 shows enrolment amongst 15-19 year olds in certificate courses by level. There is considerable fluctuation over time, but collectively there is never more than 11% of the age cohort enrolled in certificate levels 1-3<sup>25</sup>, or 20% including level 4 and diploma enrolment. For comparison with UOE statistics above, in 2013 amongst 15-19 year olds there were 30,465 in level 1-3 certificate courses and up to 10,000 industry training learners at level 1-3.<sup>26</sup> This estimate of the vocational share amongst 15-19 enrolment is just under half of what is recorded by UOE.<sup>27</sup> National data confirms that the vast majority of growth in Level 3 qualifications registered in UOE data is amongst the over 19 age group.<sup>28</sup>

What enrolment there is tracks policy changes quite closely. We see in Figure 16 the rapid inflating and contraction of level 1 and 2 courses. This is related in timing to subsidies for young people. From 1994, the “Training Opportunities Program” (TOP) and then “Youth Training” provided a free course place with a college or private provider to any 15-17 year old who was unemployed for 6 months or more. The years after 2005 saw the beginning of decline in numbers as new three-year

<sup>25</sup> The peak year for 15-19 enrolment in level 1-3 courses was 2005, with 32,684 enrollees, which represents 9% of the age group. In 2004 lower 15-19 population means that the 26,080 enrolled that year form 11% of the age group.

<sup>26</sup> Industry training figures are not available as microdata due to risks of identification, but it is possible to estimate based on the distribution of age and level across traineeships and apprenticeships. 2013 registered 7,465 trainees aged 19 and below, most of would be at level 1-3. There were 6,735 apprentices aged 19 and below in 2013, of which a maximum 2,695 were at Level 3 (the rest at Level 4).

<sup>27</sup> In the last five years of available data (2013-17), OECD/UNESCO records a 29-33% share of enrolment in upper secondary vocational for New Zealand (UIS.stat, Education participation: distribution of enrolment by program orientation).

<sup>28</sup> New Zealand’s historical tertiary enrolment data includes as age grouping 18 and under; 18-19; 20-24; and beyond. In 2005, the year of peak-participation in Level 3 certificates, under 18 year olds made up just 6% of students. 18-19 year-olds were another 10%, and the rest were 20 and above. There is considerable enrolment amongst older age groups: in 2005, students aged 40 years and above, at 34%, represented a larger part of the cohort than 15-24 year-olds (32%). A similar pattern prevails for other certificate levels, with Level 2 certificates proving even more popular amongst the 40 and over age group, who is the mid 2000s outnumber those 18 and under by a ratio of 10:1.

investment plans for tertiary education institutions began to restrict funding for short courses. Enrolment in Level 3 and below qualifications began gradually to decline.

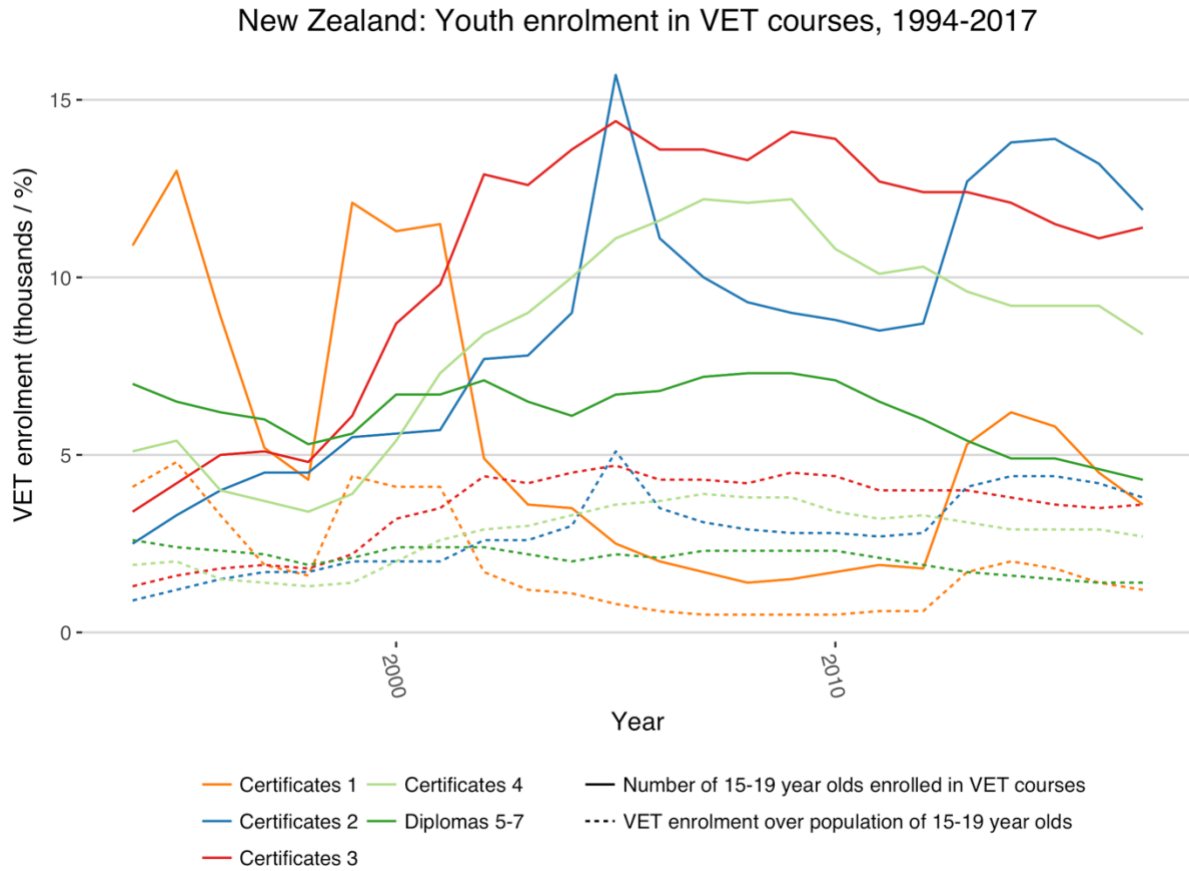


Figure 16: Certificate enrolment trends and rates in New Zealand amongst 15-19 year olds

From 2011, for this age group enrolment again start to rise, related to the introduction of the “Youth Guarantee” in 2010, which provided fees-free places for those 19 and under (while for older age groups, funding tightened at this point on level and below courses, and participation declined). In addition, 2012 saw the introduction of a national target that 85% of young people should complete “NCEA Level 2 (National Certificate of Educational Achievement, the school-leaving qualification) or equivalent” before the age of 19. Civil servants and educators alike refer to this target as a major driver of behaviour in the system [NZ3; NZ4; NZ31], although it was not a concern in all schools [NZ17]. From 2013 onwards, participation for those aged under 18 in Level 2

vocational qualifications increases sharply (in the context of a slightly declining population of 17 year olds), and is particularly concentrated amongst Maori and Pasifika students.<sup>29</sup> This tallies with a concern from many in government that the target incentivized displacement behaviour, with level 2 certificates standing in when schools should really have focused on NCEA achievement [NZ4; NZ16; NZ24; NZ31].

In addition, direct training in the workplace also tracks policy changes. In the mid-2000s, 20,000 young people aged 19 or under in New Zealand were in the industry training system as “apprentices” or “trainees”.<sup>30</sup> In 2000, the government introduced “Modern Apprentices”, a program introduced in 2000 aimed at young people aged 16 to 21. These could be of shorter duration and were delivered by new training providers working in partnership with employers (and so blurred the distinction between apprenticeships and traineeships). The program received an initial government investment of \$42 million over four years, producing just under 9,000 modern

<sup>29</sup> According to evaluations which try to match certificate takers against non-takers with similar characteristics, level 1 and 2 certificates have been effective in getting young people who have not completed school into employment at higher rates, but do not have an independent impact on wages (Tumen et al. 2018, pp. 23-24). Employment advantages manifest almost immediately for those who have completed a Level 3 or 4 certificate, and more gradually for those with a Level 1 or 2 certificate (who continue to have a similar benefit receipt rate as those who did not take any further education). There is no employment advantage for those who do not complete their certificate, and in fact this group go onto have a slightly higher benefit receipt rate than those who did not take any certificate. Some New Zealanders are skeptical about the value of certificate 1 and 2s and see this rise as a problem. A Treasury civil servant described it as a problem mostly for international students: “What we’ve really struggled with is a large number of really low level qualifications, particularly in the private sector. Export of education is one of our largest industries, but we’ve found that is often people coming to New Zealand and doing low level qualifications. They have done a bit of a purge recently, but that’s still a real issue in our system, that we’ve got a certain amount of cowboy-ish behavior there and chasing foreign students [NZ24]. But school leaders also perceived a problem of young people taking low level qualifications, see chapter six.

<sup>30</sup> As with many aspects of New Zealand’s databases, statistical records improved in the late 2000s [NZ6; NZ24]. From 2008 onwards it is possible to disaggregate industry trainees by age. Prior to this, we can see figures for Modern Apprentices. As in Australia, the main difference between apprentices and trainees is length and depth of specialization. Formally, an apprentice is identified as someone studying for 120 credits or more at Level 4 or higher on the New Zealand qualification framework; everyone else is a “trainee”. Consequently, as noted above, in UOE data collection, apprenticeships are not captured by an indicator based on ISCED 3V. New Zealand, like Austria and Germany and unlike Australia, has considerable “post-secondary non-tertiary” (level 4 and 5) attainment and so loses out from international habit of focusing on ISCED levels 3 (upper secondary) and 6 (tertiary). This kind of attainment is not captured by the prevailing “vocational orientation” indicator, which only uses upper secondary (Bol and van de Werfhorst 2013b).



apprentices. As a Treasury civil servant put it, “the government has ploughed lots of money into getting employers to offer apprenticeships” [NZ24].

The program peaked at 17,000 modern apprentices in 2013, before the government backing for it dropped in 2014, and attention switched to incentivizing “New Zealand Apprenticeships” with no maximum age. Unsurprisingly, numbers of Modern Apprentices fell sharply, halving each year until in 2016 there were fewer than 3,000. There was a related fall in overall apprenticeship numbers of those aged 19 and under, falling to 5,000 apprentices and 7,000 trainees by 2016. The timing of the fall suggests that it was driven both by the financial crisis in 2008 and the removal of support for Modern apprenticeships: there is a dip in 2009-11 as well as 2015 onwards.

Through these changes, apprenticeships have lost some of their embeddedness in industry. The largest and fastest growing apprenticeship type is “career development programs”, of which in 2016 there were twice as many as electrical engineers. By 2016, the largest group of young people were in food and hospitality, tracking the fact that the largest sectors in youth employment numbers (15-24 year olds) are retail trade and accommodation and food services<sup>31</sup>. The de-linking of training from the traditional industries of manufacturing is larger than one would expect given that manufacturing still comprises one of the common sectors for 15-19 and 20-24 year olds. The contribution of manufacturing to the economy has fallen more sharply than numbers it employs; the share of value-

<sup>31</sup> In a contrast to Australia, however, hospitality traineeships proved fragile after the financial crisis. While “Hospitality professional” traineeships were one of the fastest growing, reaching just under 17,000 in 2008, they then declined steadily to under 7,000 in 2016, outpacing the fall in 15-19 year-olds jobs in the related sector from 29,000 to 25,000. The large reduction in numbers may be related to lower wage requirements in Australia; there is a national minimum trainee wage in New Zealand (in 2017: NZ\$13.20; AU\$12.84 for 16-19 year-olds), whereas a 16 year old full time trainee in Australia could be paid AU\$8.50. (calculated using online wage calculator: <https://www.business.gov.au/people/hiring/apprentices-and-trainees>).

added almost halving from 20% in 1994 to 11% in 2017. Consequently, the industry may not feel itself profitable enough to support training.<sup>32</sup>

Given the increasing dis-embeddedness of vocational education from employment, it is perhaps unsurprising that overall trends do not clearly track employment (in the way, for example, that vocational education seemed to be complementary to youth employment in Australia). Enrolment is relatively high both when youth unemployment is relatively low (in the mid-2000s) and when it is high (in the late 2000s).

*The key change: school-based VET: NCEA and Vocational pathways (2000 onwards)*

Unlike Australia, New Zealand has no formal program for VET in schools. Nevertheless, the 2000-2004 reform of the upper secondary years into a three year, “multi-field” program working towards the National Certificate of Education Achievement (NCEA) provided opportunity for the integration of vocational learning into upper secondary schools. NCEA is made up of subject-based “achievement standards” and competency-based “unit standards”. The latter, while not officially vocational, are described as such (including by senior leaders at the New Zealand Qualifications Authority, who “look after” the unit standards [NZ23]). Unit standards can crossover with other certificates on the New Zealand Qualification Framework, theoretically enabling students to work towards industry-recognised qualifications and their school completion qualification simultaneously.

<sup>32</sup> “MITO”, the large industry training provider which served the automotive, textile and mining industries saw its training numbers fall fourfold after 2008. In contrasting, providers which remained relatively stable during the global financial crisis are “The Skills Organisation”, which focuses on real estate and local government sector work, and “Careerforce”, which focuses on the health sector.

Table 12. NCEA standards attempted and passed in New Zealand (NZQA 2010, 2019).

NCEA standard		Entries	Not Achieved	Achieved	Merit	Excellence
Externally Assessed Achievement Standards	2009	1,509,766	30.4	41.6	20.3	7.6
	2018	1,171,749	21.9	37.4	27.7	12.9
Internally Assessed Achievement Standards	2009	1,570,209	21.1	38.8	24.1	16
	2018	2,316,736	15.6	34.0	25.2	25.1
Unit Standards	2009	1,933,230	24.8	75.2	na	na
	2018	778,386	9.0	88.9	1.0	1.1

Note: 2005 was the first year of third-year NCEA results and in the following years there was adjustment of the moderation system to try to achieve more consistent pass rates. 2009 is the first year that NZQA aggregated pass rates at the standard level.

Table 12 illustrates the difference in rates of young people taking achievement and unit standards over the past ten year. We can see that the share of unit standards has fallen over time, while that of achievement standards that do not require an external exam has grown. This represents a significant decline in vocational learning, albeit one that is not visible in international statistics.

The challenge of incorporating vocational learning in NCEA is visible again after, in 2013, the Ministry of Education introduced “vocational pathways” (which, for the first time in over a decade, reintroduced the term “vocational” into MoE policymaking). This was a new form of badging within NCEA which encouraged students to take clusters of standards (both achievement and unit) and develop a vocational specialisation. The intent of the Vocational pathways was primarily as a motivational tool (ERO 2016), and as a way to increase the number of young people attaining at NCEA Level 2 – one of the government’s high-profile “Better Public Services” targets (Harrity 2013).<sup>33</sup> While BusinessNZ, the representative group of private employers, welcomed the proposal

<sup>33</sup> The pathways were first been proposed as a way to promote secondary-tertiary learning, and were envisioned for students engaging in “Gateway” – entry to employment programs (BusinessNZ 2011). From the start of their development in 2010 to their introduction in 2013, the pathways evolved into an option available to any student taking NCEA; the hope was that a wide spectrum of students would choose them [NZ34].

of the pathways (BusinessNZ 2011, 2012), there is no record of their being requested by employers.<sup>34</sup> Demonstration of demand for their introduction is limited to business surveys registering employers complaints of skill shortages (Harrity 2013, 3). While BusinessNZ had representation on the Ministry’s “Pathways advisory group”, and industry training organizations were involved in development, the actual content of the pathways was decided, based on an analysis of what standards young people were taking in schools, not by an analysis of specific employer needs (Harrity 2013, 15, 21, 23).

It would appear that the pathways are fulfilling their design and serving as a motivational tool as opposed to a response to employer needs. Vocational pathways were developed for six industries: construction and infrastructure, manufacturing and technology, primary industries, service industries, social and community services, and creative industries. If choices were related to the areas of job growth for early careers (those aged 20-24), we would expect construction and infrastructure, manufacturing and technology and service industries to dominate. In 2016, 63% of vocational pathway awards were in the creative industries.<sup>35</sup> Civil servants within the Ministry of Education see them as having become a path for “the less able” [NZ34].

*Summary: vocational change in New Zealand*

In the past two decades, vocational education in New Zealand continued a trajectory of dis-embedding from industry. Participation in the certificate and industry training system appears to be highly sensitive to funding opportunities or accountability efforts. New Zealand, like Australia,

<sup>34</sup> BusinessNZ’s first release welcoming the pathways (April 2011) is at least six months after the creation of the Pathways Advisory Group within the Ministry of Education (late 2010). (BusinessNZ 2011; Harrity 2013, 15).

<sup>35</sup> Dataset: Education Counts: Vocational Pathways (released annually). Interestingly, the 2019 release had dropped disaggregation by “award type”.

increased its emphasis on upper secondary as a general stage of education with universal goals, culminating in targets for Level 2 completion from 2012 onwards. The introduction of NCEA created a structure in which vocational education was available to young people, but was taken up at declining rates. Contrary to what is suggested by the ISCED 3V indicator, the vocational orientation of New Zealand's education system has been declining as opposed to increasing.

The following chapters explain why this is the case and how New Zealand's attempt at hybrid upper secondary resulted in an even more academic system. We will see that, as in Germany and Australia, the introduction of hybrid pathways, more school choice, and competency-based assessment increased the opportunities and incentives to pursue an academic route. The stronger shift towards these policies in New Zealand's case, enabled by its non-federal political structure, explains why its vocational decline has been even more substantial than these other two cases.

### **Conclusion: beyond academic vs vocational**

In chapter 1, we saw that educational decision-making is often portrayed as a one-off and open choice between general/academic and vocational pathways, a perspective reinforced by the categories in ISCED. A closer inspection of enrolment trends highlights that this is not the structure of the decision in two important ways. Firstly, a growing number of pathways offer the possibility of "double qualification" in terms of both an academic and vocational credential, removing or delaying the need for choice. Secondly, and relatedly, for many students the choice of pathway is determined by the nature of the secondary school. It is therefore necessary to consider where and how secondary school choice is changing as part of understanding changing enrolment trends.

## Chapter 4. Macro: the politics behind the variety of hybrid pathways

Chapter three found that, across these diverse cases, an increasing number of young people are in programs which offer a route to *both* academic and vocational education at the upper secondary level. The different coding of hybrid paths appears to be a key explanatory factor in the overall different trends of the vocational share. But what therefore explains these differences in hybridization?

This chapter takes up this question and examines in more detail the emergence of hybrid pathways across the cases. Based on an analysis of the introduction of hybrid options, I demonstrate that hybridization emerges from similar impulses across the cases. Hybrid pathways were introduced as policy reforms to allow expansion of general upper secondary education without having to challenge the selective nature of traditional academic upper secondary. Relatedly, in each case the hybrid pathways are shaped by the needs of education policymakers and schools, as opposed to employers.

The variation across hybrid pathways, in terms of their ultimate success in providing academic and vocational qualifications, relates to the timing of their introduction, which can be traced to political factors that governed when an attempt to create a hybrid was blocked, and when it made it through. In just one of the four cases, Austria, mass hybridization occurred early, in the 1970s, and has become a sustainable model leading to double qualification. In the other three cases, mass hybridization was attempted later, from the 1990s onwards, and has not managed to produce high rates of double qualification. Ultimately, the varying success of hybridization, and the political factors that lie behind it, are a key initial explanation of Austria's sustained vocational share, and the contradictions between international and national data in the other cases.

## Theoretical background

In this section I outline a definition of hybridization as the process by which academic and vocational purposes and practices have been brought together, and differentiate what is meant by *mass*, *additive* and *substitutive* hybridization.

### *Defining hybridization*

Hybridization describes the combination of separately existing forms into a new entity. It is a recognized if loosely defined concept within institutional and management theories (Casper and Kettler 2001; Greenwood et al. 2011). In education literature, hybridization describes the amalgam of academic and vocational forms, in terms of learning environments, curricula, or qualifications. After being observed in the United States during the vocationalization of upper secondary and higher general (Grubb 1996b), the concept has come to the fore in more recent studies of upper secondary and tertiary education in Europe (Deissinger et al. 2013; Graf 2013). Each of these studies uses a narrowed definition of hybridization to bound their study. Graf (2013) focuses on “hybrid organizational forms” (p. 58): that is, courses or institutions, “in which elements from VET and HE are integrated on equal terms” (p. 22). He examines these forms in Austria, Germany and Switzerland primarily at the level of higher education - though sees fit to include Austrian upper secondary colleges which straddle the transition into higher education. Deissinger et al. (2013) offer a definition of “strong hybridity” to limit their study to upper secondary qualifications which offer both general higher education entry and industry-recognized credentials (p. 8).

The need to bound hybridization in this way reflects the fact that the edges of the concept are inherently as blurry as are the edges of the concepts “academic” and “vocational”: many educational experiences combine purposes or practices that could be described by each of these terms, and very little upper secondary education is entirely devoid of one or other. Indeed, the dual system of

apprenticeship could be described as a hybrid model. Yet, the school-based element is shaped by distinctly vocational regulations and pedagogies, and thus while it includes both work-based and classroom-based education, it is not necessarily academic.

To analyze hybridization, we have to give the concepts ‘academic’ and ‘vocational’ more specific meanings. In their ideal forms, we can say that academic education involves practices which prepare for further education at a higher level, typically theoretical study, whilst vocational education involves practices which develop specialized knowledge and skills allowing entry to a particular occupation, which would be either study or practice of those skills. Hybridization, then, is when these distinct practices or purposes are brought together.

The focus of this chapter is on hybridization at the upper secondary level as *a mass phenomenon*. This focuses us on the contemporary period, the past twenty years. While the notion of “double qualification” (*Doppelqualifikation*) has existed in German-speaking countries at least since the 1960s and the first *Technisches Gymnasium*, providing double qualifications, was founded in the 19<sup>th</sup> century. But these were specialist institutions experienced a very small share of the population. An account of *mass* hybridization describes why academic and vocational purposes, practices and qualifications have been brought together in the mainstream school system.

#### *Hybridization - or substitution?*

In any process of hybridization, it matters not just that elements combine but *which* elements combine (picture a “reverse centaur”...). This has given rise to efforts to classify types of educational hybridization, particularly in German literature, leading to a number of typologies (see Deissinger et al., 2013, pp. 124-5).



The distinctions drawn in these typologies can be summarized by two types. The first involves the *addition* of academic/vocational practices or purposes to a vocational/academic program. An example would be where additional evening classes provide the opportunity to prepare for a university-entrance exam alongside an apprenticeship, or where a summer internship experience is added to a college degree. The second involves the *substitution* of parts of an academic/vocational program with vocational/academic practices. This might take the form of an internship being allowed as course credit and swapped in for other classes, or a reduction in the days spent in a workplace to complete higher education preparation classes.

There are potential advantages of each of these approaches. In terms of learning outcomes, a sacrifice is made in choosing substitution over addition, but in the context of limited time and financial resources for education, substitution might be preferable. In chapter three we saw that while each case now has a mass hybrid form, only in one (Austria) is it successful in providing double qualifications. In this chapter, we see that the other hybrids have developed into a means for more young people to receive general qualifications, creating a kind of “substitution”. Despite being *termed* vocational by Austrians, therefore, their classification as general in international statistics seems accurate. The goal of this chapter is to explain why hybrid models have developed in this imbalanced way, with different consequences for the overall vocational share of upper secondary.

### **Introducing and bounding the cases for this chapter**

We saw in chapter three that Austria is home to a long-standing, and recently increasingly prized, form of hybrid upper secondary education, the *berufsbildende höhere Schule* (BHS), which serves 14-19 year-olds, offering general university entrance and a recognized vocational qualification within one institution. Based on its high rates of double qualification and strong incorporation of academic and vocational pedagogies, the BHS is judged by recent studies to represent a particularly successful

hybrid form: Graf analyzes the BHS as an example of organizational hybridization and Aff and colleagues of hybrid qualifications (Aff, Paschinger, and Rechberger 2013; Graf 2013). But it is far from a new model and my investigations suggest that the early development of the BHS, and in particular the intentions with which they were expanded, is crucial to explaining their contemporary character as a relatively elite form of hybrid education.

In contrast to Austria, the current assessment in the hybridization literature is that Germany represents an under-developed case (Deissinger et al. 2013, 267–68). We saw in chapter three that there are high rates of young people pursuing a study-qualification and *then* an apprenticeship. But efforts to integrate apprenticeship with academic education remain small (for further detail, see Appendix F1). We also saw that vocational high schools now have enrolment at upper secondary around one third as large as all the general schools. While the federal system makes the emergence and status of these schools more complex to analyze than in Austria, we will see that in some major Länder these programs are almost as significant as a location of 15-19 year-olds. And yet, they differ in an important way from the BHS in offering less of a sure route to double qualification: though, as we will see, they were founded with the same intentions as the BHS, they have become primarily only a route to general qualifications.

In contrast to the German-speaking countries, hybridization in Australia and New Zealand is structured not by organizational forms but by qualification agencies. In Australia, these agencies are the state “Boards of Studies”, responsible for the senior secondary certificates (SSCs). The evolution in their names towards “curriculum and qualification authorities” reflects a shift in focus over time from university entrance to more general education. Unlike in federal Germany – where initial differences in Länder structures have been amplified by educational expansion – the structures of the senior secondary certificates in Australia have been converging over the past 25 years.

As we saw in chapter three, from the mid 1990s all Australia's SSCs have incorporated options for "VETiS": vocational education and training in schools, where students have work towards a formal vocational certificate as part of their senior secondary certificate. In New Zealand, likewise, the credential framework underwent a major reform in the 2000s to create the National Certificate of Educational Achievement, which brings into one credit-based framework units of vocational certificates and of academic learning. While these credential designs are a model of flexibility and create great potential for hybridization, they have not been successful in creating high rates of double qualification or of vocational certificate attainment. In this chapter, we see how the later timing of their development is significant in this outcome, and how this timing is impacted by partisan politics.

In explaining differences between countries, the first things we should consider is path dependency. If hybrids started out as very different models, we should not be surprised if they ended up differently. So where did these different hybrid pathways emerge from, and what were the conditions that shaped their early development?

### **Early hybridization and the drivers of variation: promotion and blockage (1960-1980)**

#### *Austria: Destined to succeed? The BHS as elite institutions*

The origin of the BHS as a school type was the 1962 Law on School Organization, which brought together the four varieties of colleges offering five years of general and occupational education for ages 14 up (see Appendix D4 for the individual types of BHS). This was not, however, an introduction of new schools; some of the vocational colleges had existed for over a century and had

well-established reputations and buildings.<sup>36</sup> The 1962 law was significant not only for bringing these various school types for the first time under the umbrella name of “berufsbildende höhere Schulen” (BHS) but also for introducing a new school system structure, which laid the foundation for hybridization (BGBl/242 1962, 1190). The Law asserted the unitary nature of the school system, and that it has three levels: compulsory (*pflicht*), middle (*mittlerer*), and higher (*höbere*).<sup>37</sup> These same labels are applied to both general (*allgemeiner*) and vocational (*berufsbildende*) schools, creating BHS and AHS (the latter equivalent to Gymnasia or grammar schools). The separation in terms of governance was established between federal-level control of the middle and high schools, while the compulsory schools were grouped with the elementary schools (*Volksschule*) and schools for students with special educational needs (*Sonderschule*).

The new structure intentionally brought the names of schools in line with other European countries (NR/109 1962, 4831). Whether intentionally or not, it also took it further from that of Germany, where vocational and general schools were in sectors with completely different organization. Further sign of efforts to bring the vocational and general school closer together was the introduction of religious education to vocational schools. As explained by ÖVP MP Ludwig Weiß, the change:

<sup>36</sup> Five of these were officially recognized in the 1962 law as “Technische und Gewerbliche Zentrallehranstalten” (technical and commercial central teaching institutes), autonomous institutions under the federal Ministry of Education. They were intended to serve as models for others and to be allowed to pilot new processes (BGBl/242 1962, 1165). To give a sense of the nature of these institutions, one, HTL Spengergasse, a large school in central Vienna, was founded in 1859, initially as a “commercial arts” academy. It is referred to just as “Spengergasse” in the media and it is not unusual to see its name listed in the education of businessmen who then went to the University of Vienna. Another, Technisches Gewerbemuseum (TGM), claims to be the oldest HTL in Austria and was founded in 1879. When TGM moved to new 16-floor building in 1979, housing new labs and a research institute, its former building was converted into a cultural center.

<sup>37</sup> Partially translated, the relevant section reads: “The law gives some types of school new names. The middle schools are called from now on ‘allgemeinbildende höhere Schulen’. Vocational training institutions that do not complete their final examinations are called ‘berufsbildende mittlere Schulen’ and with final examinations [*Reifeprüfung abschließende*] ‘berufsbildende höhere Schulen’. The Reason for the new terminology was for agreement with other European countries, which has been missing.” Transcript of Lolar Solar, ÖVP reading out the main points of the school organization bill (NR/109 1962, 4831).

represents a significant step forward in the unification of the Austrian school system, which again confirms that vocational schools have also outgrown the state of a purely training school (“Lernschule”) and are approaching the character of an educational school (“Bildungsschule”).<sup>38</sup> (ibid, p. 4847).

*Lernschule* exist as an independent form, most closely comparable to ‘cram schools’. There is no direct translation of the term but it is associated with narrow instrumentalist view of school or with behaviorist approaches to learning. The *Reformpädagogik* movement, directly comparable to the progressive education movement in the U.S., is typified by its opposition to *Lernschule*. Consequently, here Weiß, President of the Catholic Action movement in Carinthia, perhaps overstates the significance of the change, but it is indicative of the mood at the time and a reminder that the inclusion of “-bildende” (~ “educational”) in the names of the BMS and BHS promises a more significant educational status in comparison with the *Berufsschule* that form part of the dual system.

While the 1962 law established the potential of the BHS, their growth had to wait for a sustained period of left-leaning government. In 1970, the SPÖ increased their share in parliament and their leader, Bruno Kreisky, became Chancellor. He would remain in the position until 1983, and throughout this period the SPÖ pushed through a major series of social reforms. In Education, these were focused on increasing educational opportunities and opening up the “rigid” (*starre / Starrheit*) school system (see Appendix F2 for details of discussion in the Austrian parliament during this period, including of the BHS). They had to approach this in a somewhat consensual manner, however, as the 1962 Law had introduced a rule that no structural changes in education could take place without a two-third majority. Thus, despite winning a full majority in October 1971, it was

<sup>38</sup> “Die Religionsunterrichtsgesetz-Novelle bringt eine Erweiterung des obligaten Religionsunterrichtes auf die berufsbildenden höheren Schulen. Das ist ein bedeutender Fortschritt auf dem Wege zur Vereinheitlichung des österreichischen Schulwesens, womit auch neuerlich bekundet wird, daß auch die berufsbildenden Schulen aus dem Zustand einer reinen Lernschule herausgewachsen sind und sich dem Charakter einer Bildungsschule nähern.”

impossible to dictate sweeping overhaul without some support from the more conservative ÖVP. Comprehensive schools, for example, were not a possibility (Budzinski 1986).

The need for consensus seems to have steered the SPÖ towards hybridization. As the presiding SPÖ Minister of Education described it, the vocational schools, not the AHS, represented “the last chance of higher or further education in normal education” (NR/44 1971, 3349). The central reform proposal was for a ten-year building program of new schools. The ÖVP was concerned that this should not alter the structure of the school system, in particular, that the “long-form” of the AHS (starting at age 10) should be preserved and grown where necessary along with Kreisky’s new additional upper levels of the AHS (NR/44 1971, 3348). Meeting resistance in their attempt to open up the AHS, the BHS were also targeted for expansion. When Kreisky’s government was re-elected with a majority in late 1971, the expansion program moved forward with one third of investment allocated to the AHS, one third to the BHS and one third to the BMS (NR/2 1971, 20). The expansion would still allow additional paths to the Matura.<sup>39</sup>

Overall, we can agree with Graf that “the BHS served as a kind of outlet (*Ventil*) for the rising educational aspirations, given the link it provides to HE” (Graf 2013, 138). But he claims, following Lassnigg (1995) and Pechar (2004), that this occurred “in a way that was unexpected by

<sup>39</sup> One account of the origins of the BHS claims that it was not until 1975 when the BHS were able to provide the “volle Hochschulreife”, marking “the birth of the Austrian hybrid qualification” (Aff, Paschinger, and Rechberger 2013, 14). The cited law, however describes only the provision for additional exams that students had to take to pursue certain university courses, if they had not studied particular subjects for sufficient hours (Latin, Greek, Geometry, Philosophy and Maths) (BGBl/356 1975). While this law applied to some of the vocational schools, it also applies to the general schools. That the BHS and AHS Matura were already at this point conceived as equivalent is confirmed in one of the background documents to the law, including the following explanatory sentence: In addition to the normal course of development from general or vocational secondary schools [*allgemeinbildende oder berufsbildende höhere Schulen*] to the normal school leaving exam [*normalen Matura*] and further to the university [*Hochschule*], there are, as is well known, a long list of institutions ----: educational institutions for working people; Grammar schools and secondary grammar schools, as well as the external qualification [*Externistenreifeprüfung*], which also open the door to the university.” (Bundesgesetz über Vorbereitungslehrgänge für die Hochschulreifeprüfung 1975). The institutions that are marked as “additional” are the second-chance pathways - not the already-strong BHS.

policy-makers". The evidence from the first period of expansion of the BHS suggests that the role of the BHS as a way to increase educational opportunities was very much expected, indeed, intended. Moreover, this early expansion in the 1970s is significant because it meant that the BHS was the institution that absorbed the wave of upper secondary expansion in this decade.<sup>40</sup> The students who formed the core constituency of the BHS were consequently more likely to be motivated and middle class young people and the socioeconomic composition of the BHS remains higher than the other vocational school types today (Lassnigg, Bock-Schappelwein, and Stöger 2018). This would prove significant in the later period in maintaining support for the model from employers and wider stakeholders.

*Germany: early attempts at hybrids in the north and south*

As in Austria, we have to go back over a century to locate the origins in Germany of vocational schools which can provide entry to higher education. In 1833 and 1834, the duchy of Baden-Württemberg and kingdom of Bavaria developed a second path to higher theoretical learning, in the form of the *Gewerbeschule* (*Gewerbe* = commerce) leading to polytechnics (*Fachschule*) (Horn et al. 2011, 484; Pahl 2014, 85–86). In 1850, Bavaria renamed these schools *Technisches Gymnasium*, potentially to distinguish their three-year model from the two-year *Gewerbeschule* model in Prussia (then covering most of northern Germany) but also signaling some equivalency with the established *Gymnasium* concept.

Despite these early origins, in Germany nothing structurally equivalent to the BHS emerged for some time. In 1975, a federal standardization process carried out by the Conference of Education

<sup>40</sup> One way this expansion is visible is in the census. Comparing those who were at secondary school in the 1970s versus the 1960s (both in 1960-64 as opposed to 1950-54), the share who have more than basic compulsory education rises by 7 percentage points, more than across any other decade.

Ministers (*Kultusminister Konferenz*, KMK) recognized five main vocational school types, none of which permitted access to general higher education. Unlike in Austria, this standardization involved no impact on the general school system. But in addition to these five main types the 1975 law listed several additional vocational school types, each of which had resulted from state-led innovations (KMK 1975). In this chapter I examine the two of these state innovations which in different ways comes closest to the BHS. In the contrasting developments of these models across the Länder we can see the significance of interaction with the organization of the school system in defining the constituent cohort and ultimate success of the model. Appendix F3 gives some details of hybrid models in other Länder.

#### North Rhine Westphalia: Kollegschulen

The creation of *Kollegschulen* of North Rhine-Westphalia (NRW), Germany's largest state, attempted to combine a full academic and vocational pathway. They originated in the early 1970s in the work of a Professor of Education, Herwig Blankertz,<sup>41</sup> and was envisioned as a higher level Berufsschule, the school-based part of the apprenticeship (Hentig 1983; Knüpfer 1986). "Kolleg" was a transliteration of the English "college", and had not been used in school titles before the 1960s, when it began to appear in many different combinations across the states.<sup>42</sup> From the beginning, it was envisioned as a model that could play a similar role to the BHS: it would provide a "double

<sup>41</sup> Blankertz himself had followed a mixed educational pathway, working in the textile industry before going back to school to get his Abitur, getting his doctorate specializing history education at the University of Göttingen, and then becoming a Professor of vocational education. He founded the school subject of *Arbeitslehre*, roughly equivalent to careers education but focused on industry.

<sup>42</sup> A 1978 federal study lists individual "Kollegs" as of 1965 in several states, but these were more further education institutions. It defines Kollegschulen as one of a number of pilot project (Modellversuche) aiming at, "[e]ine organisatorische Verbindung allgemeinbildender und berufsbildender Einrichtungen der Oberstufe sowie eine inhaltliche Annäherung studien- und berufsqualifizierender Bildungsgänge" (*an organizational connection of general and vocational upper-level institutions as well as a convergence of study and vocational training programs*). (Heger 1978, 9). Another example given is the *Oberstufenzentren*, a new kind of upper level center in Berlin.



qualification” through students spending 16 as opposed to 12 hours in school, alongside company-based training, in order to get a middle level qualification, or, by staying for a third or fourth year, the Fachhochschulreife or Abitur.

Like the BHS, the Kollegschulen were introduced by a left-led government. In 1972, the NRW government, then led by the social democratic SPD, formed a Board headed by Blankertz to develop the model, and in 1976 created a pilot project; the KMK agreed to recognize the final exit qualification as general entry for university until 1985. By 1985, 50,000 students were studying in 22 new colleges – although only around 30% were in “integrated programs”, that is programs which led to a school qualification alongside vocational qualifications (GEW 1986, 4). Even of these, the majority did not return for the 13<sup>th</sup> year to get the Abitur, which required final exams regulated in the same way as for Gymnasien<sup>43</sup>. Consequently, in 1985 as few as 900 students each year were actually taking the Abitur examinations from a Kollegschule (Knüpfer 1986).

The federal politics of Germany ultimately stymied expansion of the Kollegschulen. Despite the low rates actually gaining the Abitur, the Kollegschulen were seen as undermining the status of the Gymnasium. The union for Gymnasium teachers, *Deutscher Philologenverband* (DPhV, literally, German Philologists’ Association), objected that the Kollegschule represented a “back door” (*Hintertür*) into university (Knüpfer 1986). The DPhV had a history of opposing the SPD and any threat to the tripartite school system, and in 1986 released a paper criticizing the Kollegschulen as well as a variety of other alternative routes to the Abitur, citing their lack of classical subjects (Guckloch 1987, 8).

While in Austria any opposition to the BHS in its early days had been overruled by the ruling SPÖ,

<sup>43</sup> While examinations were regulated in the same way, as this was after the introduction of the flexible “points’ system in the Abitur, students did not have to study all the same subjects. Documentation of the pilot found that students often did not study Arts and Humanities subjects. As is the case in BHS today, the range of subjects that students study for the Matura is smaller than in AHS.

Germany's federal structure, whereby higher education qualifications have to be approved by the KMK, proved fatal to further flourishing of the Kollegschulen. The Education Ministers of Bavaria and Baden-Württemberg (Christian-Democrat-led states) objected to extending acceptance of college university entrance qualification past 1985. Parliamentary records from the time reveal the fragility of hybrid structures: the 1987 Bavarian state legislature records the state Minister of Education Hans Zehetmair rejecting the "Kollegschulen Nordrhein-Westfalen", with the assertion that, "two half qualifications do not make a double qualification".<sup>44</sup> What the Kollegschulen offered, he argued, was not sufficiently "in-depth" and therefore not "university-qualifying" (Bayerischer Landtag 1987, 839). The statement met with applause from his party.

The opposition from the right was matched by support on the left, as the Kollegschulen were understood as having the same expansionist potential as the BHS. The *Gewerkschaft Erziehung und Wissenschaft* (GEW), the larger general education union, "consistently supported" the colleges for their hybrid nature<sup>45</sup> (GEW 1986, 4). A newspaper article in the center-left *Zeit* (by a journalist who also wrote for a Social Democrat magazine<sup>46</sup>) implies that it is perhaps a shame on the Gymnasium as opposed to the Kollegschulen that students who once were turned away by the former can succeed at the latter:

44. "Zwei Halbqualifikationen ergeben weder eine Doppelqualifikation noch eine vertiefte und damit studienbefähigende Allgemeinbildung".

45 The title of the paper is "Welche Bildung für Beruf und Studium? "Integration von beruflicher und allgemeiner Bildung in der Sekundarstufe II" [*Which education for an occupation and (university) study? integration of general and vocational education at the upper secondary level*], emphasizing that the purpose of this integration is double qualification, or at least keeping options open for future pathways.

46. Uwe Knüpfer in 1986 was a fairly junior reporter but went onto become Editor-in-Chief of the *Westdeutsche Allgemeine Zeitung* (WAZ), the largest regional newspaper in Germany based in NRW. He also wrote for *Vorwärts* ("Forward"), founded in 1876 as "the central organ of the Social democratic party in Germany".

School students who were left by the Gymnasium, went off, and now still will come [to the university] from the Kollegschulen. Does that speak for or against the Kollegschulen, for or against the Gymnasium?<sup>47</sup> (Knüpfer 1986).

While the Kollegschulen were understood to hold the same potential as the BHS, the federal political structure of Germany blocked their development at this stage. This would prove consequential for their fate once they later came to be expanded out of necessity.

### The Bavarian BOS

In Bavaria, we see the same politics of hybridization play out with a different model in a different context. In 1968, the Bavarian SPD proposed the creation of *Berufsoberschulen* (BOS, *ober* = upper) as a “*Höhere Berufsfachschule*”, a school offering a higher level of further vocational education and, they hoped, a path to higher education (Bayerischer Landtag 1968). These schools would take young people with good grades in the Realschulabschluss and who had completed some basic vocational training (at that point roughly two years), and prepare them in one year for the Fachhochschulreife, or over two years to the subject-restricted Abitur.<sup>48</sup> Thus, the BOS were a more radical innovation than the already existing Fachoberschule (FOS), which at that point only led to the Fachhochschule (FHS) (not yet at that point renamed “universities of applied science”). The BOS were intended to lead all the way to a university, and consequently provide more equality between the vocational and academic school tracks in terms of progression. Despite their official designation as vocational schools, therefore, the introduction of the BOS was intimately related to their offer of academic education.

<sup>47</sup>. “Schüler etwa, die auf dem Gymnasium nicht mitkamen, abgingen, und aus denen auf den Kollegschulen nun doch noch etwas wird. Spricht das für oder gegen die Kollegschulen, für oder gegen das Gymnasium?”

<sup>48</sup> The subject-restricted Abitur (*fachgebundene Hochschulreife*, fgHR) still allows entry to a wide range of subjects including, from courses such as Social work and popular subjects like Psychology.

In contrast to Austria, however, the social democrats were not in power in Bavaria at this time. Bavaria's Christian Democrat party, the CSU, held the majority in the state parliament continuously from 1966-2008<sup>49</sup>. They agreed to introduce the Berufsoberschulen as a school experiment (*Modellversuch*) – it seems because they wanted a route into their new post-secondary “*Fachakademien*”<sup>50</sup> – but restricted its potential by maintaining that it could not provide a pathway to the unrestricted higher education qualification due to the lack of second-language study.<sup>51</sup> Again, therefore, an early hybrid model was restricted in Germany.

#### *Australia: Radford and the early diversification of senior certificates*

As in Austria and Germany, the foundations for hybridization in Australia were laid in the late 1960s, but the elements of a hybrid model were laid down in different ways. Where in Austria and Germany, new school types were created to service combined academic and vocational credentials, in Australia, new credentials were created to serve students staying in school longer.

<sup>49</sup> In Bavaria the main conservative party is the *Christlich-Soziale Union* (CSU) as opposed to the party found in the rest of Germany, the *Christlich-Demokratische Union* (CDU). The CSU do not always stand beside the CDU in national politics and have more Catholic routes, but play an effectively equivalent role in state politics. The CSU were in government in Bavaria from 1966-2008 and 2013-2018, and have led in coalitions in all other periods from 1946 onwards, with the exception of a brief SPD-led coalition from 1954 to 1958.

<sup>50</sup> The *Fachakademien*, initially just “Akademien” were a new, distinct layer between secondary and tertiary education introduced by the CSU in Bavaria in this period (Bayerischer Landtag 1972). They were criticized by the SPD and NPD as being nothing more than a relabelling of the *Fachschulen*, or vocational colleges. The *Fachakademien* have survived as parallel to the *Fachschulen*, and now it is possible to get a higher education entrance through one.

<sup>51</sup> As noted above, the full Abitur requires study of a second language, and in the new bill for vocational schools introduced in 1971, the CSU stipulated that the BOS should only provide a way to the subject-specific higher education qualification. The SPD tried to ridicule the notion that someone with a vocational training and two years of additional study somehow was less “mature” (*reifer* = mature / qualified) than a Gymnasium student who had only “sat on the school bench” (Bayerischer Landtag 1972, 2113). The CSU refused to change the restriction, however, and despite having introduced the BOS model, the SPD voted against the vocational school bill in 1972, though it nevertheless passed. The CSU resisted several additional proposals by the SPD over subsequent years to increase language education in the BOS (Bayerischer Landtag 1973). In 1976, the KMK reached a nation-wide agreement that students in upper level vocational schools, including the BOS, should be able to convert their subject-restricted Hochschulreife into a general one by passing an additional examination in a second foreign language. There was therefore a compromise or stalemate: the second language remained a barrier to get over, but the SPD had their full second pathway to the Abitur, if one that few made it through.

In contrast to the politics of hybridization through new school models, the politics of hybridization through credential reform are less clear-cut and not as reliant on parties of the left. Instead, they stem from expert reviews. The possibility for flexible senior secondary certificates which could incorporate vocational learning stemmed from a series of state-initiated reviews of secondary and senior secondary education, which proposed the abandonment of the year 10 Junior examinations and movement of the normative year of school-leaving from year 10 to year 11.<sup>52</sup> The most radical reform came from Queensland, where in 1970 the state parliament voted to approve the recommendations of the “Radford report”, commissioned by the state and authored by William Radford, the Director of the Australian Education Council for Educational Research (ACER), to replace their Junior (year 10) *and* Senior (year 12) Examination with a school-based system of assessment. This shift aimed to create more opportunities in upper secondary to adapt courses “to meet the ages, aptitudes, and abilities” of the growing upper secondary cohort, of whom, “considerably more entered employment than thought they would” (Radford 1970, 79, 94)<sup>53</sup>. The report as a whole built on a questioning of the “academic bias” of the final years of school, when more young people were leaving it not to university but to employment (ibid, 45).

The introduction of this change by a seemingly conservative government – a coalition between the Liberals and the Country party – at first presents a puzzle (D. Kelly 2014, 8). But the Country party were the leading partner and represent the populist right, as opposed to the establishment (they

<sup>52</sup> In 1967-8, both the Victorian Universities and Schools Examination Board and the Public Examinations Board of South Australia abolished their intermediate certificates taken in grade 10. Western Australia and Tasmania also undertook reviews envisaging the removal of their “School Certificates”, taken in year 10, but this was not carried through. Queensland carried out the widest overhaul.

<sup>53</sup> This view was based on a longitudinal study of students who had embarked on year 11 in 1964. The finding led the report to question whether “preparation for later studies” was the best option for these students. Preparation for later studies was at that point entirely academic: in 1970, while the Junior Examination (taken after year 10) includes subjects such as Business Principles and Practice and Agricultural Mechanics, the Senior Examination includes nothing that is close to being vocational. (E. Clarke 1987)

stemmed out of the National Farmer's Union) and their coalition was at that point young and fragile (and won through extreme gerrymandering). They approved as opposed to directing the report, which was heavily influenced by the Labor-backing Queensland Union of Teachers (QUT). The content of the report itself illustrates the role of cross-country influence; just as Austria borrowed the notion of "middle" and "high" schools and NRW in Germany borrowed the notion of "Kollegschulen", a whole chapter of Radford's report focuses on the fact that other countries were all reviewing their secondary assessment practices, including New Zealand (Radford 1970, 31–35, 53). In contrast, Queensland's Employers' Federation and Chamber for Manufacturers registered opposition (E. Clarke 1987, 13, 16).

The early shape of hybrid credentials stemmed, therefore, from educators, not employers. Moreover, where Austria *anticipated* upper secondary expansion through hybridization, in Australia hybridization was in part a response to a more differentiated cohort of upper secondary students. Queensland's response to this problem, was to allow more vocational subjects within a course-based, school-based and primarily reading-and-writing-based structure for upper secondary education. This response was replicated subsequently by the other Australian states: from the 1970s onwards the senior certificates increasingly made room for vocational learning (for details on the developments across Australia, see Appendix F4).

The consequence of the reversed introduction in Australia was that while expansion in Austria and Germany resulted in distinct new school models, in Australia, expansion resulted in vocationally-oriented courses designed to fit the structure of schools. The establishment of this school-based nature gives rise to what (Iannelli and Raffe 2007) describe, and (Polesel 2017) heavily critiques, as "an education logic" for vocational education. But while they focus on the more national structures to come, and claim that school-based vocational courses were first introduced in the 1990s (Polesel

2008, 617), the roots of this system are much earlier. Ianelli and Raffe focus on the weak links between employers and vocational learning as the factors determining such systems, but there is an important reason why this did not develop. The early format of senior secondary certificates (SSCs) was determined not by the desires of employers but by that of educators, wanting to serve a group of young people whose skills they doubted.

*New Zealand: why no NCEA before 2000?*

As in the other cases, hybridization in New Zealand resulted from pressure on the existing selective upper secondary structures. In 1971, the National Conference of Principals, the main association for school leaders, and the Post-Primary Teachers Association, the main secondary teachers' union, voted for the abolition of the School Certificate, the standard school-leaving qualification taken after grade 10 (Alison 2007, 63; Strachan 2002, 248). The main source of criticism was the “scaling” of results, otherwise called norm-referencing, which was designed to maintain consistency in pass rates. In this period, criticism of “norm-referencing” – or the practice of determining cut scores to maintain a consistent pass rates over time – increased not just in New Zealand but in other countries over the next two decades, leading to much debate over the relative merits of “norm” or “criterion-referencing” (Bond 1996). In the United States item-response theory has mostly resolved debates about standardized assessment methods, but in other countries where combinations of moderation judgments and statistical scaling are used, the balance between criterion judgments and scaling remains a source of debate (Stobart 2008).

The key criticism in New Zealand was that the pass rate did not evolve as student numbers increased, and thus even before the more rapid upper secondary expansion the failure rate was seen as unacceptable [NZ22; NZ6] (Hawke 1988; St. George and Smith 1983). This was such that even employers were dissatisfied with the exam system, unable to find enough certified people who

qualified for apprenticeships, as the School Certificate was the selection mechanism; a 1981 employers' survey showed employers supported the idea of standards and teacher assessments as opposed to "ranking" and scaling (Lennox 1995).

But the timing of pressure did not align with a left-leaning government. From 1960 to 1983, Labour were in power only from 1972-5. Unlike in Australia, where more gradual changes were conducted across the states by different state governments, in New Zealand the Liberal/national-led government did not countenance major reform of the school exam system. Consequently, while Australia saw gradual integration of vocational subjects in increasingly mixed-assessment mode certificates, in New Zealand the debate over upper secondary all centered on whether to keep or abolish the externally-assessed School Certificate. When a Labour government returned in 1984, one of their first moves was to set up the Committee of Inquiry into Curriculum, Assessment and Qualifications (CICAQ) to examine the final three years of school. The Committee's two reports called for a complete overhaul of qualifications and scrapping the School Certificate (Ross 1985, 1986). The Labour government opted for a fudge, leaving the school certificate in place but removing its "pass/fail" aspect, and promoting the new school-assessed Sixth Form Certificate as "a major national award to signify a completed course of secondary education" (Education Minister, Russell Marshall) (N. Z. Parliament 1986, 3992). All university entrance exams were moved into the final "Seventh Form" (grade 12). Yet, comments in parliamentary debate also highlight why the externally examined fifth form School Certificate was so persistent: having existed for over 45 years it was the only school qualification in most people's memory, and performance in it was the main means for comparing schools (N. Z. Parliament 1986, 5239-40).

The persistence of the School Certificate impeded any significant movement towards hybridization in this period. Yet, as a corrective to views that this period was one of no change in New Zealand's



credential system (Strachan 2002, 248), it is important to note that there was ongoing work on alternative approaches to assessment from the New Zealand Council of Educational Research (NZCER) and teachers.<sup>54</sup> This included development of the methods that would be foundational to the NCEA: assessment against descriptive standards (or “criterion”) and moderation across groups of teachers in different schools [NZ22; NZ20; NZ6]. The long delay between educators losing confidence in the School Certificate and the point at which there was sufficient public opposition to abandon it meant that when that time did come, school educators as well as vocational educators each had their preferred assessment methods ready.

*Conclusion on the early period: hybrids as a reluctant political compromise*

In this first period, while each context sees demand from educators and from the left for more expansive forms of upper secondary education, hybrids only flourish where there is a sustained period of left-led government. The politics of federalism make this harder to attain in Germany and Australia than the other cases, and the timing did not match in New Zealand. This meant that full establishment of a hybrid path in this earlier period was blocked in all cases except Austria. This proves consequential as the BHS absorbed a large part of upper secondary expansion from the 1970s onwards. In contrast, in Germany this period saw the expansion of the Realschule – the middle tier of the tripartite system (R. Becker 2003). Likewise Australia and New Zealand saw more students simply stay in regular schools for longer and working towards general qualifications. Each

<sup>54</sup> As early as 1972, the New Zealand Council for Educational Research had commissioned a major report on the potential of assessment practices which included four alternatives for “the way ahead”, two of which involved abolition of the School Certificate (Elley and Livingstone 1972, 143). From 1974 the School Certificate provided options for internally assessing Art and Math, then English and Science. In addition, in the same year the new, separate Sixth Form Certificate, provided an alternative leaving qualification. Like NCEA would be, it was made up of subjects graded against several levels (“achievement-based assessment”) as opposed to being a pass/fail exam (Lennox 1995). Looking internationally, this was comparatively early amongst the English-speaking systems to adapt the school-leaving certificates. The school certificates in England, the “O” and “A” Levels, used full external examination and norm-referencing until 1984. It was, however, considerably later than Queensland.

of these three other cases therefore lost the opportunity to develop an organizationally-separate hybrid form at a time of growing student numbers.

To understand the different developments of hybrids in this period, we therefore need to consider not just partisan politics but also the significance of timing: partisan politics the same policies enacted with the same impulses but at different periods of time can unfold in very different conditions (Pierson 2004). Indeed, these cases offer further support for the “time-sensitive partisan theory” proposed by Garritzmann to explain differences in higher education finance (Garritzmann 2016). In these cases, when left parties were in power explains the timing of development, which, as we will see again in the next section, is consequential for the form each hybrid takes.

### **The development of hybrids: balance and imbalance (1990-2016)**

This period saw the mass development of hybrid pathways across all the cases as hybridization was embraced as a means to expand upper secondary without threatening the existence of separate schools or curricular for the elite. And yet, the different histories feed into very different outcomes. While the earlier origins of the BHS allowed them to develop a strong, balanced model leading to double qualification, later models could not create this balance. The later models lacked a core constituency of capable young people who were attractive to employers, and consequently the later hybrids were shaped only by the demands of the school system. Where hybrids were shaped only by the school system and not by employers, they have become instead a means of acquiring an academic education through a lesser route.

#### *Germany: late promotion of hybrids leads to academic leanings*

In contrast to Austria, the development of the vocational high school models in Germany has not maintained a balance of academic and vocational focus. Schools like the FOS and Kollegschulen did not build up a constituency of capable young people, and remained of little interest to employers.

They have expanded, however, because of belated recognition of their potential as a way to expand access to academic upper secondary without challenging the Gymnasia of the elites.

#### Bavaria: an academically inclined hybrid

The case of Bavaria illustrates how hybrids provide a way to expand upper secondary education in the context of conservative politics. Despite their origins as a SPD project, by the mid 2000s the CSU was actively promoting the FOS/BOS as a path to higher education. The key context was growing criticism of the tripartite school system. The Christian Democratic parties have long been its staunch defenders, and Bavaria is one of the few states that has not introduced any form of comprehensive schools or combined the Hauptschule and Realschule. But in the early 2000s, German politicians were under increasing pressure from the OECD, and particularly its head of Education and Skills (who himself happened to be German) Andreas Schleicher, concerning the “low permeability” of its school system. Parliamentary sessions from 2004 show CSU politicians highlighting the role of the FOS and BOS in Bavaria:

...why is the beneficial establishment of the acquisition of the higher education entrance qualification through the Berufsoberschule and the Fachoberschule constantly negated when talking about Pisa? They [the federal government] just do not look.<sup>55</sup> (Bayerischer Landtag 15/33 2004, 2315)

The (CSU) Minister of the Education, Monika Hohlmeier, attributed Bavaria’s success in PISA to maintaining high standards, in the Hauptschule, Realschule, FOS and BOS as well as the Gymnasium (ibid, p. 2317). Against the opposition to the tripartite school system, the FOS and BOS had become a point of pride. In 2005, the new CSU state Minister of Education, Siegfried Schneider, praised the equalizing potential of the FOS and BOS in a national newspaper interview:

<sup>55</sup> “...warum wird denn beständig die segensreiche Einrichtung des Erwerbs der Hochschulzugangsberechtigung über die Berufsoberschule und die Fachoberschule negiert, wenn von Pisa die Rede ist? Das sehen Sie einfach nicht.” - Gerhard Waschler a CSU MP and member of the Education and Culture committee

The *Gymnasium* is not everything. We create justice in a different way: Good *Haupt-* and *Realschule* students can gain the *Fachabitur* through further education routes (*Aufbaubildungsgänge*). In the meantime, 42 per cent of university standards (*Studienanfänger*) in Bavaria do not come from grammar school, but from *Fachoberschulen* or *Berufsoberschulen*. (Kerstan 2005)

This statistic is presented to show the FOS and BOS in the best light; “Studienanfänger” refers to those starting both at the universities and at the Fachhochschulen, and includes those who came to university through pure vocational qualifications, adding an additional 6-8 percentage points.<sup>56</sup> Late in his tenure, Schneider used the statistic of “around 44 per cent” (Bildungsklick 2008), to refer to the proportion who came to a higher education institution after the Hauptschule or Realschule, implying that his concern with these figures is to show the tracked system in the best light, not to particularly promote the FOS and BOS.

The CSU enacted structural reform to entrench the FOS and BOS as a clear second pathway to higher education. In November 2005, Schneider announced at a congress a merger of the FOS and BOS into a new school type, the *Berufliches Oberschule*. This was framed as offering “a new route to general or subject-restricted university entrance”, building on the success of the “FOS 13” experiments<sup>57</sup> (Ohrnberger and Schäfer 2005, 15). The change was enacted in 2008/9 and the schools are referred to as “Bayerische Oberschule” (BOB) or more colloquially just “FOSBOS”.

The merger created for the first time a school type which was effectively parallel to the upper levels

<sup>56</sup> It is unclear exactly which year’s figures Schneider was using but they are likely to have come from the state’s first amalgamation of school outcome information to include the vocational schools. In early 2006 the Bavarian state institute for school quality and education (ISB) released the first Bavarian Education Report (Bildungsbericht), part of a trend across Länder, in part prompted by PISA, that mirrored the federal level work of the IQB. The report states the share of first year university (HS and FHS) students from the FOS/BOS in the 2004/5 year was 36 per cent (Staatsinstitut Bayern 2006, 157–58). The next report, released in 2009, stated that the share from the FOS/BOS for the 2005/6 year was 34 per cent, while 8 per cent came from “other education pathways” (*anderen Bildungswesen*), specified as “usually with proof of training or employment” (Staatsinstitut Bayern 2009, 130).

<sup>57</sup> In 2004, the CSU had begun a school experiment of the “FOS 13”, allowing high-performing FOS students to continue for a year after gaining the FHR and study for the full general university entrance qualification. While the FOS 13 had had strict entry requirements, the FOSBOS merger would create a more widely accessible route

of the Gymnasium in allowing a fully-school-based route to higher education: unlike the BOS which required prior vocational training, the FOS allowed entry directly from the Realschule. The addition of FOS 13 through the merger provided the final year. In an application to the state parliament, the SPD called for the merger to be “a new way” and not just a “second way” to the Abitur; the connotation being that “second chance” (*zweiter Bildungsweg*) education had never represented real equality (Bayerischer Landtag 2005).

The SPD got their wish in a way when in 2018 the Bavarian Ministry of Education introduced a new brand for the FOSBOS, “my way to the Abitur” (Bayerisches Staatsministerium 2018). While it is still possible for students to transfer into the upper grades of the gymnasium, the FOSBOS may be a more attractive route, with slightly lower entry requirements (in the German scale where 1 is the highest, a grade point average of 3.5 is required for the FOS as opposed to 3 for the upper level Gymnasium) and the advantage of offering second-language teaching from scratch after the 10<sup>th</sup> grade. Like Austria’s BHS, therefore, the FOSBOS are the natural continuation point from the Hauptschule – now renamed in Bavaria as “Mittelschule”. The Director of vocational schools in the Bavarian Ministry of Education noted in a 2017 interview that the FOSBOS are “for parents and school students a stable factor in their educational planning”<sup>58</sup> (Endres 2017). In other words, parents and young people know that FOSBOS can convert their Realschule education into entrance to higher education. Endres also stressed that both the subject-restricted and the full university entrance were available through the vocational schools, and claimed that “the Fachoberschulen and the Berufsoberschulen now award almost half of all university entrance qualifications in Bavaria”.<sup>59</sup>

<sup>58</sup> “für die Eltern und Schüler ein stabiler Faktor in der Bildungsplanung”

<sup>59</sup> “Die Fachoberschulen und die Berufsoberschulen verleihen mittlerweile nahezu die Hälfte aller Hochschulzugangsberechtigungen in Bayern”.

The share is more like almost two fifths, but indicates again the eagerness of Bavarian policy leaders to claim that the FOSBOS creates opportunity in their education system.

### Outcomes of the FOS/BOS

The growing significance of the Berufsoberschule and particularly the Fachoberschule is unquestionable. Figure 17 illustrates that the Fachoberschule have almost doubled in size since the early 2000s, and now have a cohort size over half that of the Gymnasium.

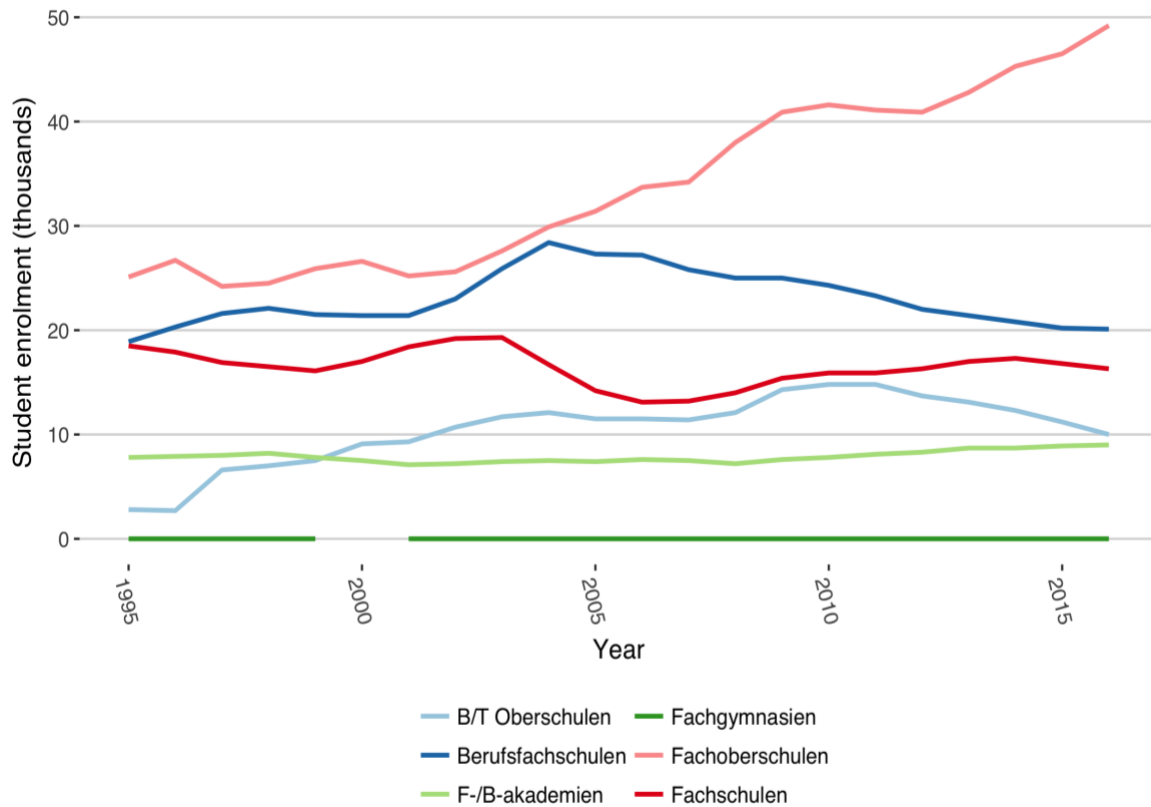


Figure 17. Bavaria, Germany: Vocational school enrolment by school type, 1995-2016

In 2015/16 there were 22,482 FOS graduates compared to 42,455 from the Gymnasium

(Staatsinstitut Bayern, 2018, pp. 27-28). BOS enrolment is lower partly as it is a 1-2 year as opposed to 2-3 year pathway, but also reflecting the fact that it still formally requires some prior vocational training.

The significance of the FOSBOS as a source of double qualification is more questionable. On the one hand, the raw numbers of young people getting a full university entrance qualification (HR) from the FOSBOS remain small: 3,453 in the latest year of figures (2015/16), compared to 38,248 in that year from a Gymnasium (see Table 13). On the other hand, this is more than double the number who did so less than 10 years earlier, shortly after the start of the FOS13 program.

Table 13. Qualifications from the FOS/BOS.

2015/16	<i>Fachhochschulreife</i> (FHR, university of applied science)	Subject-restricted (fgHR)	<i>Allgemeine Hochschulreife</i> (HR, university)	Total with a qualification to study
Fachoberschule leavers with this qualification	12,990	681	2,597	16,268
as a share of all 2015/16 FOS leavers	58%	3%	12%	72%
Berufsoberschule with this qualification	4,315	563	856	5,734
as a share of all 2015/16 BOS leavers	56%	7%	11%	74%
Combined FOSBOS leavers	17,306	1,244	3,453	22,003
as a share of that qualification type	100%	100%	8%	37%
Numerical increase from 2006/7	+ 14%	+ 34%	+ 136%	+ 25%

Source: Staatsinstitut für Schulqualität und Bildungsforschung (Staatsinstitut Bayern, 2009, p. 131; 2018, p. 28)

Moreover, the FOSBOS remain a significant pathway into higher education, once one looks also at the subject-restricted HR and the FHR permitting entrance to the universities of applied science; 22,003 got some kind of study qualification, representing 37% of school-based<sup>60</sup> study qualifications.

This share has held steady since 2006/7.<sup>61</sup>

60. This excludes study qualifications gained through professional experience or company-based training, which were more widely promoted after 2008.

61. In 2006/7 school-based study qualifications were comprised of 29,720 students from the Gymnasium obtaining the HR and 17,595 students from the FOS or BOS obtaining the FHR, fgHR or HR.

The FOSBOS are also significant in who gains qualifications there. While Bavaria, like federal Germany, does not keep state-wide statistics on the students' socioeconomic status, state datasets do record student nationality and first language. Students who either are not of German nationality or do not speak German when they arrive at school are classified as being of migration background (*Migrationshintergrund*). In the latest data, one third (33%) of students from the Realschule with migration background transfer to the Fachoberschule after tenth grade, compared to just over a fifth (22%) of those without (Staatsinstitut Bayern 2009, 63). An earlier investigation of how non-German citizens progress through school found that 4.1% of students who get the study qualification from the FOS/BOS were non-German citizens, compared to just 2.8% of those at the Gymnasium (ibid, 125). While it may not be quite as substantial as proponents claim, therefore, the FOSBOS are playing some role in opening up pathways to higher education for students previously closed out by the tracked system.

What of vocational qualifications? While the FOS and BOS both provide vocational specialism, neither at the Ministry level nor on individual school sites do they actively promote them as a path to vocational qualification.

#### NRW's hybrid: neither vocational nor academic?

As in Bavaria, vocational high schools in North Rhine-Westphalia have expanded access to the Abitur, but with less success. Their case illustrates the existence of the same political dynamics in a different context, but also highlights the role of lower secondary pathways in the success of hybrid models. This will form the subject of chapter five.

As in Bavaria, the (SPD-led) government in NRW enacted structural change to cement the Kollegschulen as a clear route. In 1997, Kollegschulen were reformed as *Berufskollegs*, which amalgamated multiple school pathways (Landtag Nordrhein-Westfalen 1997). The Kollegschule's



focus on combining an apprenticeship and Abitur study receded in importance, as the Berufskollegs now offered two shorter routes to the Abitur: a vocational gymnasium pathway, and a path through upgrading the Realschule leaving qualification.<sup>62</sup> Students could also complete a double qualification by taking classes towards a state-recognized “Assistent” qualification; while these are typically perceived as less valuable than the federally-regulated (BBiG-backed) qualifications, they are common certificates in the growing service and health industries.

Rather than focus on the potential of this double qualification, however, promotion of the Berufskolleg has increasingly focused on its offer of the Abitur. The *Westdeutsche Allgemeine Zeitung* (WAZ), the largest regional publication in Germany covering NRW news, asked in 2012, “*Ist das Berufskolleg eine Alternative zum Gymnasium?*” (Hanisch 2012). In 2014, four colleges in the city of Solingen united under the banner “Abi am BK”<sup>63</sup>. In 2018, the municipality of Ahaus has created a dedicated website, “abitur-am-bk”, branded with the title “*Mach das Abitur am Berufskolleg!*” with links to the municipality’s four BKs. Part of the appeal of the offer is that, in contrast to joining the upper level of a Gymnasia where other students have been on a pathway to the Abitur from the sixth grade, those in the Berufskolleg all begin together. This is particularly important when it comes to study of a second language, which is required for the Abitur but is not offered as standard in the

<sup>62</sup> An additional law of 1999 (APO-BK) sets out four different tracks (A to E) through the Berufskolleg, each ending with different qualifications, and some with different entry and exit points (for example, it is possible to enter the “FOS” track at equivalent to grade 11, 12, or 13). The Berufskolleg offer the Abitur through two tracks, known as Berufliches Gymnasium (“D”) and FOS Klass 13. Klass 13 of the FOS offers a one year route to the subject-restricted Abitur (similar to the BOS in Bavaria, see below), but entry requires either completion of the previous two years of the FOS or two years of vocational training in the school’s specialist field. The more accessible route is through the “D” or BGY track. This is usually entered in 11<sup>th</sup> grade directly after the Realschule (or Sekundarschule in NRW), for completion of the Abitur over three years (Young people who already have an FHR can enter at the 12<sup>th</sup> grade to complete the subject-restricted Abitur in their same specialism. This requires prior study of a foreign language). Study is in the core Abitur subjects and an occupational specialism: engineering, business and administration, design, nutrition, health and social work and computer science.

<sup>63</sup> <https://tbk-solingen.de/schule/abi-am-bk-cin-guter-weg> Google dates this webpage announcing their banner and joint initiative to 28th September 2014.

Sekundarschule (NRW's non-Gymnasium track) and so may require starting from scratch. The Berufskollegs therefore offer additional opportunities to young people – but also a way to avoid reform of the Gymnasium or Abitur requirements.

### Outcomes from the Berufskollegs

The latest NRW school statistics reflect the significance of the Berufskollegs as a route to higher education. Table 14 illustrates that while less than one fifth of BK students end up with a qualification to study, they represent one third of all students who do so.

Table 14. Qualifications from the Berufskollegs, 2017/18.

	<i>Fachhochschulreife</i> (FHR, university of applied science)	<i>allgemeine Hochschulreife</i> (HR, university entrance)	Total with a qualification to study
BK leavers with this qualification	30940	9885	40889
As a share of all BK leavers	13%	4%	17%
As a share of all qualifications of that type	82%	12%	33%

Source: Landesbetrieb IT.NRW 'Schulabgänge von allgemeinbildenden und beruflichen Schulen 2018 nach Abgangsarten. Note: Fachhochschulreife includes students who have only completed the school-based part of the Fachhochschulreife; the full FHR qualification also requires vocational training or an internship

In NRW, the early hopes of the Greens and SPD are realized then, as the Berufskollegs represent an alternative to the upper level of the Gymnasium and a route to the Abitur. But, the concern of the CDU that school-based training would grow in place of company-based training has also played out: according to federal statistics, of the more than 30,000 students who most recently qualified with the FHR from a Berufskolleg, more than half (17,055) had not completed the work-based training part. This does not mean they will not complete it after school, but is a sign that the theoretical, school-based aspects of a hybrid education are taking precedence over the more concerted vocationally specialized elements. Moreover, these statistics highlight the fact that the study-qualifying route is by

no means the majority route through the Berufskolleg: over two-fifths of BK students do not get a higher education qualification and 70% of students leave a BK without gaining any further general education qualification<sup>64</sup> (IT.NRW 2019). Rates of vocational qualifications are no better: NRW ranks bottom amongst the German Länder for completion of vocational qualifications (INSM 2018). The significance of cohort is evident when we look at outcomes. Whereas the FOSBOS provide a natural continuation point from the Mittelschule, in NRW there is a multitude of routes young people can take.

Despite the opportunity they provide of double qualification, therefore, the Berufskolleg are not functioning as a hybrid pathway.

*Australia: convergence – in a school-based model*

The late 1980s to early 1990s saw the direction of upper secondary policymaking in Australia change. Whereas previous reforms had been led by bodies internal to the education sector, focused primarily on the technicalities of assessment practice, this phase was instigated by reports from the perspective of employers. The reforms produced some structural and symbolic changes which allowed for the integration of academic and vocational training into hybrid pathways. In practice, the academic and vocational components of these pathways were by no means balanced.

At the federal level, Australia had a Labor government from 1983 to 1996, and his period saw the formalization of senior secondary certificates (SSCs) in Australia as hybrid pathways. In 1991, the federal-level Education Council convened a national review on “Young People’s Participation in

<sup>64</sup> Not all students would enter a Berufskolleg with the intention to get a further general qualification. Yet Harney and Hartkopf (2008) analyze the composition of a particular large Berufskolleg in terms of student backgrounds and intended pathways. They find that the largest cluster, 60%, of students have a clear intention to upgrade their educational level, either to be able to study in higher education or to be more competitive for an apprenticeship.

Post-compulsory Education and Training”. In contrast to the previously significant Radford review, which was headed by a researcher, the review was headed by businessman, Brian Finn, then CEO of IBM Australia. While Radford’s report had focused on the technicalities of assessment, Finn advocated more generally for “the convergence of general and vocational education”.<sup>65</sup> The advocacy was based on an argument that convergence is an evidenced trend both within Australia<sup>66</sup> and internationally<sup>67</sup>.

“Convergence” says nothing of what form that would take – whether located in schools or in work or training places, but the report is characteristic of this period in viewing school-based hybridization as a manifestation of liberal values. It is portrayed as allowing more choice for students and more equality, for example, where the approach of Sweden is contrasted with that of Germany:

A key rationale for a school-based model is that it maximizes the options for students. In Sweden the impetus for the creation of an integrated upper secondary school was egalitarian/distributive. (ACE, 1991, p. 105)

The foreseen weakness of a school-based model – that it may be “less responsive to rapidly changing technological and organizational demands of industry and commerce” – are brushed off as problems that “may be attenuated by appropriate forms of industry communication” (ibid). A

<sup>65</sup> “The convergence of general and vocational education” was the very first subject in the executive summary. The placement is notable as the report is more remembered now for beginning the trend of national government targets for year 12 completion, a practice revived by the Labor government of 2008. Finn did indeed include a goal for 95% year 12 or equivalent completion by 2001, which seemed realistic given the recent trajectory, but in fact, year 12 school completion levels stalled after 1992 and did not rise again until after 2001 (and never above 85%).

<sup>66</sup> The report writes of “a clear trend towards “convergence” of the full-time curricula offered to young people by senior secondary schools and TAFE, reflected in the increasingly vocational emphasis of many new programs at upper secondary level and the incorporation in most full-time TAFE courses of a significant element of general education.” (Australian Education Council, Review Committee, and Finn 1991a, 1). Accompanying case studies document the development of school-TAFE relations, including mutual recognition of subjects, and dual or joint accreditation (Australian Education Council, Review Committee, and Finn 1991b).

<sup>67</sup> One of the events that fed into the Finn review was an OECD convening around “VOTEC”, vocational and technical education. The report on this convening in Appendix 2 of the Finn report concludes that, “It became clear at the Seminar that most developed countries are actively investigating how to inject elements of VOTEC into school based 'general' education, and conversely, elements of 'general' education into VOTEC” (Australian Education Council, Review Committee, and Finn 1991c, 26).

potential contributing factor here – showing again the potential for cross-case influence – was the impact of the early 1990s recession in Germany. The report documents a German perspective that the “dual system” of apprenticeship was under strain (Australian Education Council, Review Committee, and Finn 1991c, 22).

The aspiration for convergence is very similar to that of this period’s reformers in New Zealand. But where they would envision a nationwide unit-based system to allow industry to directly translate their interests into learning goals, Finn, operating in a country of state-led education systems, placed responsibility for credential design at the feet of the school system. The school systems responded. The years following the Finn Review saw accelerated activity to allow vocational subjects to be formally integrated into senior secondary certificates and also to receive accreditation as recognized VET. In the Australian Youth Survey, of those who were 16 in the years 1990-1994, just 14% of students in government schools and 4% of students in independent schools took part in vocational subjects at senior secondary (Lamb and Ball 1999). Just a few years later, of the cohort captured in the first Longitudinal Survey of Australian Youth (aged 16 in 1996), 23% of girls and 24% of boys had taken a VETiS subject (Fullarton 2001).

Integral to this development was the simultaneous development in the vocational education and training system.<sup>68</sup> Almost concurrent with the Finn review, the vocational training system was undergoing a review led by Laurie Carmichael, Assistant Secretary of the Australian Council of

<sup>68</sup> As in many countries, governance of the education system and of the training system was distinct. In many of the state education departments, and certainly in the federal department, schools and VET were very separate sectors. A former General Manager in the Victorian Department of Education recalls: “When I started there were two completely different offices, two buildings, I’d left before the VET side went to another department, and then it came back again. But it was always completely divided. The VET side was always about the competency based training for industry purposes, whereas the school side was about the broader education. The two probably – I wouldn’t say never, but rarely met. You don’t have the conversations about literacy and numeracy in VET in the department. It’s quite different, there’s schooling and then vocational training.” [AU29]

Trade Unions (ESFC 1992). This review resulted in the formation of the Australian National Training Authority (ANTA) and a “vocational certificate training system”, involving levels of competency-based certificates. A school-based course could be composed of just units of a full vocational VET certificate, and school students could take units with external providers, or after school hours. But in doing so the competency-based unit model reinforced a substitutive form of hybridization: vocational learning could easily be cut down to size to fit into a timetable, course load, or requirement for school completion.

In November 1994 the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA),<sup>69</sup> the joint council of the state Education Ministers, agreed that what was now called the Australian Vocational Training System (AVTS), the competence-based system of training, should be implemented into the school sector. The timing of this reform allowed New South Wales, whose Higher School Certificate (HSC) is the oldest SSC in the country and still touted as the “gold standard” [AU12], to be the first to take advantage of the new structure. In 1993, New South Wales had created a set of vocational subjects that would be jointly accredited by the state’s vocational accreditation board. Subsequent new HSC courses were built on the back of the new Level 1-3 courses being developed by ANTA. While the first such subject, “Industry Studies”, was taken by only 264 students in its first year, by 1996 the state was offering eight such “school-delivered vocational courses”, taken by 10,916 students (NSW DSE 1997, 76).

The federal government tried to balance the emerging classroom-based system with work-based learning. In 1997, MCEETYA added the agreement that the New Apprenticeship model should also

<sup>69</sup> MCEETYA was formed in 1993 from the amalgamation of the three separate councils that previously performed the role of co-ordination between the states: the Australian Education Council (AEC), the Council of Ministers of Vocational Education, Employment and Training (MOVEET), and the Youth Ministers Council (YMC).

be introduced in schools, creating “School-based New Apprenticeships”<sup>70</sup>. The Commonwealth (federal) government agreed to fund the integration effort with allocations of AU\$283 million to national agencies working with both industry and schools (DEST 2002, 21–22). Numbers of school-based apprenticeships rose quickly from 1998, from 1,500 after the first year to over 15,000 by the start of 2004. But company-based training proved more difficult to implement than taught VETiS courses; while the latter fit neatly into the structures of schools,<sup>71</sup> school students did not fit neatly into existing industrial relations arrangements and the Commonwealth government had to make a series of concessions and increased subsidies to incentivize employers to take on school students as apprentices or trainees.<sup>72</sup> In the first LSAY survey, while 22% of young people participated in school-based VET in schools, only 1% were enrolled in a school-based apprenticeship (Fullarton 2001). At the peak of school-based apprenticeship enrolment in January 2012, no more than 7% of senior school students were engaged in one or more units of apprenticeship-based training, compared to 41% for that year involved in VETiS.<sup>73</sup>

MCEETYA seemed to succumb to the idea of school-based courses as the dominant model, increasingly using the designation of “VET in Schools” (VETiS) during the 1990s, and the name was quickly adopted as an umbrella for all VET for secondary students, including apprenticeships (ACACA, 2002-6). In 2001, MCEETYA formalized the definition with a framework further

<sup>70</sup> “SNBAs” later became “ASBAs” when New Apprenticeships were renamed Australian Apprenticeships.

<sup>71</sup> The institutionalization of school-based vocational courses was occurring through new support networks and agencies. By 1995 there was a national network of “VET teachers in secondary schools”, soon producing its own journal (Harrington 2007). In 1998, the Curriculum Corporation, the national crown company (arms-length body) responsible for supporting curriculum delivery across the states, began producing materials to support VET courses.

<sup>72</sup> In particular, prior to 2003 there was controversy because young people who had been through school-based apprenticeships could not subsequently attract government incentives when hired for a further apprenticeship. This was changed after a review in 2003.

<sup>73</sup> Calculations based on NCVER Vocstats: ‘ViS students 2006-2017’ and ‘Apprentices and trainees: Trade status and School-based status’. 536,700 students undertook a senior certificate in 2008, 219,955 students were enrolled in a VETiS certificate, and 34,949 students were taking part in a school-based apprenticeship (trade) or traineeship (non-trade).

codifying VETiS as courses which drew on AQF-accredited training packages (competency-based certificates on the Australian Qualification Framework) (Curriculum Corporation 2001). The 2001 framework marked an inflection point in the development of mass hybridization, in that it had now become primarily school-based. To help institutionalize the framework the Australian government created a new crown company, the Enterprise and Career Education Foundation, with the mission to “support the reshaping of Australian schooling” (ECEP 2002). Schools partnering with TAFE became a secondary model of VETiS, behind schools becoming their own Registered Training Organizations (RTOs) (ibid). This form of VETiS was quite different from the Finn review’s view that there could be two ways to pursue the “convergence” of academic and vocational learning:

One emphasizes the primary role of school- based provision to Year 12 and therefore a long-term objective of full retention to Year 12 in schools. The other aims to provide a range of options after Year 10, including pathways which involve a substantial level of vocational specialization. (Australian Education Council, Review Committee, and Finn 1991a, xii)

By the 2000s, the latter option had faded in favor of one located in schools. We have already seen in chapter three that a consequence of this is that VETiS courses do not primarily provide occupational preparation. Appendix F5 includes further illustration on the outcomes of VETiS and the modal types of courses. Ultimately, the model is a relatively clear case of vocational learning substituting for school completion requirements.

#### *New Zealand: from hybridization to substitution*

The mass hybrid form in New Zealand emerged from a very similar mixture of influences, but, due to the more stream-lined political structure, resulted in more dramatic change to create a “seamless” system combining academic and vocational learning. This would, however, ultimately hinder the institutionalization of distinct vocational provision as part of hybrid pathways.



Soon after the Labor government had contemplated getting rid of the school certificate in 1986, the structures of upper secondary education in New Zealand underwent major reform. These reforms, based on the report of businessman Brian Picot and known as *Tomorrow's Schools*, began with a task force convened by the Labour government and were adopted and completed in 1991 by a newly-elected Liberal government. The Picot Report is well-covered territory in local histories (Butterworth and Butterworth 1998; McQueen 1994) and in more recent scholarship (Openshaw 2009). For the purposes of analyzing hybridization, it is significant primarily for its influence on a lesser-known government committee convened in 1988 to review the organization of post-compulsory education and training.<sup>74</sup> This committee was led by Gary Hawke, a Professor of Economic History and Director of the Policy Studies Institute at Victoria University in Wellington (though remembered by a civil servant from the time as “an economist” [NZ32]). Like Picot, Hawke set his report in the context of changing economic conditions and new demands for social mobility internationally and in New Zealand.<sup>75</sup> He was quick to alight on the intuitive appeal of hybridization:

One of my easiest decisions [in writing the report] was that the distinction between academic and vocational was not likely to be of much value as education policy develops, even though this was unwelcome to many of my university colleagues and to some extent even more in polytechnics. (Hawke 2008, 6).

<sup>74</sup> In a 2002 lecture in which Hawke reflected on his experiences with education policy, he described how Picot’s taskforce set the agenda: “There was a specific Cabinet Social Equity Committee on post-compulsory education and training, the Hawke Committee (which I chaired), and on early childhood education, the Meade Committee. It is my judgement that the most important committee for education generally was the Picot Committee. It was earlier in the field. It advised on the question of how schools should respond to the broad international challenges and on the specific New Zealand issues that I described in section 2 above. Those responses made fairly clear the broad lines of development to be pursued in other sectors of education.” (Hawke 2002, 23).

<sup>75</sup> In “section 2” of the speech referred to above, Hawke describes the climate of the time: “All of this was within a general climate of opinion — international as well as in New Zealand — in which education was seen as a significant contributor to economic growth and to social mobility. Indeed, much attention was paid by educationists to whether schools were contributing to equality of opportunity and social mobility, and a director-general of education in the early and mid-1980s has reflected that it was generally thought that the most significant critics were on the left of the political spectrum. At the same time, there were many business grumbles about decline in core skills of arithmetic and spelling, and there were more serious concerns about the ability of the school system to meet the demands of specific social groups, especially young urban Maori.” (ibid, p. 20)

His full vision (detailed in Appendix F6) mirrors this comment in showing little regard for existing institutions, or the complexities of education. Explaining the influences on his view that hybridization was the way forward, Hawke describes being

impressed by OECD evidence of the convergence between educational thinking and employer assertions of what they looked for from educationally-qualified employees (ibid).

His reflections tally with those of contemporaries, that in the task force reports, “social democratic and neoliberal discourse come together” [NZ22].

The potential for hybridization was greatly increased by a new institutional body that would carry forward Hawke’s vision, the New Zealand Qualifications Authority (NZQA). From the perspective of contemporary commentators, the Authority (created in 1990) was one of the early examples of a quality assurance function in education, based explicitly on a view of education provision as a market (Selwood 1991, 34) [NZ33]. But for Hawke, the Authority was key in breaking down the division between academic and vocational education, as it was intended to replace both the Board of Studies, created in 1986 to oversee the proposed new school certificates, and longer-standing vocational qualification bodies: the Trades Certification Board and the Authority for Advanced Vocational Awards. The government balked at abolishing the Board of Studies, however, and so NZQA’s initial remit primarily focused on vocational qualification.

This initial focus of NZQA became a factor that inhibited the full fruition of a hybrid model. The goal of NZQA was to create a whole new system of “National Certificates”, all of which would be composed of “unit standards” – learning standards which could be assessed as pass/fail in a competency-based manner – and would sit in a new National Qualifications Framework (NQF).<sup>76</sup> In

<sup>76</sup> The method of unit standards was derived in part from the work of SCOTVEC, the vocational education certificates in Scotland. This would be a particular bone of contention when schools were later asked to adopt the method. As an

1993 the government, by then led by the (center-right) Nationals, introduced the NQF and publicly embraced the goal of a “seamless” education system: that young people and adults should be able to move between secondary and tertiary education, as well as between academic and vocationally-oriented institutions, carrying their credits with them.<sup>77</sup> For the under-18 age group, there was a flash of popularity around these new certificates.<sup>78</sup> Anecdotally, schools whose students struggled to gain the full School Certificate were the early adopters [NZ6]. Most schools and universities resisted having anything to do with unit standards.<sup>79</sup> Yet NZQA could hardly keep up with the Ministry’s appetite to grow the new system<sup>80</sup> and polytechnics and private industry training providers (ITO) were quickly designated as standard-setters so they could carry out some of this work. The certificate system therefore tilted further towards the needs of vocational education providers.

NZQA leader from the time recalled it, “Whenever anyone wanted to resist standards based assessment they said it’s all based on Scotvec, and that’s not schools, it’s all very well for trades, but it can’t work for school.” [NZ6]

<sup>77</sup> The National Qualification Framework is introduced in contemporary documents as creating a “seamless” secondary and tertiary education system. A former team leader in NZQA recalls, “one of the big things that was happening, one of the big buzz words, was ‘seamlessness’. The Minister of Education, Lockwood-Smith was the Minister, and he was ridiculed a bit because he talked about seamlessness – you know seamlessness isn’t necessarily a good thing, a suit with no seams will fall apart – but the idea was rather than leaving school and taking a deep breath and starting again, as teenagers usually do, some of the credits from school should be applicable at tertiary. And that happened quite quickly in areas such as computing for example. Students would leave school with half of a diploma in computing and that would be recognized by a polytechnic.” [NZ6].

<sup>78</sup> New Zealand’s records of certificate participation start in 1994, when 3,555 under 18 year-olds took a Certificate 1. This rose to 4,820 in 1995 and then fell to 2,620 and then 1,435 and then 975 over the following years as implementation challenges (recorded in (Allen et al. 1997) seem to have hit. In 1999 it rose again to 5,325, as a new wave of single-subject certificates became available.

<sup>79</sup> Hawke had envisioned that the National Qualifications Framework would force *innovation* in educational provision, leading to the creation of new programs aimed at developing general capabilities, in the vision of international bodies such as the OECD (Hawke 2002, 9, 2008, 9–10). But existing providers – universities, schools, polytechnics – were mainly concerned with how they could adapt their *existing* provision to the stipulations of the NQF. As a former head of communications for NZQA recalls, one general attitude from Principals was, “how much do we have to move?” [NZ6]. The universities, by highlighting the futility of trying to adapt Bachelors courses to an outcomes-based model of unit standards, quickly got the New Zealand government to back pedal and exclude them from having to define their qualifications in terms of units (Hall, 1997 is an example of these kind of arguments). The main line of criticism was that creating personalized courses out of combinations of units is not in the purview of schools, polytechnics and university providers which need to fill classrooms with students studying the same thing (C. Hall 1997, 42). Moreover, even where teachers were innovative considerably with creating multidisciplinary courses, they did not want to innovate in the unit standard direction (Locke 1997; Locke and Hall 1998).

<sup>80</sup> The former head of communications for NZQA recalls being told by the Minister of Education after the release of the NQF, “I want 5000 unit standards on the framework by the end of February” [NZ6]

The introduction of NCEA revealed disjunction between the method of assessing (unit-based) certificates and the demands on a school leaving credential. A 1996 green paper proposed that an all-encompassing “National Certificate”, located on the NQF and composed of unit standards, would be introduced in Year 11 to mark the new normal age of school-leaving. Key features of what this would look like came out of an inquiry from the Post-Primary Teachers Association, begun a year before but released in response to the green paper. This included options to award credits with “Merit” and “Excellence”, and the creation of four-unit as opposed to two-unit credits, to reduce the overall burden of assessment (Allen et al., 1997). The nature of NCEA thus moved away from vocational assessment towards something more comfortable for schools. In addition, under pressure to satisfy sceptics about the now-named “National Certificate of Educational Achievement”, the government provided reassurance that it would not be too radical a departure, maintaining 50% external assessment (N. Z. Parliament 2000, 96).

When NCEA was introduced, it allowed students to be assessed against (mostly 4 credit) “achievement standards” or (mostly 2 credit) “unit standards”. Achievement standards are assessed with a grade or number, and at Levels 2 and 3 half of the standard must be externally assessed, whilst unit standards are internally assessed as pass/fail. While unit standards were available across a range of subjects, achievement standards were mostly located in the “conventional school subjects” – which would become a quasi-technical term [NZ6]. With this design, the Ministry sought to please all stakeholders.

But the new certificate did not quite please anyone. For the assessment purists at NZQA, a general certificate misunderstood the nature of standards- or competency-based assessment, which should

qualify someone for something in particular.<sup>81</sup> For employers, it did not provide a reliable basis for selecting employees. The Education Forum, an initiative of the employer body the Business Roundtable,<sup>82</sup> commissioned a British and an Australian scholar to review NCEA, producing a highly critical report of its potential for differentiation and reliability (Education Forum 2000). But by this point, the National party (in government 1990-1999) had publicly committed to the reform that Labour had started, and neither party were in a position to backtrack on moving the qualification framework and its system of certificates forward.<sup>83</sup>

The result was something which, while hybrid in form, embedded a distinction between academic and vocational approaches to learning in its two distinct assessment methods. We saw in chapter three that use of unit standards has declined considerably over time. Appendix F7 includes further detail of imbalance in NCEA, and subsequent chapters explain why, once distinct and separate, unit standards have been chosen at declining rates.

With three failed examples of balance, how is it that the BHS managed to sustain a pathway to double qualifications?

#### *Austria: balanced hybridization in the BHS*

The establishment and early promotion of the BHS as a distinct school type created a body of dedicated stakeholders – both educators and employers – with an interest in maintaining it. As we

<sup>81</sup> As the former head of communications describes it: “we did not envisage a general education qualification. We said a qualification ought to qualify you to do something – you get qualified to build a house so you can build a house – but in secondary education qualifications normally qualify you to move onto the next level. [NZ6]

For the NZQA team, the “national certificate” was a corruption of the purpose of standards-based assessment.

<sup>82</sup> The relationship between the Education Forum and the Business Roundtable is not evident in their reports, but is covered by studies of the politics of the period, e.g. (Roberts 1998).

<sup>83</sup> “Surprisingly both governments – every government minister I came across was committed to it. And the great thing was once they were committed to it governments are reluctant to step back and say we’ve changed our minds.” [NZ6]

would expect from the policy feedback literature (Pierson 1993), this appears to have been consequential for its maintenance as a high-investment model.

As is often the case with school-based vocational education that relies on specialized equipment and teachers, the BHS are expensive. The per-student cost at the BHS is higher than the AHS or the Berufsschule where apprentices study, and while graduates have good earnings the return on investment takes a little longer (Biffl 2002, 391). In their appearance and equipment, the BHS, and in particular the HTL, are more like small colleges than high schools.<sup>84</sup> In other countries, this kind of institution has been universally raised to the tertiary level, where in some cases it is funded through a combination of public investment and student loans (Pechar 2004). It is striking that the Austrian equivalent has continued to take growing numbers of 14 year-olds on an entirely publicly-funded basis.

To explain the success of the BHS, Graf, Lassnigg and Powell (2012) focus on their relationship to advanced sectors of the economy. Unlike in Germany, training for technology, engineering and public services was traditionally located in the various BHS as opposed to in high-level apprenticeships. The growth of the HTL from the 1970s was related to the privatization of large companies and the related loss of apprenticeship places. In a separate development, growth of the commercial schools and schools of tourism is more related to growth in particular types of service sector employment.

This relationship has clearly been important but does not really explain why BHS would survive as an upper secondary hybrid form as opposed to being upgraded to tertiary [as acknowledged by

<sup>84</sup> TGM now has 2,600 students (TGM 2017). The largest HTL in Austria (known as the largest school in Europe) has about 3,500 students (HTL Mödling 2019). HTL Spengergasse has over 2,200 students, two thirds of whom are in the Computer Science department, opened in 1981.

AT6]. In order to explain the persistence of the BHS in its original form, it is necessary to take into account the role of its dedicated stakeholders, specifically the existence of a separate BHS union. Austria's unions are closely involved as partners in politics, and this is particularly the case in teaching (see Appendix D4). Teacher unions are divided according to type: compulsory school teachers, teachers at vocational schools in the dual system, AHS teachers, and "BMHS" teachers, representing both the middle and higher vocational schools. Representatives of the FSG and FCG factions are elected to represent their members within the union, with FCG (ÖVP) representatives dominating the BHS and AHS factions.

This sub-division of teacher unions combined with the faction system means that both main political parties have an internal natural lobby group on behalf of the particular interests of higher school teachers. Union presence is strong within staffrooms and schools can have a reputation as being either "black" (ÖVP) or "red" (SPÖ) [AT1]. The unions' ability to call strikes has been proven repeatedly (e.g. Der Standard 2009). As the power of AHS teachers influencing both sides of political debate is seen as a major reason for the persistence of the bipartite school system [AT6; AT3], it is reasonable to examine whether the ongoing participation of BHS teachers in political processes has been significant for the maintenance of this high-investment model. (Future inquiry might also want to examine the role of BHS students: there is an ÖVP-aligned union for students of higher schools, who also have a proven ability to strike (UHS 2018)).

While there is not as much focus in academic literature on the power of the BHS teachers as AHS teachers, the significance of these constituencies can be examined at the point in time where the BHS did come under pressure to tertiarize, prior to the opening of the first Fachhochschulen (FHS, now "Universities of Applied Science") in 1994. There was a fear at this time that the creation of the FHS would mean the "death" of the BHS (Skala 2015, 337). Indeed, one original plan for the FHS

from the Ministry of Education had been to convert the BHS into tertiary institutions (Pausits 2017; Pechar 2004). The Ministry of Science, responsible for universities, did not want to have to deal with the BHS stakeholders, however, and took over the reform process to create new institutions instead (Höllinger 2013). The Austrian Federation of Industry (IV) was willing to let the FHS go ahead, but what Pechar (2004) calls “the BHS lobby” were much more resistant. Due to this pressure, it was agreed that the interests of maintaining the current status of the BHS should be prioritized over a smooth articulation with the new tertiary institutions. SPÖ politician Ernst Steinbach described the decision in parliament that the FHS would have to recognize equivalent learning in the BHS and offer shorter courses:

Due to the demand for the maintenance of the existing system of the BHS, the OECD proof of concept report as well as the Federal Ministry of Education and Arts are in favor of crediting subject-relevant knowledge and thus of a possible shortening of the study time in the Fachhochschule areas.<sup>85</sup> (NR/117 1993, 13645)

The concept of crediting subject-relevant (*facheinschlägig*) knowledge was still new in Austria, but would allow the BHS to remain in their existing 5 year form. In addition, the FHS law was only agreed to on the grounds that efforts were taken to ensure that the vocational qualifications from the BHS would be recognized in the European Economic Area (EEA) as a “diploma” equivalent to other country’s one-year tertiary degree (ibid, p. 13646). The decision would be consequential for the growth of the FHS, which struggled to compete with some sectors of the BHS; by 2004 there were places going unfilled in technical courses, as young people continued to opt for the surer and shorter pathway of the HTL (Der Standard 2004). The FHS sector still remains small in comparison with those in other countries (Pausits 2017).

<sup>85</sup> “Der OECD-Prüfbericht wie auch das Bundesministerium für Unterricht und Kunst sprechen sich aufgrund der Nachfrage für die Beibehaltung des bestehenden Systems der BHS mit der Anrechnung facheinschlägiger Kenntnisse und damit für eine mögliche Studienzeiterkürzung im Fachhochschulbereich aus.”



## Outcomes from the BHS: an elite vocational model

In 1987, the BHS overtook the AHS as the larger supplier of Matura diplomas. Table 15 illustrates that the BHS have been the major source of rising educational qualifications since that time.

Table 15. Qualifications from the BHS and AHS, 2017.

	From the <i>berufsbildende höhere Schule</i> (BHS)	From the <i>allgemeine höhere Schule</i> (AHS)	Total with university entrance from upper secondary
Number passing exams at the upper secondary stage	19,587	17,429	37,015
As a share of the total	53%	47%	87% <sup>86</sup>
Growth since 1986/87	+ 64%	+ 6%	+ 33%

Source: Statistik Austria, Schulstatistik: “Bestandene Reife- und Diplomprüfungen Jahrgang 2017 nach Ausbildungsformen” (passed maturity and diploma exams, year 2017, by school type). 1986/7 figures: Statistik Austria 2017, pp. 40

Despite this growth, the BHS remain selective and even elite institutions. They are relatively competitive in that they do not automatically promote students. In the latest available figures, 12% of BHS students were “not promoted” to the next year of school, compared to 9% in the upper level of the AHS. These students should not be considered dropouts, however, as just under half of these (44.5%) chose to repeat a year and another two fifths (37.9%) chose to go to another school type. In contrast, the BMS has similar rates of non-promotion, at 13%, but one third of these end up dropping out of education entirely (Statistik Austria 2017, p. 57). Low completion rates at the BHS are considered a mark of high standards. In a recent newspaper interview a successful Austrian technology entrepreneur recalled her first day aged 14 at HTL Spengergasse in the following way:

<sup>86</sup> 37,015 represents 87% of all Matura and diploma qualifications granted in 2017, including from post-secondary colleges (*Kollegs*) and the part-time BHS forms aimed at working people (*HTL, HAK etc. für Berufstätige*)

On the first day of school they asked the rookies to look at their neighbors to the left and right. The failure rate [Ausfallrate] was so high, the neighbors probably would not be there next year. (Lehky 2018)

As we will see, in comparison with the hybrid pathways that have emerged in the other cases, this selective environment is unusual. But I have argued that it is explicable in terms of the timing of development of the BHS.

*Conclusion: imbalanced hybridization*

This chapter has traced the establishment in each country of hybrid upper secondary models which provide a potential pathway to both academic and vocational qualifications. We observed that only one model consistently provides a pathway to both kinds of qualifications. While in Austria most graduates from the hybrid pathway attain both a fully-qualifying higher education entrance qualification and an industry-recognized vocational qualification, in Germany, Australia and New Zealand hybrid pathways are primarily a means to attain academic qualifications.

The explanation for this imbalance is that hybrid models emerged primarily as a means to expand upper secondary education while maintaining separate differentiation within a purely academic pathway. Across the cases, we saw evidence of resistance to the total reform of academic pathways, or in the case of New Zealand, the reconstruction of traditional features of the academic pathway after major reform. These findings are in line with prior studies observing the resilience of educational inequalities and ability of elites to protect their educational advantages through periods of expansion (Bourdieu and Passeron 1990; S. R. Lucas 2001). But the case details equally support findings that pathway differentiation in upper secondary is explicable as an effort to solve the technical challenges of educating students with very levels of preparation and capabilities, as much as an effort of elite groups to maintain status (S. Kelly and Price 2011). The academic and the hybrid

pathways in these cases are characterized by different educational practice. It would be too simplistic to argue that social stratification or segregation is the only purpose they serve.

The fact that countries introduced hybrids, as opposed to simply expanding an academic path, gave rise to the risk of substitution. In Germany, Australia and New Zealand, mass hybridization was driven not by the balanced demands for specialized and for theoretical skills but by the demand for school completers. Students in these hybrids do not primarily acquire vocational credentials through school but use vocational schools, credits or courses to attain a school completion certificate. The relative balance of the structure in Austria is related to its timing of origin. Where in the other three cases attempts to create hybrid pathways in the 1970s were blocked by political configurations, in Austria the establishment of the BHS as a compromise between the SPÖ to meet the two-third majority rule created an early model which benefited from a period of broad educational expansion. The growth of the BHS in turn created large groups of interested stakeholders in the form of employers and specialist teachers who benefited from its success. The relative growth of VETiS in Australia compared to decline of unit standards in New Zealand can also be related to the relative institutionalization of each model.

The findings in this chapter lend weight to political science efforts to integrate analysis of partisan politics with an understanding of how politics unfolds in time (Garritzmann 2016; Pierson 2004). In these cases, the timing of introduction of a hybrid, related to an extended period of left government, forms a key factor explaining whether that hybrid reliably provides double qualification or only substitution. There is evidence of policy feedback in that the BHS pathway has survived despite being expensive and institutionally unusual, due to having distinct stakeholders (A. L. Campbell 2012; Pierson 1993).

We saw that employers are often skeptical of hybrid pathways, particularly where they involve the removal of external assessment. However, hybrid pathways are of interest to employers as a means to maintain the desirability of vocational routes for higher-performing students; consequently, employers have become interested in supporting vocational courses which do not foreclose a path to higher education. The next chapter takes up the subject of student composition, illustrating the implications of the organization for student flows through pathways and consequently of the rates of vocational and hybrid enrolment.

## Chapter 5. Meso: school choice and the stratification of cohorts

Chapter four examined the policy changes that shaped available pathways across the cases. We saw the rise in all cases of hybrid pathways which offer opportunity to reach both academic and vocational qualifications. These hybrids differed in their balance of academic and vocational education, however, as three out of four served primarily as paths for school completion as opposed to the formation of occupationally-specific skills. The chapter also left us with some puzzles. Given their similar origins and development, why are success rates from Bavaria's hybrid so much higher than NRW's? Given they both took a credential-based form, why has New Zealand's participation in hybrids over time declined while Australia's has risen? To explain the changes in vocational share, we need to go down a layer in detail as to how differentiation occurs at upper secondary.

This chapter explains these puzzles by examining how young people end up in hybrid pathways, and offering further explanation as to why some hybrid tend instead towards substitution. I start the chapter with an extension of the model of educational decision-making as a constrained choice. I set out how the choice of upper secondary pathway is shaped by the choice of (lower) secondary school, and how the nature of this relationship depends on whether we are looking at a tracked or untracked school system.

The case analysis establishes how, firstly, successful hybrids are associated with *lack of* choice. In Austria and Germany, the relative share of hybrid enrolment is associated with the relative share in lower-track schools. Where lower-track schools are strong, hybrids are strong, and vice versa.

Increased opportunity for secondary school choice is consequential for hybrids. While in theory increasing choice of school also increases the opportunity for students to access hybrid paths, school

choice patterns make this less likely. The limits on choice – limits created by political resistance, financial resources and physical buildings – mean that the increase in choice is itself *stratified*. What emerges in these cases are *quasi-tracked* systems, where lower-class and lower-attaining groups do not have access to as much choice, and are concentrated in schools with lower chances of proceeding to academic pathways. Neither of these extremes is suited to support balanced hybrid forms. Higher-strata schools signal and respond to their intake by focusing resources only on academic education, while lower-strata schools struggle to meet the demands of either academic or vocational qualifications. The increases in choice work against the aspirations of hybrid pathways, explaining their low success rates.

In contrast to the development of different pathways, the ultimate explanation for the differences across the cases lie more in path dependency than politics. The emerging lower secondary systems are shaped by demographic and income changes unfolding in stratified school systems.

### **Theoretical background**

Upper secondary choices are shaped in part by the pathways available, and in part by the organization of the lower secondary school system (Bukodi et al. 2017). Traditionally, between-school tracking is associated with larger shares of vocational enrolment (Bol and van de Werfhorst 2013a). Changes in the organization of secondary schools might consequently result in changes in upper secondary enrolment. This section clarifies this relationship and how it works in different school systems.

#### *Educational decision-making as a constrained choice*

We saw in chapter two the need to adapt away from a classic model of educational decision-making in which whatever enrolment we see is what young people are choosing. We know that young

people’s choices at upper secondary are constrained in a variety of ways: they may not have a choice as to whether they remain in school, or about which school they stay in or go to, and they may have to choose from a limited range of options that their school offers.

Each of these different choices is not independent of the others, but linked (or “coupled”). In theory, there are two archetypes of secondary education system which might determine the nature of these choices: “early tracking” and “individual choice” (Blossfeld et al. 2016). In a tracked system, all of these choices are shaped by prior performance. In an untracked system, all of these choices are, officially, open.

Table 16. Theoretical account of the factors impacting choice in tracked and untracked school systems

Choice	Tracked	Untracked
Choice to stay in school	Dependent on performance	Free choice
Choice of school	Dependent on performance	Free choice
Choice of pathway	Dependent on school	Free choice

In practice, it is of course more complex. In a comprehensive system, like the United States, a student who has struggled in lower secondary math, for example, would be steered away from, or in some schools ineligible for, higher level math courses that provide a pathway to four-year college.

Oakes, among others, has pointed out that in comprehensive systems, within-school tracking takes the place of between-school tracking<sup>87</sup> (Oakes 2005).

My pairs of cases ostensibly represent these two types of systems: in the English-speaking cases (Australia and New Zealand), the pathway into upper secondary is primarily made up of

<sup>87</sup> This proposal partly bears out in cross-national research. Across countries which practice between-school tracking and within-school tracking, similar attainment disparities are found across tracks, but socioeconomic differences between tracks are larger in countries which practice between-school tracking (Chmielewski 2014).

comprehensive secondary schools with lower and upper secondary offered in the same school, whereas in the German-speaking cases (Germany and Austria), students are tracked by academic selection into different school types from as early as ten years old.

Tracked systems ostensibly have a more mechanical relationship between choice of initial secondary school and of upper secondary path. Traditionally, for example, a German Hauptschule leads to a Berufsschule and its range of apprenticeship courses. On the other hand, in the previous chapter we have seen that the expectation that more young people will complete upper secondary education, and the increased crossovers between academic and vocational pathways, reduces the close coupling of this relationship. If students can continue onto academic courses even from a lower-track school, the relationship between school and path choice weakens.

In addition, in comprehensive systems, course choice may be more coupled to school choice than we initially expect. For both social psychological and logistical reasons, students' individual path choices are structured by the choices of their peers (Windle 2015). It is unusual for an individual school to offer a full range of courses, even in a comprehensive system, and therefore schools select their offerings in relation to their student body. The degree of actual choice a student has is therefore related to the size of their school and the uniformity of its intake. Potentially, the more that a school's intake is concentrated amongst students with higher academic attainment, the more it is likely to have a default offering of a more academic program – and vice versa: a school with a lower attaining intake is more likely to offer fewer academic courses and perhaps a more vocational program (Perry and Lamb 2017).

Equally, secondary school choice in comprehensive systems is shaped by residential constraints. This constraint is first and foremost practical: while adolescents may travel further to school than



primary-age children, distance creates limits on choice. More importantly, if they have limited space, secondary schools in a comprehensive system may restrict access based on location of residence.

Finally, in both tracked and comprehensive systems there has been an increased expectation that young people will remain in education until a certain age or grade level. This expectation can be backed by formal requirements, such as a school leaving age or requirement to complete grade 10, 11 or 12. Consequently, the decision as to whether to be in school at all may be constrained by these requirements.

We can therefore consider a revised table:

Table 17. Theoretical account of the factors impacting choice in tracked and untracked school systems (revised)

	Tracked	Untracked (“comprehensive”)
Choice to stay in school	Dependent on requirements	Dependent on requirements
Choice of school	Dependent on performance	Dependent on location
Choice of course(s)	Dependent on school	Dependent on school cohort

If we observe a certain pattern of student choice, therefore – such as more students choosing vocational options, or more students embarking on but not completing a hybrid route – it might reflect a preference or it might reflect a change in one or more of these constraints. A reduction in these constraints represents an increase in options. Moreover, as someone cannot choose an option that is not available, a reduction in constraints could therefore explain increased choice of an option.

Table 18 illustrates for specific choices how a decrease in constraints represents an increase in opportunity for choice.

Table 18. Factors impacting choice in tracked and untracked school systems: theorised as removal of constraints

Choice	Tracked	Untracked (“comprehensive”)
Choice to stay in school	Removing requirements	Removing requirements
Choice of school	Removing or loosening academic selection	Removing districts or zones or introducing alternative (e.g. non-public) school options <sup>88</sup>
Choice of course(s)	Removing or loosening prior study requirements	Expanding or diversifying the school cohort

*What does it really look like to increase choice?*

So far, we have viewed choice in the terms of rational choice theory. Preferences are set, and what can change is the constraints on those preferences. From this perspective, we can just move from a situation of having no choice, to having choice, as in the notion of policies to introduce “school choice”. The literature on school choice views school choice as a binary policy option: the presence or absence of a choice. This is a key weakness because in doing so it does not distinguish between different ways in which policies might increase choice: either by increasing *coverage* of policies (the number of choices parents have access to or the proportion of parents who have access to a choice); or by increasing *the diversity of options*. Most theories of school markets conflate these two ways because advocates assume that a market will generate a diversity of choice. But empirical research indicates that this does not necessarily happen, as schools in markets face the paradox of trying to be “different and the same” (Lubienski 2003; Savage 2012). Thus, along with increasing the coverage of

<sup>88</sup> The literature on “school choice” focuses on increased choice as a policy approach, and frames school choice as a transition from a situation of no choice to having more than one school option. These options can come about in a variety of ways. Literature from the English-speaking countries focuses on choice in terms of policies for charter schools and vouchers (Chubb and Moe 1990), or through de-zoning or abolishing districts (Openshaw 2009; Whitty 1998). In the European context, school choice is conceived in terms of the size of the private sector, as in many countries private schools are publicly-subsidized and are intended offer a pedagogical (for example Waldorf-Steiner) or religious (for example Catholic) alternative to parents (Hofman, Hofman, and Gray 2008).

choice policies, school choice can also increase by increasing the *difference between* choices, whether in terms of cohort or curriculum.

Differences between schools create a concrete example. Psychologists would claim that, if two jams are similar, which we choose is more likely to depend on which is closer on the shelf (B. Schwartz 2009). Likewise, school choice literature suggests that if two schools are similar, our choice between them may not be dependent on any feature of the school, but on whichever is closer. (The literature on how parents and students actually choose schools suggests that geography is a key driver, but that at least some parents have preferences about peers when they have information about peer attainment. For an analysis of this literature, see Appendix F8). More generally, if students have a relatively homogenous set of educational choices, they are likely to choose whatever is closest or easiest and their choices will be shaped by geography and policy. In contrast, if differences between their choices become more salient, they are more likely to make a choice based on features of that school.

The key fact in this is that unlike traditional school choice policies,<sup>89</sup> increasing the differences, the *distinctions*, between educational choices can occur without policy changes. It can occur through the accumulation of social processes over time. To conceptualize separately the role of policy changes from that of social processes in the increase of choice, we need to look briefly at what the relevant processes might be.

<sup>89</sup> It seems that currently only a few countries have acquired the political configurations to adopt traditional school choice policies which increase the coverage of choice, such as de-zoning; the policies seem to be particularly associated with centrist or center-left coalitions seeking buy-in for comprehensive school reforms (Haberstroh 2016).

### *Social processes and the creation of difference*

Thus far we have viewed educational choices in terms of individual decisions at one point in time. In moving to consider the creation of difference we are moving to consider how choices relate to each other over time. As we saw in chapter two, this movement is necessary in order to understand trends over time, in terms not of individual choices but sequences of choices.

As set out in chapter two, one way of understanding sequences of choices is in terms of *processes*: chains of social or cultural factors that interact with each other to produce cumulative or self-reinforcing outcomes (Lamont, Beljean, and Clair 2014; Lamont and Pierson 2019).

There is a large number of social processes that can be observed in education and more specifically in the choice of schools. These include:

- *Stratification* of school systems into distinct layers, with observable differences in the composition and outcomes of different groups of schools (Bénabou 1996; Gamoran 1987).
- *Stigmatization* of individuals or groups, whereby membership of a lower strata becomes a defining feature, leading to avoidance by others (Goffman 1963).
- *Residualization* of lower-strata schools or school types, whereby, in a market of geographically located schools, socioeconomic disparities can arise due to persistent differences between the intake and exiters<sup>90</sup> (Forrest and Murie 1983).

<sup>90</sup> In school systems, there are additional reasons why residualization can be self-reinforcing. Firstly, where school funding is tied to student numbers, a shrinking school gets into an increasingly poor material position, making it even less attractive to future choosers (Waslander and Thrupp 1995). Secondly, the children of educationally-discerning parents who exercise a choice earlier are likely to be relatively higher attaining than those who do not, which is likely to make the growing school relatively more attractive to future choosers if they are attracted by positive peer effects.

Each of these processes describes ways in which educational decisions may be influenced by the decisions of those that have gone before. They are processes that are cause for concern by scholars in my case countries. German scholars are concerned about potential stigmatization of students in lower strata schools (Ainsworth and Roscigno 2005; Solga 2002). Australian scholars studying local school markets have raised concern about the decline of the government sector, in terms of residualization (Bentley, Savage, and Hattie 2017; Watson and Ryan 2010). Studies of the state of Victoria have found that high-SES families are more likely to choose a school other than their closest one, creating dynamics of stratification and residualization (Lamb, 2007). Writing of school choice patterns in New Zealand, Gordon (1994) coined the phrase “spiral of decline” to describe the relationship between a school’s loss of human resources and its quality (Liz Gordon 1994, 15).

These studies focus on the implications of these processes for educational inequalities between schools. But they also have specific implications for upper secondary choices. If vocational education is associated with low-strata school types, and if these school types become stigmatized and/or residualized, this would undermine vocational education. What is less clear, is a) why these processes would be happening to different extents across the cases, in ways that would explain uneven decline in the vocational share; and b) how these processes would engender the rise of hybrids: if vocational education is stigmatized, would these processes not predict a movement towards purely academic programs?

### **Case analysis**

The theoretical framework above provides three questions which shaped the investigation, and organize the findings below.

1. How has the extent of school choice in these cases changed over time, in terms of constraints and diversity of choices?

2. In each case, to what extent do the predicted social processes follow any changes in choice, in terms of vocational decline?
3. Based on comparative analysis, what are the ultimate factors that explain the pattern of vocational decline and substitution?

### **1. The basic condition for choice: differentiated options**

For lower secondary school choice to contribute to upper secondary patterns, there needs to be some distinct difference between school types. To what extent do such distinctions exist across these cases, and what form do they take?

#### *Formal tracking*

As outlined above, in international classifications the school systems of the German-speaking and English-speaking cases form distinct opposites: Austria and Germany are classified as tracked systems, while Australia and New Zealand are not (Blossfeld et al. 2016; Bol and van de Werfhorst 2013b; Woessmann 2016). According to the classifications used by the OECD, Austria and Germany begin tracking at age 10,<sup>91</sup> while Australia and New Zealand begin at age 16 (OECD 2000, 2017).

In reality, formal structures of tracking are more diverse. Structures differ across the Länder of Germany, and Austria has two different stages at which students are tracked. Australia and New

<sup>91</sup> While Austria is classified as starting tracking at age 10, in most classifications the *number* of tracks are based on tracks at age 15, when students take PISA, and students in Austria transition into the upper secondary (high school) phase one year earlier than in Germany. Thus students taking PISA have already left lower secondary and are divided into the four types of upper schools: AHS, BHS, BMS and Polytechnics. Consequently, in an index of tracking (Bol and van de Werfhorst 2013b, 36) and subsequent OECD tables, Austria is classified as having more tracking (or more “external differentiation”) than Germany.

Zealand have a large number of secondary schools which proceed through to age 18 with no tracking, but also a variety of selection practices which happen at the start of secondary, around age 12. Table 19 summarizes different tracking and selection practices across the four cases.

Table 19: Timing of selection in the different school systems.

Age of selection	Germany	Austria	Australia	New Zealand
10	Gymnasium operating in the long-form select students to start in grade 5.	AHS operating in the long-form select students to start in grade 6.	NA	NA
12	Berlin, Brandenburg operate a 6-year elementary school, transferring to secondary in grade 7.	NA	NSW, VIC, QLD and WA operate a small number of selective grade 7-12 schools in the government system	Informal selection practiced at some intermediate schools (grades 6 to 7)
14	First two years of secondary as an orientation phase, allowing re-allocation of students after grade 8.	AHS beginning in the upper cycle at grade 9.	NA	Informal selection practiced at some secondary schools (grades 8 to 12)
16	Upper cycle of Gymnasium accepts students in grade 10 (year 11).	NA	ACT, TAS operate separate senior secondary colleges with an admission floor	A small number of senior secondary colleges have admissions criteria
No selection	Comprehensive schools	NA	All other schools	All other schools

Note: the modal starting age in Australia and New Zealand is five year olds, while in Germany and Austria it is six years old. Grade naming also differs (year groups in New Zealand are one higher than a US year group); grade number here refer to US year group levels..

It is evident that the notion of two distinct types, tracked systems tracking at age 10 and comprehensive systems tracking at age 16, does not map neatly onto the more detailed picture of how students are divided into schools. Further complication appears in Table 20, which suggests that, as suggested above, between-school tracking and within-school tracking, in the form of ability

grouping, offset each other. According to 2012 PISA school leader surveys, 15 year-olds in New Zealand and Australia are less likely than those in Germany and Austria to be in a school which practises a form of academic selection on entry, but more likely to be in a school that practises ability grouping within the school.

Table 20: Academic selection into and within schools

Share of 15 year-olds...	DEU	AT	AUS	NZ
... in a school where academic record is considered for admission (PISA 2012)	62%	71%	44%	59%
... in a school that practices ability grouping for any mathematics class (PISA 2012)	68.1%	29.1%	98.4%	98.7%
... in a school that considers a placement test in admission (PISA 2018)	40.1% (38.4% of public schools)	m	24.0% (23.5% of public schools)	33.5% (32.3% of public schools)

And yet, the differences are not as stark as we might expect. Even looking at the 2018 survey, which had a more clearly worded question, over a third of students in New Zealand are reported to be in a school that uses a placement test in admission, compared to two fifths in Germany. (Austria in 2019 was excluded by the OECD from this part of reporting<sup>92</sup>).

This picture of the secondary systems gives some idea of the different constraints on students' choice of school. It appears that across all cases, performance plays a role in admission for some students. What are the other distinctions between secondary schools, and how are they related to upper secondary options?

<sup>92</sup> PISA 2018 focuses its analysis of school structure only on those schools in the sample which are at the "modal" level of ISCED study. This is done to avoid interpretations that are based on grade repeaters, who may be 15 but located in an ISCED Level 2 schools. Austria did not supply information for its schools according to ISCED level, and consequently is excluded from this analysis (OECD 2019b, 85)



### *Gymnasia and the rest*

In identifying the distinctions in the German and Austrian school systems, it is hard to look past academic selection as the key form of division. Taking Germany's tripartite system as the example, traditionally, the school types led mechanically to different upper secondary pathways: the Hauptschule to an apprenticeship at 15, the Realschule to a mid-level school qualification and then an apprenticeship or school-based vocational education, and the Gymnasium to university. But as we saw in chapter four, there has been some breakdown of these established pathways, with an increasing amount of Hauptschule and Realschule students transitioning into standalone "upper" (*ober*) schools or to upper levels of the Gymnasium, and increasing numbers of Gymnasium students pursuing apprenticeships after school, in the *Abi + Lehre* model.

Given this potential decoupling of school and pathway it is important to keep in mind the more fundamental differences between Gymnasia and the other school types. In both Germany and Austria, Gymnasia/AHS are different not just in their curriculum but have different governance: they are administered at a more centralized level and have specially-qualified teachers, who are trained for longer and paid more than teachers in all other school types. Likewise, in both Germany and Austria, private schools are a less important feature of the school system than in Australia, but represent one option for those seeking unconstrained access to academic upper secondary. For further background on the school systems in Germany and Austria, see Appendices D3 and D4.

### *Additional distinctions in "individual choice" systems*

Distinctions in Australia and New Zealand vary, but each has different types of schools, with the consequence that, from the age of 11 or 12, young people have different likelihoods of pursuing academic or vocational upper secondary options. As a precursor to the subsequent section looking at change over time, I describe each as they existed in the early 1990s.

### Australia: three school sectors

While Australia has no formal tracking in the secondary system, there are substantial differences in upper secondary pathways associated with the three differently-governed school sectors: the government, Catholic and Independent sectors. In 1990, these sectors respectively educated 68, 20, and 12% of the secondary cohort, with the non-government sectors therefore representing a larger share than in any of the other cases.<sup>93</sup> Table 21 summarizes the different average

Table 21: Share of LSAY 1995 cohort by outcome, separated by school type. \* = based on n<30

	Government	Catholic	Independent
In year 12 in 1998	71.1% (66.8 – 80.7)	85.7% (80.8 – 89.6)	87.4% (75.2 – 92.3)
Studying for a Bachelors' degree in 2000	27.9% (21.0 – 42.6)	45.7% (39.8 – 54.4)	55.2% (41.0 – 66.2)
Undertaking an apprenticeship in 1998	7.8% (8.8 – 5.5)	4.8% (5.8 – 2.9*)	4.2% (11.5 – 1.5*)
Undertaking an apprenticeship in 2000	14.6% (14.5 – 12.6)	10.6% (15.2 – 6.8)	6.8% (6.4* – 4.6*)

trajectories of students in these sectors, based on the 1995 cohort of Longitudinal Survey of Australian Youth (LSAY 2016). Those in government schools are much less likely to complete academic education (year 12) and much more likely to enter an apprenticeship, either instead of year 12 or just after leaving school. The values in brackets refer to the share from the lowest and highest

<sup>93</sup> Figures rounded to the nearest whole number, and sources from the 1990 National Report on School in Australia, released annually from 1989 to 2008 and held in the Education Council's archive (Education Council 2014). The maintenance of substantial Catholic and Independent sectors in Australia originates in a series of decisions to subsidize these schools to allow more parents access. The first such decision came in 1963, under a Liberal-Country coalition. This per-student subsidy increased somewhat in 1974 under the introduction of the "general recurrent grants program" under a Labor government, and then again by a much larger degree (three to five times, depending on the school's situation) in 1983, under Malcolm Fraser's Liberal government (Burke and Spaul 2001, 439).

socioeconomic quartiles from the school type who reached that outcome. We can see that individual socioeconomic differences create a range of outcomes within school types, but that nevertheless school types represent almost distinct strata in terms of likelihood of pursuing different pathways. The exception is in independent schools where there is considerably variation by socioeconomic status in the likelihood of starting an apprenticeship or a Bachelor’s degree. This is explained by the slightly larger share of independent school students who are from regional and remote areas (currently 31% compared to 29% in the general population) and the substantive differences in outcomes by region (ISCA 2017). Table 22 breaks the above down further to compare the outcomes of students with “metro” (urban) and “non-metro” (regional and remote) zipcodes from independent and catholic schools. Non-metro independent school students have higher rates of apprenticeship and lower rates of degree-commencement, but not compared to their catholic counterparts.

Table 22. Share of LSAY 1995 cohort by outcome, comparing metro (urban) and non-metro (rural) catholic and independent schools

	Catholic (metro)	Catholic (non-metro)	Independent (metro)	Independent (non-metro)
In year 12 in 1998	89.2%	78.9%	91.6%	80.1%
Bachelors’ in 2000	48.4%	40.7%	61.0%	45.0%
apprenticeship in 1998	3.4%	7.4%	2.5%	7.0%
apprenticeship in 2000	8.8%	13.8%	4.4%	11.0%

The 1991 census, though it does not separate out Catholic and independent, gives an indication of socioeconomic stratification between school types in a way that is comparable over time. In 1991, almost twice as many children in government secondary schools were from low-income families as from high-income families (a ratio of .52). In Catholic and independent secondary schools there

were four children from high-income families for every three from low-income families (a ratio of 1.33).

#### New Zealand: former privates and grammars; deciles

In contrast to Australia, New Zealand has much smaller sectors of private and religious schools (see Appendix D2 for details on the school system in New Zealand). Consequently, in the early 1990s, it is difficult to observe distinctions between New Zealand secondary schools in administrative data as there were only small sub-sections of distinct school types. But there are considerable differences in the buildings and social composition of schools, in relation to the integration of former private and grammar schools into the public system. In 1995, this differentiation became more structurally apparent through the introduction of the “decile” system. This is a system of assigning schools to ten groups in order to allocate additional funding to schools with a higher proportion of students from disadvantaged backgrounds. A 2006 OECD Background Report on New Zealand provides a particularly clear explanation:

Decile 1 schools are the 10 percent of schools with the highest proportion of students from low socio-economic communities, whereas decile 10 schools are the 10 percent of schools with the lowest proportion of these students. A school’s decile does not indicate the overall socio-economic mix of the school.

Unlike in Australia where the different school types represent different governance structures, there are no formal differences between low-decile and high-decile schools in New Zealand. Yet from the mid-1990s onwards, there is evidence of the adoption of a conception of difference between “high-decile” and “low-decile” schools as a reification of separate strata.<sup>94</sup> Despite having an untracked

<sup>94</sup> Deciles were introduced as an administrative tool but quickly became a means to distinguish schools by type. In 2001, the first inquiry into the decile system raises concerns that it was interpreted by parents as a quality rating: During the course of this inquiry we have found that a school’s decile ranking is often used as a proxy measure for the quality of the school. High-decile schools are regarded as preferable, while low-decile schools are to be avoided. We believe this is a

school system, therefore, the context of New Zealand is one of considerable visible differentiation between schools.

Given their reflection of one aspect of socioeconomic condition, it is unsurprising that school decile predicts student pathways. Table 23 details the earliest available information on the relationship between school decile and pathway.<sup>95</sup> In the first full year of NCEA Level 3 results, 70% of final year students in “high-decile” (decile 8-10) schools met the requirements for “University Entrance”, compared to 47% in low-decile schools. Similar differences are visible in the other indicators.

Table 23: Earliest available indicators of different school outcomes by school decile.

	Decile 1-3	Decile 4-7	Decile 8-10
1997 school leavers starting at a tertiary education institution in 1998	26%	40%	54%
2004 participating year 13 students gaining NCEA with University Entrance	47%	61%	70%
2007 year 11 students gaining NCEA Level 3 in 2009	19%	33%	46%

Source: NZMOE 1999; NZQA 2009

It is important to be clear that these statistics do not necessary mean that there are actual differences in the quality of these schools; all such differences could be explained in the parental background of

result of widespread misunderstanding about decile rankings. (F. Parliament and Donnelly 2003, 14) The misinterpretation of the decile system as a quality index continued and has been a focus of reports by stakeholder groups and the government (who as of 2020 are replacing the system with a 200 point scale) (Crampton 2019; PPTA Waikato Region 2013; Vester 2018).

<sup>95</sup> The Ministry of Education first released a statistical report on the tertiary education sectors in 1999, which included details on incoming students by school decile by the 1998 school year. Unfortunately, this information is not disaggregated by type of tertiary education, and so includes universities, polytechnics, and private training providers. Subsequently, the New Zealand Qualifications Authority began releasing annual summaries of performance in NCEA.

students at these different schools.<sup>96</sup> What they evidence is distinctions between schools in terms of the modal pathways of students.

*From distinctions to stratification: inequalities in resources, peers and outcomes*

We see from the above that while formal tracking differs across the cases, the “individual choice” systems also offer a choice of school types with different likelihoods of progressing on an academic pathway or not. Across all of the cases, schools are stratified not just in terms of outcomes or the socioeconomic background of students, but also in terms of the resources that schools receive.

## **2. Increased opportunity for choice: policy changes across the cases**

In different ways, each of the cases saw increased opportunity for school choice in this period.

### *Australia*

The 1990s saw reduced constraints on the growth of non-government schools. Prior to this point, across Australia as a whole, non-government and government enrolments remained relatively stable (see Appendix F9 for development prior to 1960). In 1963, 76.1%, of the 1,755,883 school population attended government schools, while in 1990, still 72.1% of the school population (now 3,041,767) was in government schools (Burke and Spaul 2001). In 1996, the income Liberal-led coalition dropped a Labor policy, established in 1985, which had previously limited the registration of new non-government schools. Subsequently, the annual number of new non-government schools increased three-fold (from 7 to 22 for the period 1997 to 2000) (Cahill and Gray 2010).

<sup>96</sup> Analyses of NCEA data from more recent years using New Zealand integrated databases find that different outcomes between deciles are mostly explained by parental background, although students in decile 10 schools slightly outperform what would be predicted by their background (Hernandez 2019).

On top of this release of background demand, the incentives to attend non-government schools increased as investment rose above fees. In both 1999 and 2008, increases in Commonwealth funding for all schools were implemented with a promise that no school would lose out financially from the change.<sup>97</sup> Independent and Catholic schools benefitted more from this additional funding, as government schools saw state contributions fall in response (Watson 2003; Watson and Ryan 2010). These subsidies allowed per-student investment to rise above fee rises (though these did rise above incomes): in 1990, per student expenditure by independent schools was roughly double average fees; by 2008, for parents who could afford it, each AU\$ they spent on their child's education was generating roughly triple the amount in expenditure.<sup>98</sup> This increased investment coincided with the appearance of more visible attainment differences through increased publication of student performance information.

Overall therefore, the differences between schools grew, along with the incentives to choose an independent school.

#### New Zealand.

As with hybridization, increase in opportunity to choose a secondary school came later but more rapidly in New Zealand compared with Australia, and was also associated with the 1989-91

*Tomorrow's Schools* reforms (see chapter four). The report included a recommendation for increased

<sup>97</sup> The method of subsidy is slightly different for Catholic and Independent schools, as the latter are weighted according to the SES of parental home addresses, such that independent schools who draw students from wealthier areas in theory receive less of their operating costs. See Ryan and Sibietta (2011) for detail. This system has been changed most recently in 2017 with the "Gonski 2.0" funding reforms.

<sup>98</sup> In the years from the beginning of detailed household income data collection in Australia in 1994 until the global financial crisis in 2007/8, disposable incomes increased by about 50% for all households, and 72% for the top fifth of households. This rise was about twice as great as in the comparable 2004 to 2017 period. However, school fees increased about 90% in real terms between 1990 and 2007 in both Catholic and Independent schools. School fees and charges data derived from back issues of the National Report on School in Australia, see endnote 93. (Data location sourced from (Watson and Ryan 2010, 91).

school choice,<sup>99</sup> and in 1991, after the transition from a Labour to a National-led government, the recommendation was implemented through the abolition of school zones.<sup>100</sup>

The 1989-91 policy changes also increased the potential for differences between schools in terms of resources, as schools became responsible for their own operational budgets. As evidenced in Wylie's surveys of the school system, conducted annually from 1989 onwards, the majority of schools increased their individual fundraising activities and requests of donations from parents (which are tax free and tax-deductible) (Wylie 1994, 1999). While the decile system in New Zealand awards disproportionate funding to schools which draw their intake from a lower socioeconomic area, high-decile schools can 'top up' their funding with parental donations.<sup>101</sup> The potential to pool parental resources, as in the United States via property taxes, creates an additional incentive for socioeconomic sorting.<sup>102</sup>

<sup>99</sup> The Picot report included as the final one of sixteen proposals for a new system: "The exercise of choice will be enhanced if zoning provisions are modified so that every child has the right to attend the nearest school, and if schools are entitled to enroll any other student who can be accommodated (subject only to an independent ballot where there are too many children wanting to enroll)." (p. xiv)

<sup>100</sup> The first phase of *Tomorrow Schools* reforms were legislated by a Labour government from October 1989, but departed somewhat from the recommendations of the report. Instead they focused on devolving decision-making to the school level through the creation of school-level governance boards: what academics the time identified, after Hirschman, as an emphasis on "voice" over "exit" (Liz Gordon 1994; Hirschman 1970).

<sup>101</sup> In addition to donations, integrated schools may charge enforceable 'Attendance dues'. There is no official record of the extent of donations, but following a freedom of information request, the Ministry of Education in 2017 released the totals of all donations schools received that year (including for example third-party donations). Eight schools had received donations of over NZ\$1 million that year, with one (Wellington College) receiving NZ\$5 million (roughly an additional \$2500 per student, or an additional 25% on top of the average per-student funding at secondary schools). More recently, a release by the Ministry of Education indicates that decile 10 schools receive \$323 on average per student whilst decile 1 schools receive \$55.

<sup>102</sup> The scale of this incentive is in some cases quite large. In 2015, parents at Wellington College got a 2.5 return on their average \$1000 donation, in terms of the per-pupil additional fundraising by the school as a whole. There is some subsequent evidence that this system become less of a significant source of difference over time, however, as it seems to have been reined in by political pressure. Lane (1997) claims that the school donation at Hutt International Boys School in 1997 amounted to "a couple of thousand dollars", whereas now the highest donation level is thought to be just over a thousand: recent media reports refer to the parental donation at Auckland Grammar as the highest, and in 2019 is set at \$1,275 per student. <https://www.ags.school.nz/enrolment/frequently-asked-questions/>



In contrast to Australia, this period saw limited change in policy on or numbers of private and integrated schools.<sup>103</sup> This makes sense if parents are finding other means to access high-resources schools.

### Germany.

The German states have implemented diverse changes to school choice in this period. The first key policy change is that the majority of states have introduced some form of comprehensive schools.

The SPD, the left-wing party in Germany, has attempted to develop comprehensive schools several times from the 1960s onwards, but up until very recently this project was firmly deemed a failure (Wiborg 2010). Now, however, all but three states have some form of comprehensive school (Table 24). This allows young people to choose a school which, theoretically, keeps open their option of any upper secondary pathway.

Table 24. Types of comprehensive schools across the Länder.

No comprehensive schools	“Co-operative” comprehensive schools	“Integrated” comprehensive schools	Community schools
Bavaria	Hesse	Berlin	Baden-Württemberg
Bremen	Mecklenburg-Western	Brandenburg	Berlin
Saxony	Pomerania	Hesse	Hamburg
	Lower Saxony	Mecklenburg-Western	Schleswig-Holstein
(Bremen has	Saxony-Anhalt	Pomerania	Saarland
<i>Oberschulen</i> offering	Thuringia	Lower Saxony	Saxony-Anhalt
an extension of the		NRW	Schleswig-Holstein
academic path)		Rhineland-Palatinate	Thuringia
		Saxony-Anhalt	
		Thuringia	

Note: Land allocations are based on recent documentation of policy changes (M. Becker, Neumann, and Dumont 2017; Helbig and Nikolai 2015; Ridderbusch 2019). Here, “comprehensive school” covers any non-Gymnasia school type which offers a path from start of lower secondary (age 10) to the Abitur. A “co-operative” comprehensive school is one

<sup>103</sup> The number of integrated schools has remained relatively stable since 1975; a number of 293 in 1996 rose to 330 in 2018. Most of these are converted private schools; the number of private school reduced to a sustained low of 87 from 2011 (MOE 1990/McGeorge 2000; MOE 2019). This was not only in relation to subsidies; while they were wiped out in 1990 subsidies immediately increased back to 20% again in 1991 by the National-led government, and subsequently to 25% of operating costs in 1998, or 40% of senior secondary operating costs (LaRoque, 2004).

where the three school tracks still exist, but are more closely administered (sometimes in the same building) and students can move more easily between them. An “integrated” comprehensive school is one where students are taught in the same classes. Not all comprehensive schools continue past year 10; some instead feed into separate upper level Gymnasia or vocational high schools. Community schools (Gemeinschaftschule, or Stadtteilschule in Hamburg) are similar to integrated comprehensive schools but are more likely to continue to year 12 or 13 within the same school.

The second key policy change which has increased choice is the relaxation of entry to the Gymnasia, which refers to removing an external test and/or the condition that a teacher’s recommendation is “binding”. Table 25 presents the changes made by each Land, based on a recent cataloguing of policy changes across the Länder (Helbig and Nikolai 2015). The most common change is to have introduced both of these policies. In these Länder, parents have increased choice in two ways, either to send their child to a Gymnasium or to a comprehensive school. These two shifts were by no means demanded by employers. When the federal employers’ association, the BHA (*Bundesvereinigung der Deutschen Arbeitgeberverbände*), intervened in education policy following the PISA results, one of their key demands was for strengthening the differentiation in the school system, including firming up binding recommendations on the Gymnasium (Hundt, Löhr, and Löhr 2002).

Table 25. Policy changes across the German Länder.

	Relaxed entry to Gymnasia	Maintained tight entry
New (integrated) comprehensive schools	Baden-Württemberg (from 2012), Bremen (from 2010), Mecklenburg-Western Pomerania, Schleswig-Holstein	North Rhine-Westphalia (except 1997-2005), Saxony, Thuringia
No new comprehensive schools	Hesse, Lower Saxony, Rhineland-Palatinate, Saarland (from 2009)	Bavaria, Brandenburg (from 2007), Saxony-Anhalt (from 2004)

Note: Figure in brackets refers to Gymnasium enrolment in 2017/18

And yet, there is by no means a universal trend towards increased choice. The Länder are arrayed quite evenly across the combinations, and many have had multiple policies over time (and Hamburg and Berlin make strict recommendations based on grades but also allow parents to overrule this).

German scholars have described a universal shift towards a bipartite system, attributing this to rising educational aspirations that have overridden the cultural diversity and political autonomy of the

Länder (Ridderbusch 2019).<sup>104</sup> While there is undoubtedly a shift, when looking at the variation in changes across the German Länder it is evident that any general cultural trends towards rising aspirations have not overwhelmed the greater influence of politics and path dependency.

### Austria.

The early 1990s tendency towards increased school choice appeared also in Austria. But where in New Zealand and Germany policy changes increased the number of schools parents can choose between, Austria's demand for choice was met with changes that allowed for increased differences between schools. In 1993, an amendment to the law on school organization allowed for greater school control over their budgets, class sizes and syllabi. This has led to greater differentiation between schools. Parents can now choose between schools with distinct "profiles" (Schratz 2009; Altrichter et al. 2014). (One Austrian informant described these profiles are now being "everywhere" [AT2]).

The introduction of greater school autonomy highlighted dynamics of stratification and sorting within and across school types. The major evaluation of responses to the new autonomy found that Hauptschule used the potential for curricular autonomy more frequently than AHS (Bachmann et al. 1996). This pattern was found again in later surveys (Tanzer et al. 2000; Gutknecht-Gmeiner et al. 2007). It would appear that Hauptschule had more reason than AHS to try to differentiate themselves to attract parents.<sup>105</sup> But AHS more actively raise funds.<sup>106</sup> There is a view that some

<sup>104</sup> Changing societal attitudes are also registered in media articles and by my informants, who see German attitudes to school choice having changed during this period [DE3, DE8]. Greater choice, at least in urban areas, is increasingly expected (Noreisch 2007, 69).

<sup>105</sup> That there is a public perception of competition between schools is highlighted by responses to a 2006 article advocating for "school choice and competition" in Austria, along US lines. It met with responses from commentators highlighting that there was already competition between schools: "There is competition between the schools, as you can see from the different registration numbers, especially in the AHS area." ... "Obviously, it has escaped Mr. Spudich that vocational high schools have long been in a relentless struggle for student numbers." (comments on Spudich 2009)

schools are too “poor” to create profiles, as they would not have the resources to implement a distinctive approach [AT6].

While the increase in school autonomy increased the potential for differences between schools, it did not increase the ability to choose a school leading to any upper secondary pathway. Unlike Germany, Austria’s bid for comprehensive schools was unsuccessful. The attempt came in the form of “New Middle Schools”. These were originally intended to be a new school form which would combine Gymnasia and Hauptschule tracks [AT3]. Despite the formal end of the *Bildungspartnerschaft* – the political settlement between the ÖVP and SPÖ that requires a two third majority in parliament to support change – the SPÖ could not get majority backing for the NMS to be authorized as anything more than an “experiment”. Commentary from the Austrian media shows that these were just one in a long line of similar experiments:

New middle school? At the beginning of the 70s there were “integrated” ( SPÖ ) and “additive” ( ÖVP ) comprehensive school; Beginning of the 80s the “New Middle School”; In 1995, a “joint school of ten to 14-year-olds” was written inconclusively in the coalition agreement (Spudich, 2009)

The history of these attempts highlights the successive failure to get a sufficient majority in backing – as was the case in Germany until recently (Gruber 1992; Wiborg 2010). In 2012, the experiment was declared a success and all Hauptschule, but not AHS, were converted into New Middle Schools. This was meant to involve including teachers from both school types and following a more common curriculum [AT3, AT2].<sup>107</sup> There were subsequently some problems with implementation and the

<sup>106</sup> Through the 1993 amendment school received the right to supplement their budgets by activities such as renting out classrooms or accepting sponsorship or advertising, allowing for differences to grow between individual school budgets. The evaluation found AHS report more use of their autonomy to raise their own funds, including through renting out their rooms (81% of AHS, 48% of HS), and accepting advertising (75% of AHS, 51% of HS) (Gutknecht-Gmeiner et al. 2007: 105f).

<sup>107</sup> In theory, the NMS still represent a move away from tracking because all students have the opportunity to pursue an academic curriculum, whereas the Hauptschule involved three internal tracks, only the top of which offered an academic pathway. However, the choice in NMS is somewhat more limited than it initially appears because of the grading systems,

model of co-teaching became difficult to sustain (Rechnungshof 2013). Qualitative research with parents finds that many choose an NMS because it is the school that they themselves went to (Wolf 2017). This implies that the building and not the school name or pedagogy is what is salient.

### **3. Increased choice leads to decline in lower-strata schools**

In the above, we saw that opportunity to choose a (lower) secondary increased across all of the cases, but in different ways – with different consequences for whether these policy changes actually increased opportunity to choose a school more likely to lead to an upper secondary pathway. New Zealand represents the starkest policy change, as all parents simultaneously received the opportunity to choose from any schools. Schools also won new rights to try to improve their resources. Most German states introduced comprehensive schools with the possibility of an academic upper secondary pathway, and in some states it became easier to access the Gymnasia. In Australia there were new independent schools, creating the opportunity to choose this type which offers a surer path to academic upper secondary. While fees went up above inflation, the return on investment, and consequently incentive to choose this type, increased even more. Austria allowed for greater differentiation between schools, but the only new school type did not provide any new access to an academic upper secondary pathway.

What were the consequences of these new opportunities for enrolment?

where students are grouped by performance and graded according to two scales, only one of which gives access to the highest grades that would qualify one for entry to a Matura track. This grading system was formally introduced after the abolition of internal tracks in the experimental stage caused concern for the parents of children who had previously been in the higher track of the Hauptschule that they would no longer be equipped to transfer into the upper level of the AHS or a BHS: a common pathway in rural areas.

### *Residualization in (urban) Australia, New Zealand, Germany, and Austria*

In the following we see that the share of enrolment in lower-strata schools has declined, to different extents, across the four cases. School composition data and qualitative evidence suggests this decline can be described as a process of residualization, as the residualized school types have a qualitatively different composition and have experienced a decline in reputation. Following this section, I explain the implications of this residualization for the vocational share of upper secondary.

### *Moderate residualization in Australia*

Figure 18 shows the changing share of all secondary enrolment at the national level. The shift in Australia away from government schools differs slightly across the states. The Independent school share rose more quickly in the Northern Territory, such that their share is now the third highest (19.7%) behind Western Australia and South Australia (21.0% and 20.7%). These are states with a relatively smaller Catholic share; the Catholic school share is highest in ACT, followed by New South Wales and Victoria. New South Wales, Victoria and Queensland saw less rapid inclines, and have maintained similar shares. Tasmania saw a larger increase than other states in its Catholic share (up to 20.1%, about average for the country). Tasmania has the lowest share of independent schools, of 14.2%. Overall, the patterns imply that Catholic and Independent enrolment are somewhat complementary; where one is notably higher the average (e.g. Catholic enrolment in the ACT) the other is lower than average. Overall, across states the government sector ranges from 65.6% (Tasmania) to 56.3% (ACT) of the secondary sector. At senior secondary, this looks slightly different, with the lowest shares found in the large, high-income states of New South Wales (57.2%)

and Victoria (55.7%).

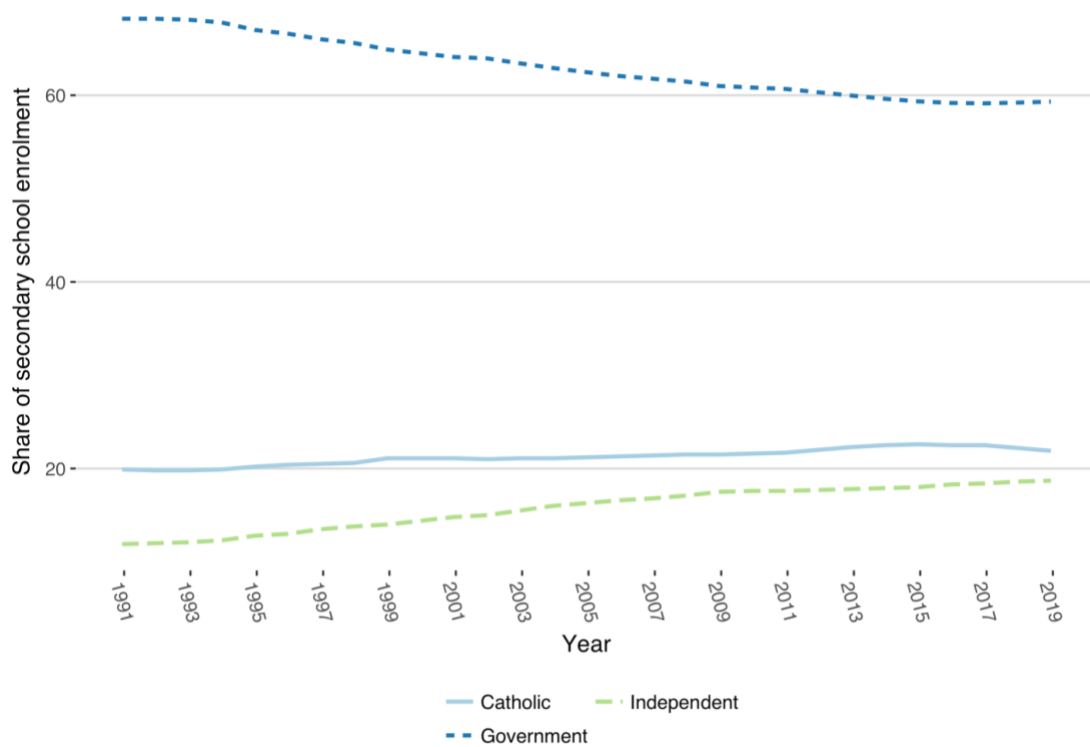


Figure 18. Australia: Share of secondary enrolment by school type, 1990-2018

In comparison to what is shown here, the scale of the shift away from government schools is less pronounced at elementary (where the government share is still 70.3% in 2018) and more pronounced at senior secondary (government share: 58.2% in 2018). While we cannot describe government schools as being “residualized” when they still educate over half of the youth cohort, changes in the socioeconomic composition of school types are akin to a process of residualization, or sorting: census data indicates that between 1996 and 2016, the ratio of low-income to high-income families in non-government schools remained stable, while in government schools this grew substantially (Figure 19).

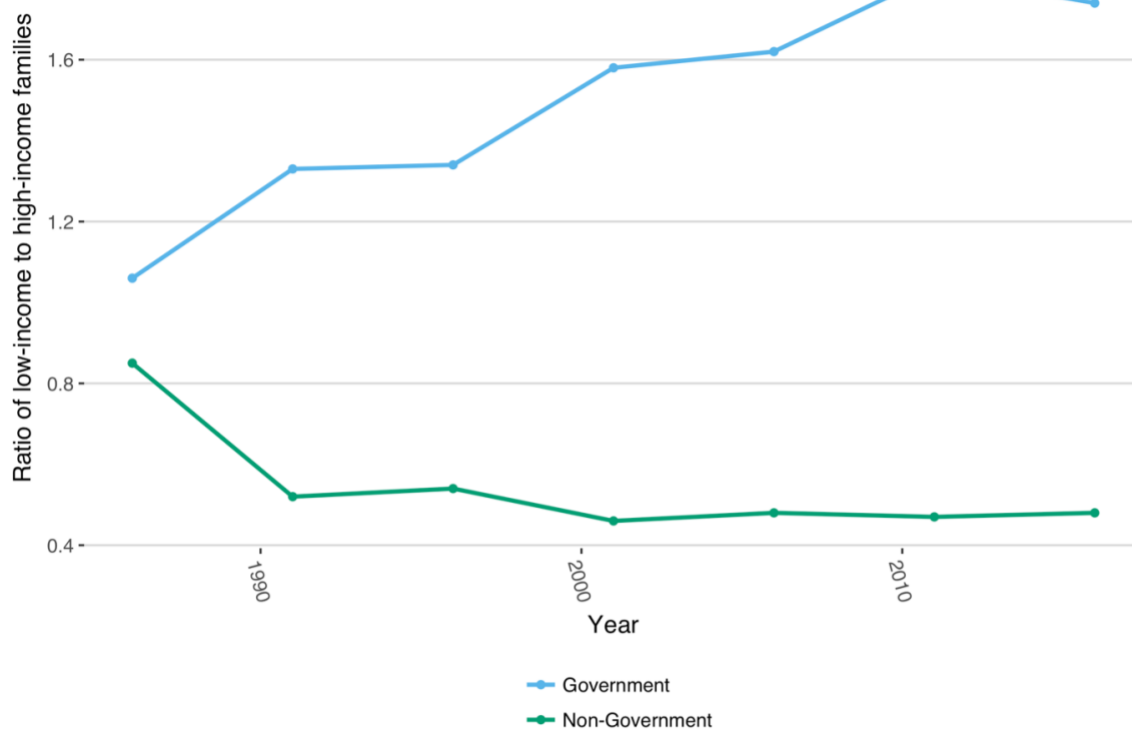


Figure 19. Australia: ratio of students from low-income to high-income families.

Source: based on the census carried out every five years (Australian Bureau of Statistics). Note: “Non-government” refers to Catholic and Independent schools, not differentiated in the census prior to 1995. “Low-income” refers to families in the bottom third of income brackets while “high-income” refers to those in the top third of income brackets. Income labels are based on analysis of the census commissioned by the Australian Education Union (Preston 2013, 2018).

Alongside changes in socioeconomic composition, we can observe differences in performance. In comprehensive systems, traditionally there is large variation in performance within schools, and less variation between schools. The share of variation in PISA performance that lies between schools is often used as an indicator of tracking or stratification within the school system (OECD 2006, 2019b). The higher this share, the more difference there is between schools. In Australia, since 2000 this indicator has risen across each of the domains. In math from 2000 to 2012 (the last time math



was the focal domain) the share of performance variation that is between schools rose from 17.0 to 30.7.<sup>108</sup>

These changes highlight the self-reinforcing potential of residualization. As a school principal put it, catching themselves on a word: “So the schools that sort of struggle with their numbers – “struggling” – it’s a self-fulfilling prophesy” [AU18]. As they explained, the schools that have declining enrolment are “being labelled as the bad schools, struggling schools”, and their situation worsens. Therefore, decline of the government share in Australia can be understood in terms of the increased availability of choice, through the creation of new non-government schools, as well as an increase in the differences between available choices.

#### *Substantial residualization in New Zealand*

When the decile system was first introduced in 1995, schools were evenly divided between deciles: decile 1-5 schools had a roughly 50% share of enrolment, and decile 6-10 schools the other 50%. The next 20 years saw a large movement of students away from lower decile schools towards higher decile schools (Figure 20). Between 1998 and 2015 this movement was relatively steady (slightly sharper changes in 2003 and 2008 are associated with adjustments to the decile calculations after each census). The change in direction observed in 2015 is associated with large increases in the school rolls and the opening of new, small decile 10 schools.<sup>109</sup>

<sup>108</sup> For comparison, the share of variation in PISA performance that lies between schools in Science in 2015 was 24.7, and Reading in 2018 was 22.0. This is the OECD’s preferred indicator: the share of overall variation in performance *across the OECD* that lies between schools in each country. Some studies use the share of the country’s variation in performance that lies between schools (intra-class correlation). The two figures are usually within a few points of each other. The intra-class correlation in math was 16.3 in 2000 and 28 in 2012.

<sup>109</sup> In 2015 adjustments following the 2013 census led to large increases in numbers in both decile 1 and decile 7 schools, and a large fall in numbers in decile 10 schools. Part of this was that two new, and small, decile 10 schools opened in

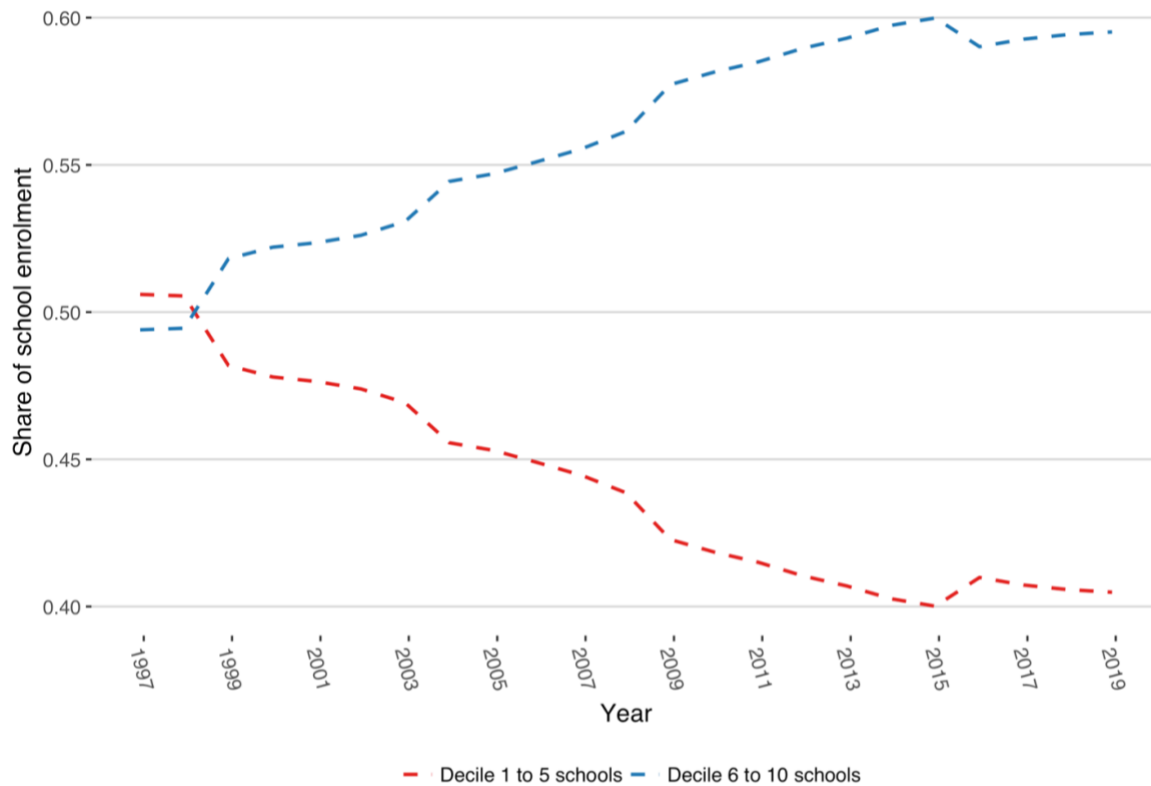


Figure 20. New Zealand: share of enrolment by school decile, 1996-2018

In addition to what is visible in this figure, there was movement within the halves. The principal losers were decile 3 and 4 schools, who in the period 1995 to 2014 (which unlike in Germany and Austria was not a period of demographic decline in New Zealand) together lost 25,000 students. The main winners were decile 8-10 schools, who gained just over 100,000 additional students in the period up to 2014: the vast majority of the demographic increase and the portion lost from decile 1-4 schools. (Other students were ‘gained’ from not previously allocated schools). Studies examining movements between schools find evidence of fine-grained sorting: low-decile schools lost students to middle decile schools, and middle decile schools lost students to high-decile schools (Wylie 1998; Thrupp 1999; Beaven 2002).

2015 in Auckland, bringing the overall share of decile 10 schools down. Overall, school rolls increased by around 70,000 students up to 2014, and a further 40,000 by 2018.

Demographic changes were also relevant: in the 1980s the population of secondary schools was decreasing, but increased again in the 1990s, contributing to the situation of over-subscribed schools.

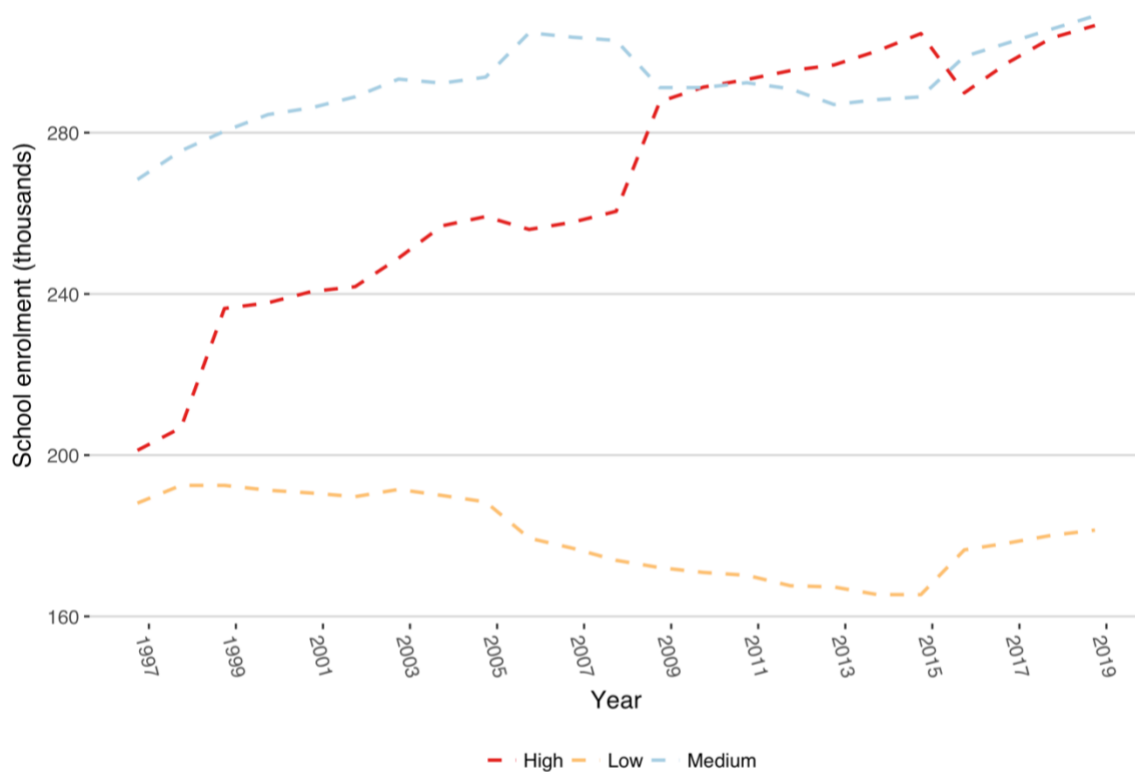


Figure 21. New Zealand: school enrolment by school decline, 1996-2018

As deciles are already an indicator of socioeconomic background, it is evident that this movement amounts to a residualization of low-decile schools. As in Australia, schools also became more differentiated in terms of average performance. In PISA, the overall variance in Math performance increased between 2003 and 2012, and the share of variance that is between schools increased from 18.1 to 28.1.

### *Substantial residualization in Germany*

Secondary enrolment trends in Germany, available from 1998 onwards<sup>110</sup>, show a substantial decline of enrolment in *Hauptschulen* and later and a smaller decline in *Realschulen*. Interestingly, the decline in *Hauptschulen* aligns with a rise in *Gymnasia* enrolment, while the second decline, in *Realschulen*, aligns with increases in the share of comprehensive schools and multi-track secondary schools. Waldorf schools and special schools, which may be considered outlets of different kinds for the school system, show no change.

The most striking development is the rapid expansion of integrated comprehensive schools. While until a decade ago comprehensive schools were still deemed an impossibility in Germany (Wiborg 2010), in the past ten years comprehensive enrolment in lower secondary has reached 20%.

Unlike in Austria, where, trends are fairly similar across the states (with the exception of Vienna), the picture in Germany looks quite different across the *Länder*. Figures for the three largest *Länder* and Berlin are included below for comparative purposes. The most evident contrast across the *Länder* is in the expansion of comprehensive schools. While Berlin (Figure 23) has entirely replaced the lower track school types with comprehensive schools, resulting in over 50% comprehensive school enrolment, Bavaria (Figure 24) has permitted no comprehensive schools. In turn, in Baden-Württemberg (Figure 25) and North-Rhine Westphalia (Figure 26) comprehensive schools are primarily a replacement for *Hauptschule*. Only when multi-track schools start to come in (effectively forced conversions of *Realschule*) does *Realschulen* enrolment fall.

<sup>110</sup> Observing changes in enrolment shares between the school strata in Germany is complicated by the different durations of different school types: *Gymnasia* are typically two years longer in duration than *Realschulen*, which are a year longer than *Hauptschulen*. To overcome this problem, it is necessary to focus on data which can be disaggregated by grade, which means looking from the year 1998 onwards. A comparison of enrolment shares in 1992 (the first year of standardised national data following reunification) and 1998 reveals little change in the overall shares for each secondary school type; the school population was growing quite substantially in this period and all secondary school types increased their share of the overall student enrolment.

Overall, Bavaria, the state with the least decline, sees the Hauptschulen share fall by 7 percentage points (from 37% to 30%). In NRW, the largest Land which still has Haupschulen, the fall is 18 percentage points (from 25% to 7%).

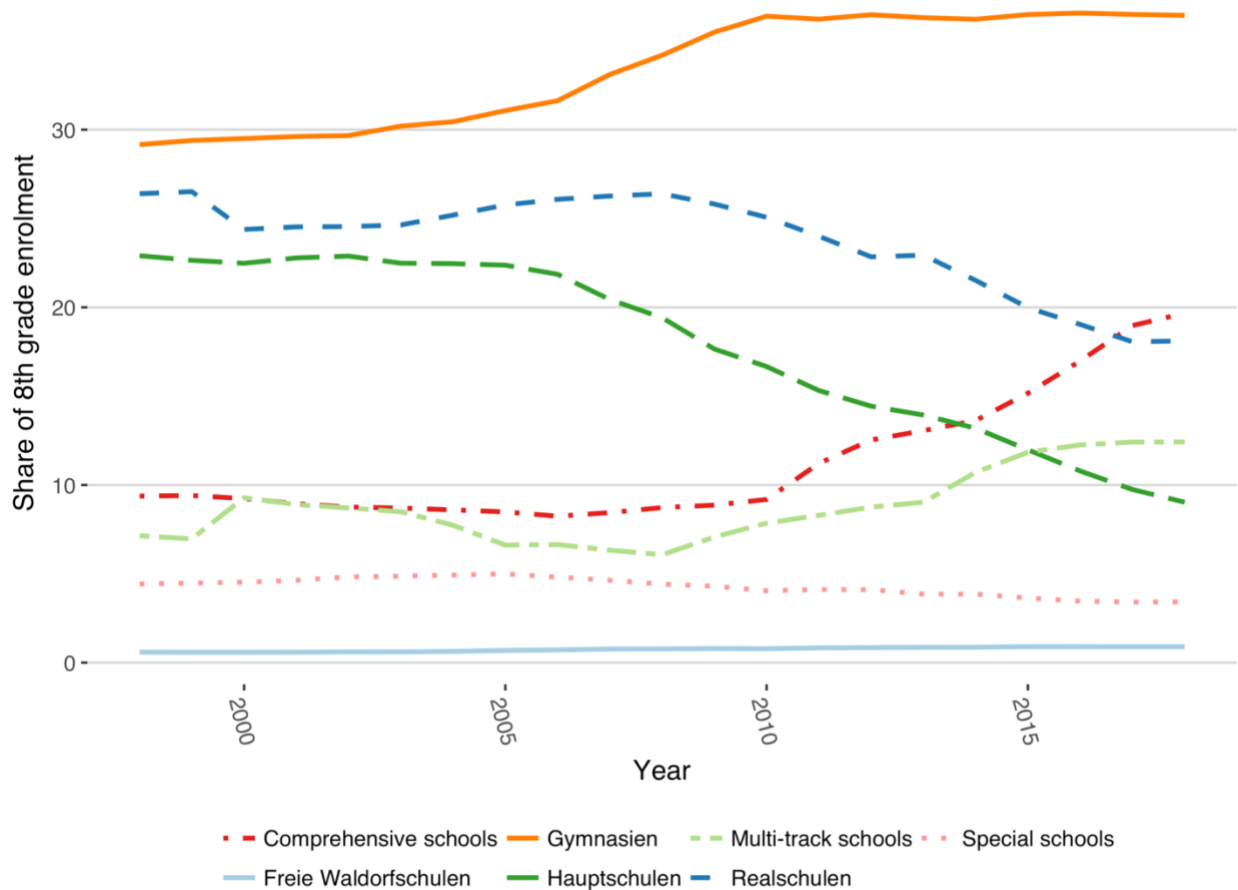


Figure 22. Germany: 8th grade enrolment by school type, 1998-2017.

Note: 8<sup>th</sup> grade is a middle year of secondary education, prior to the earliest stage in which some students may leave for apprenticeships, and after the orientation phase used in some states. School type labels encompass the variety of major school types across the states. For example, the new school types of the former East German Länder fall under ‘multi-track school types’, as they include students on a Hauptschule and Realschule track, while Berlin’s Gesamtschulen and Hamburg’s Stadtteilschulen are classified as comprehensive schools, as they can offer a pathway to the Abitur.

Berlin, Germany  
8th grade enrolment by school type, 1998-2016

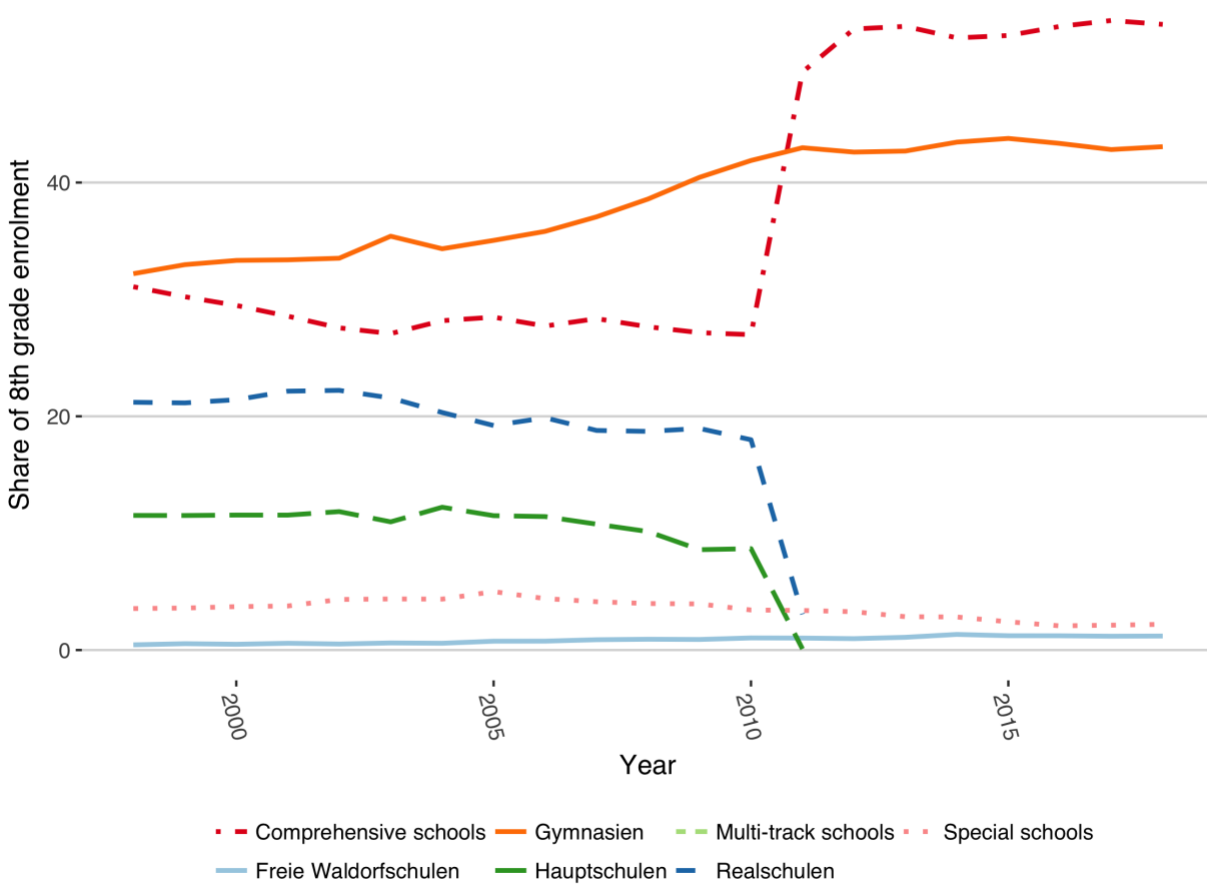


Figure 23. Berlin: 8th grade enrolment by school type

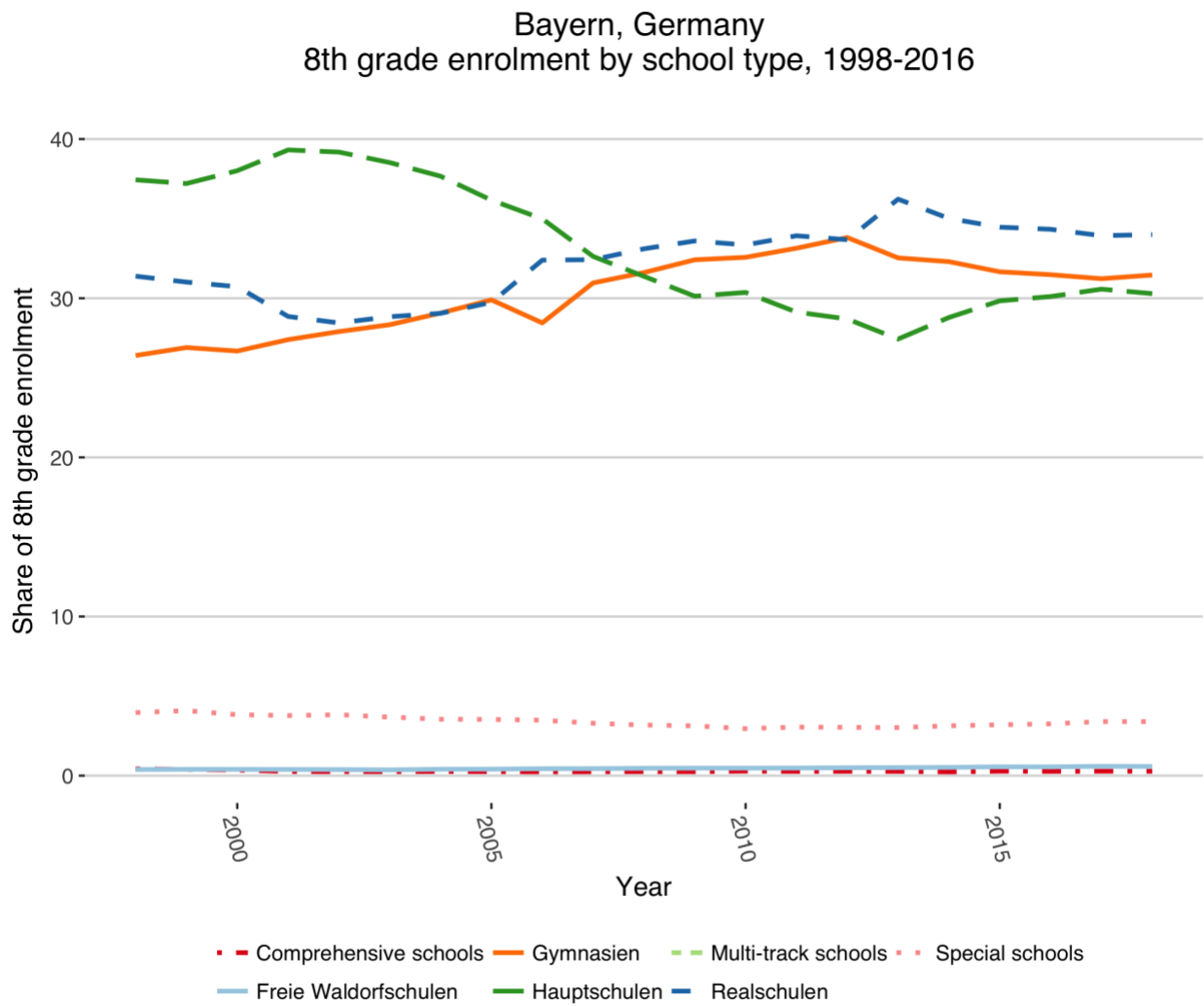


Figure 24. Bavaria: 8th grade enrolment by school type

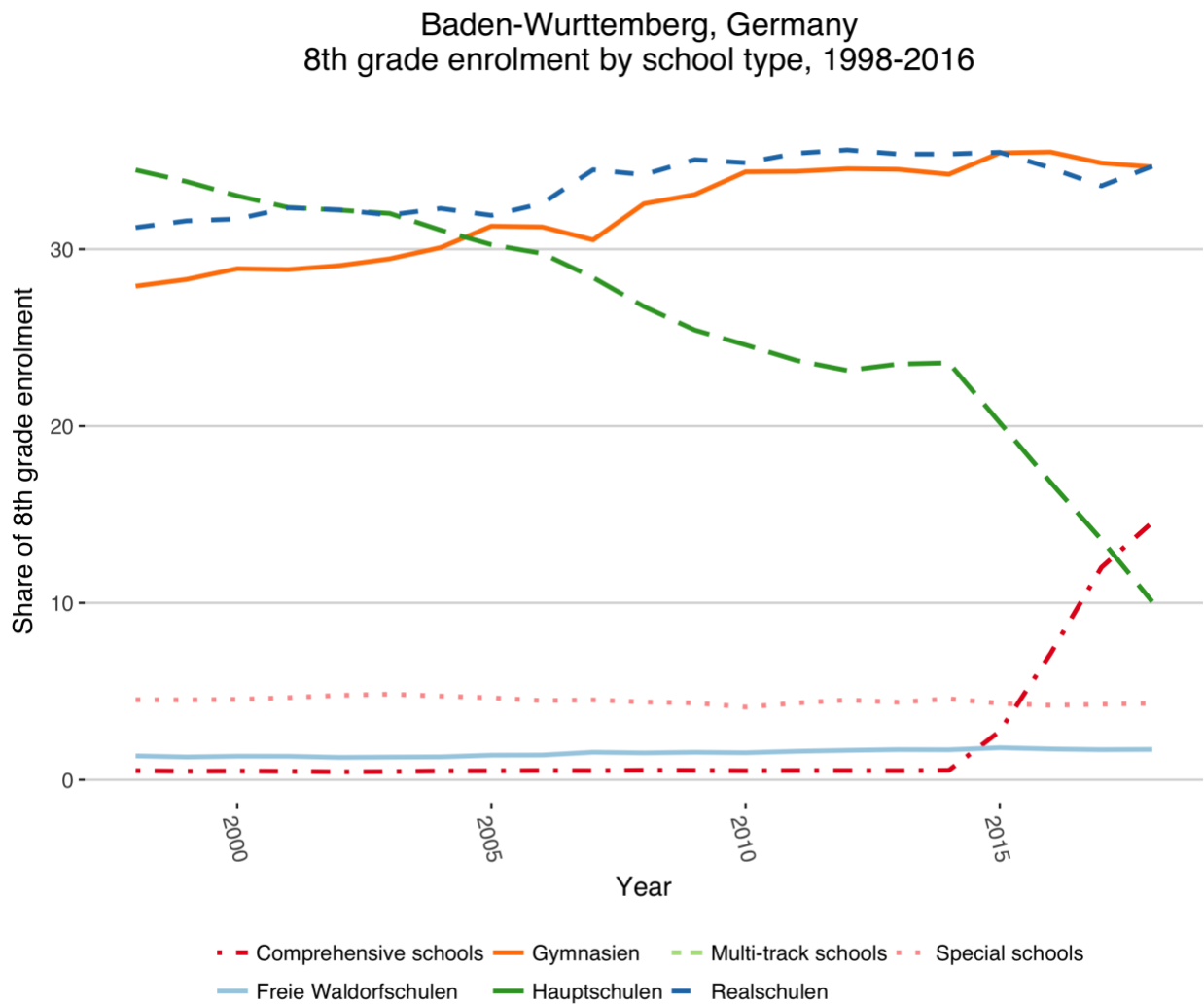


Figure 25. Baden-Württemberg, 8th grade enrolment by school type



Nordrhein-Westfalen, Germany  
8th grade enrolment by school type, 1998-2016

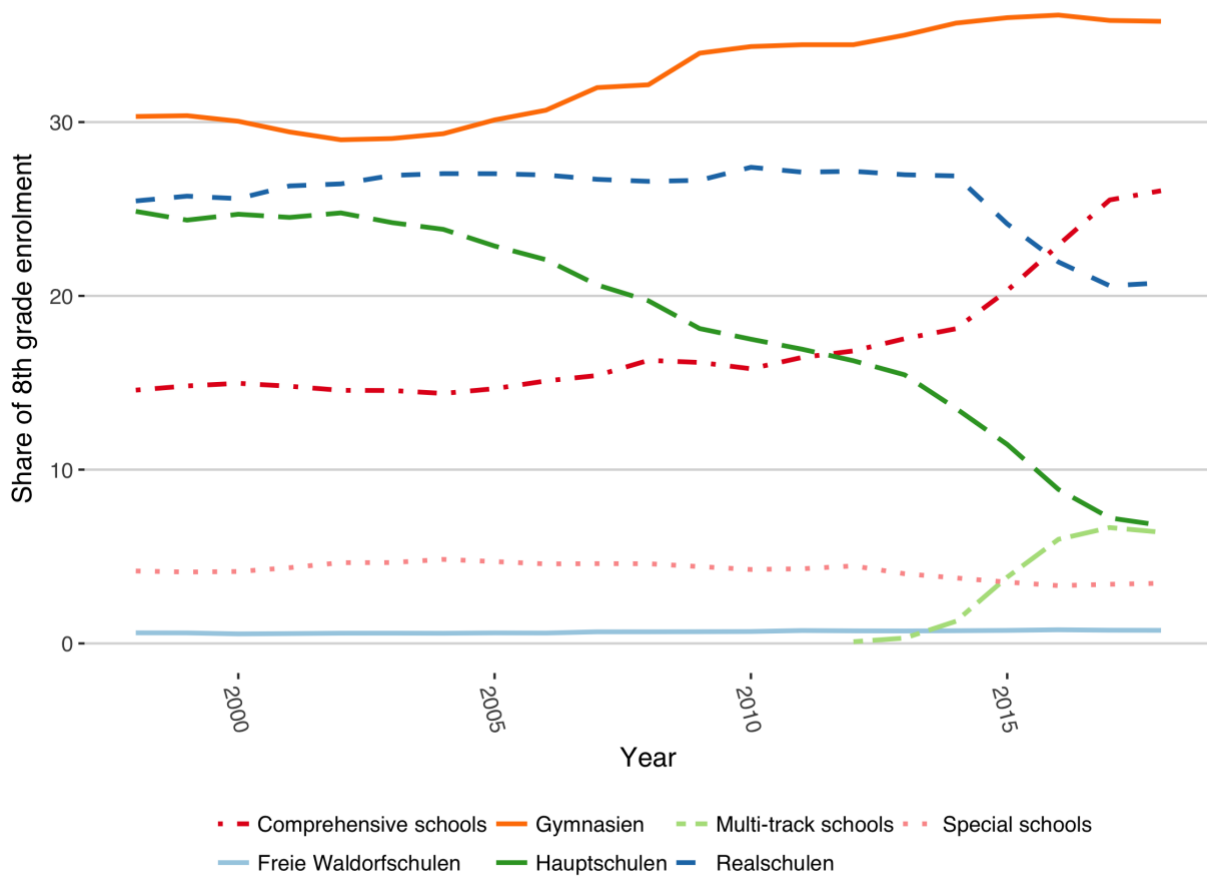


Figure 26. North Rhine Westphalia, 8th grade enrolment by school type

Should we understand this decline as a result of policy changes (the introduction of multi-track and comprehensive schools) or social processes? German scholars have presented six reasons for the decline of the Hauptschule (M. Becker, Neumann, and Dumont 2017, 14–15):

1. Demographic decline in smaller Land, leading to a need to combine Haupt- and Realschule in two-track schools
2. Increasing parental aspirations
3. Increased entry requirements for the job market, such that the leaving certificate from the Hauptschule is less relevant
4. PISA, which showed in 2001 that a large proportion of students were failing to reach what the OECD considered a minimum achievement level
5. PISA, again, for showing that the association between achievement and socioeconomic background was particularly high in Germany
6. The disassociation of school leaving certificates from school type, creating “greater openness” in the school systems (ibid, p. 15).

This list includes some primary drivers, namely demographic decline and perhaps PISA,<sup>111</sup> and factors which may or may not be epiphenomenal of others, namely increased parental aspirations and increased job (or apprenticeship) entry requirements. As discussed in chapter one, increased parental aspirations can be understood as a manifestation of other societal change, including the gradual generational drift towards increased educational attainment, due to aversion to downward

<sup>111</sup> Almost all my informants working in education politics or research shared spontaneously the view that the “PISA Shock” was a significant turning point in German education policy, but the common view was that PISA heightened trends, debates and feelings that were already present [DE1, DE3, DE5, DE8]. The disassociation of school types from certificates was associated with the federal-led standards movement, which likely would not have happened without PISA galvanizing debate at a national level and creating sufficient consensus in the KMK to create national standards [NE1]. This implications of this standards movement for vocational upper secondary and substitution is discussed further in the next chapter.

mobility (Breen, Van De Werfhorst, and Jäger 2014), awareness of increased returns to higher education, or the movement of women into the workplace. Equally, increased entry requirements for the job market can be understood as the result, not driver, of school change, as employers respond to changes they perceive in the ‘quality’ of *Hauptschule* graduates [DE3] (Solga 2002)].

These factors of aspirations and employer demands can be understood as operating together via cultural processes, governed by changes in perception:

The *Hauptschule* has become a problem of course, regarded as a school for the low achievers, for migrant populations, all other problematic parts of the population, and the broad middle class says that’s not an option for our kids. And *Realschule* has started to show similar signs, so you’re left with Gymnasium as the mainstream option, and that drives the qualification people go for. [DE3]

This is an informant based in Bonn and it is perhaps not surprising that this description applies most accurately to the surrounding Land, NRW. This perspective is echoed in national media, however, with the concept of “*Restschulen*” – schools for the leftovers – as a major national problem (Kummetz 2010; Specht 2011).

From the contrast across the Länder, however, it is evident that both demographics and politics are key factors in determining whether this cultural process transpires. In Bavaria, the only state which has not experienced dramatic demographic decline and also not relaxed entry to Gymnasia or introduced comprehensive schools, the decline in the *Hauptschule* is much more muted. In section three below I suggest what this means for how we characterize the relationship between lower secondary school organization and upper secondary qualification pathways.

#### *Limited residualization in Austria*

The pattern of change in Austria has been more muted than that in Germany, but, as in Germany, is interrupted by structural change. Figure 27 shows change in 5<sup>th</sup> grade enrolment over the past two decades. 5<sup>th</sup> grade in Austria is the first year of lower secondary when students transition from the

elementary schools. There is some movement from the AHS to Hauptschule during lower secondary, such that in 8<sup>th</sup> grade (the final year before students transition to a BMS, BHS, a polytechnic or to the upper cycle of the AHS) the share of enrolment in the AHS is slightly lower. A chart for 8<sup>th</sup> grade enrolment is included in Appendix F10.

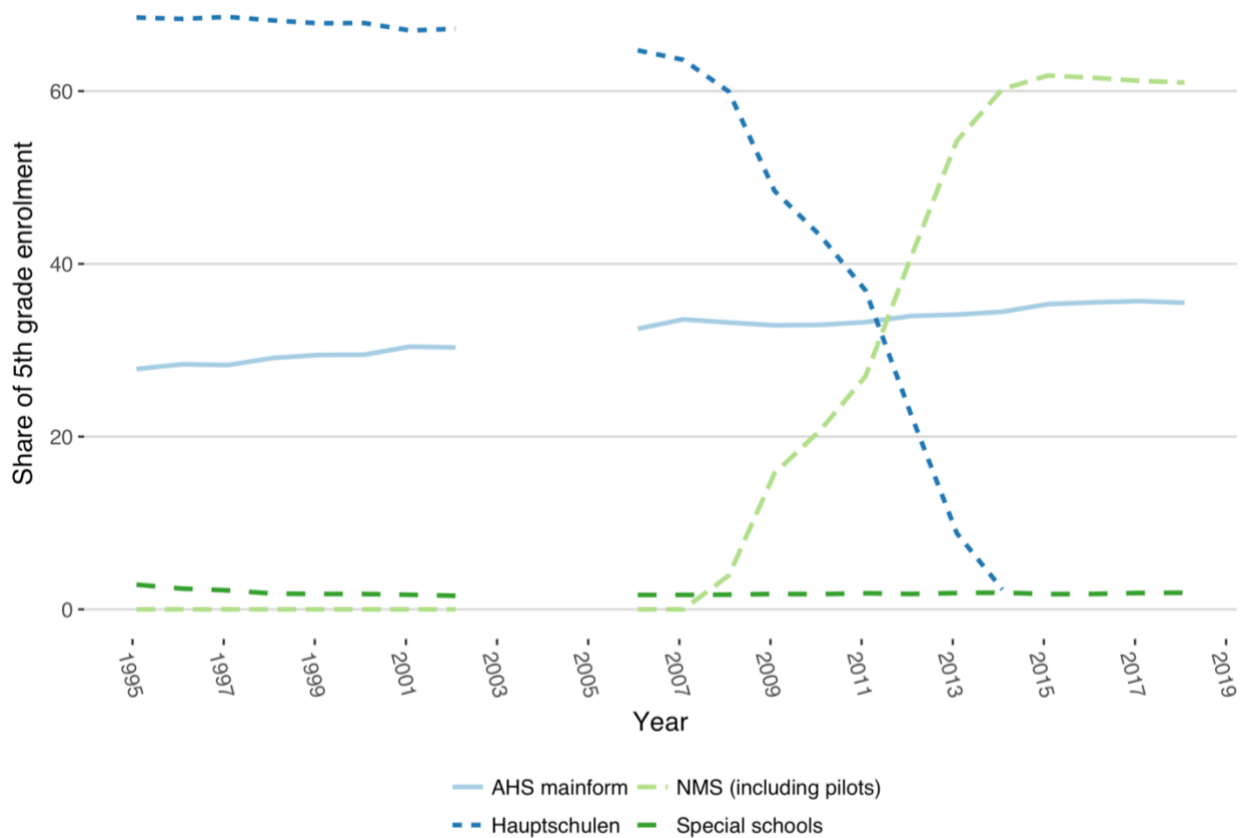


Figure 27. Austria: 5th grade enrolment by school type, 1995-2018.

Source: Statistik Austria: Schulstatistik, Schüler nach Alter 1995-2002; School statistics, pupils from 2006. For reference to real numbers, the overall 5<sup>th</sup> grade enrolment in Austria in 2018 is 84,363, down from 95,727 in 1995. Note: There is a break from 2003-2006 national data coding methods changed, and advice from the statistical office is that time trends are not reliable in this period, but are so either side

The dramatic change comes where Austria’s Hauptschulen (HS) were converted from 2012 onwards into *Neue Mittelschulen* (NMS). This conversion began as a school experiment from the 2012/13 school year in which Hauptschulen took up the opportunity to become NMS. NMS were formally

regulated from 2015/16, and all Hauptschulen were forced to convert. As is evident from the graph, however, there was a slight loss of pupil share in this changeover.

In contrast with Germany, in Austria (a) there was no major demographic decline and (b) there was no introduction of comprehensive schools. Consequently, change could only occur through movement of students from the Hauptschule/NMS to the AHS.

There were some of the same concerns in Austria about “Restschule”, but this is limited to the city of Vienna [AT2]. Figure 28 shows the comparison graph to that above for only the city of Vienna. The NMS:AHS ratio is closer to 50:50 as opposed to 60:40 in the rest of the country. The introduction of the NMS has brought the shares slightly closer together, as a small number of AHS have created NMS tracks.

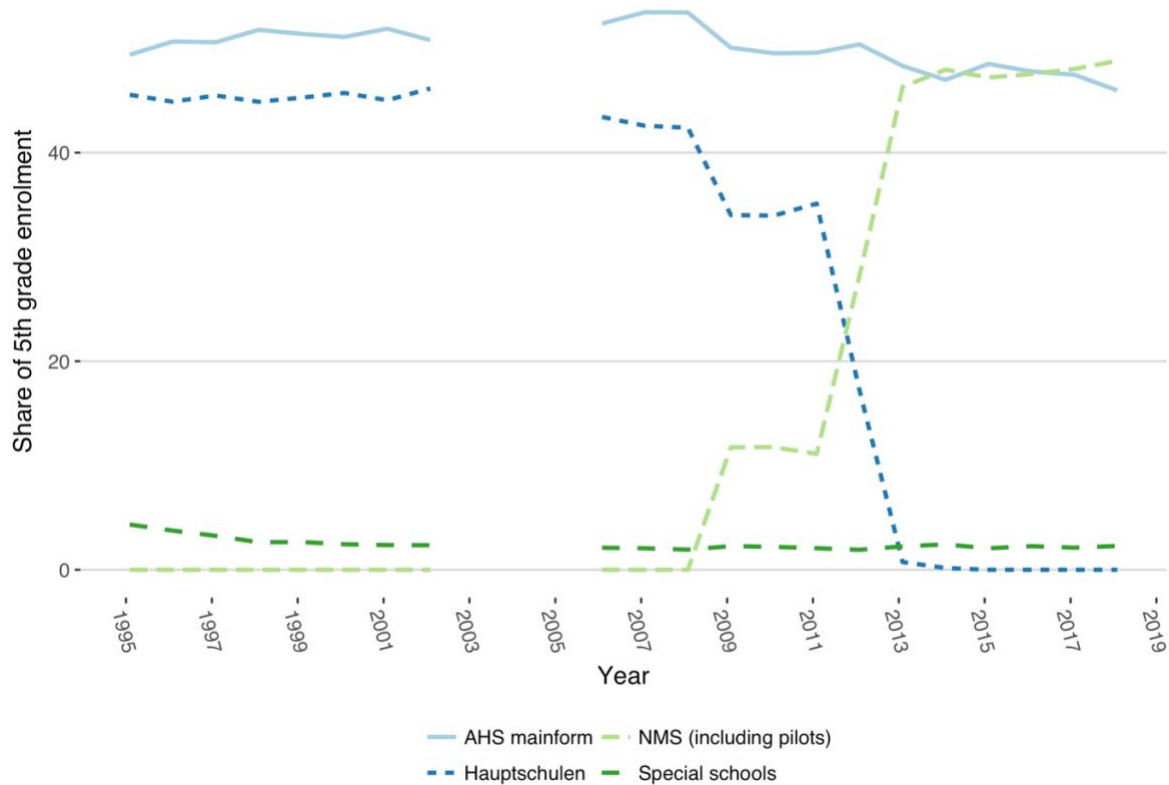


Figure 28. Vienna: 5th grade enrolment by school type, 1995-2018.

Source: Statistik Austria: Schulstatistik, Schüler nach Alter 1995-2002; School statistics, pupils from 2006. For reference to real numbers, the overall 5<sup>th</sup> grade enrolment in Vienna in 2018 is 18,408, up from 15,618 in 1995.

In Vienna, there is evidence of residualization. As one informant puts it:

In Vienna the lower secondary schools or NMS are kind of schools for kids who just can't make it. And that's the complete opposite in rural areas. ... in rural areas it doesn't matter, but in the really big cities...you'll do all you can to get your kid into an academic secondary school [AT2].

Even in Vienna, however, the relatively strict entry to the AHS maintains around a 50% share in the NMS. In addition, while the overall population of students in Austria, and particularly Vienna, has become more diverse in terms of migration and language background, the share of young people with German as a first language in the AHS and Hauptschule/NMS has risen slightly since this indicator started being monitored in 2011 (Statistik Austria 2013, 2019). This fact illustrates a complexity of observing “sorting” in tracked systems: higher-performing or higher-SES students might be moving from the HS/NMS to the AHS, but if they are below the previous (relatively very high) averages of the AHS on those indicators, they would still bring the two school types closer together. The existence of a bipartite as opposed to tripartite system increases the potential for wide variation within a school type, reducing the difference between types. Overall, the conditions have not manifested for residualization of the NMS outside Vienna, and the relatively higher rural population is consequential here (Table 26).

Table 26. Share of the population designated as “rural” over time

	1950	2000	2018
Austria	36.4	39.8	41.7
Germany	32.1	25.0	22.7
Australia	23.0	15.8	14.0
New Zealand	27.5	14.0	13.5

Source: United Nations, Department of Economic and Social Affairs, Population Division (2018). World Urbanization Prospects: The 2018 Revision, Online Edition. Sourced by Echazarra and Radinger, 2019.

As we see in this table, Austria is relatively more rural compared with the other cases. Moreover, while populations in Germany, Australia and New Zealand are increasingly urban, Austria's is becoming more rural (Echazarra and Radinger 2019).

#### 4. Residualization prompts vocational decline via two mechanisms

We have seen that across the cases, low-strata schools have lost students, though to differing degrees. Table 27 summarizes the size of the decline in lower-strata schools across the four cases. But given the loosening of the relationship between school type and upper secondary pathway, it is not obvious how – or whether – this decline relates to the vocational share.

Table 27. Decline in share of the lowest-strata school type in a 20 year period

Australia	New Zealand	Germany	Austria
Government schools	Decile 1-3 schools	Hauptschulen,	Hauptschulen/NMS
1995-2014	1996 – 2015	1998-2017	1995-2014
7.2 pp	4.3 pp	13.4 pp	6.0 pp
(66.6 to 59.4)	(27.0 to 22.7)	(22.9 to 9.03)	(68.5 to 62.5)

In particular, residualization as a social process does not necessarily give rise to vocational decline. Through residualization, the lowest-strata schools become more socioeconomically similar, with a concentration of lower-SES students, while the highest-strata schools become more diverse. In these circumstances, if pathway choice were entirely determined by parental background, and not at all by school, we would expect to see the likelihood of pursuing academic upper secondary from a higher strata school decline as their share of students grew, and the overall vocational share remain the same.

But that is not what we find. Both performance and attainment of academic qualifications from higher-strata schools has remained stable or even increased. Transfer rates into university for holders of the Abitur/Matura have remained relatively stable (Autorengruppe Bildungsberichterstattung

2018, 155; Statistik Austria 2019, 63). In Australia, a larger proportion of students from independent schools now proceed to a Bachelors, and their advantage over government schools in this respect has grown (from a gap of 17.9 to 25.1 percentage points, see Appendix F11). Likewise, by the measures available, the gap in attainment of tertiary entrance between high-decile (8-10) and low-decile (1-3) schools and in New Zealand has grown: in 1998 the gap in the share starting a tertiary program was 28 percentage points; in 2018 the gap in those attaining NCEA with the university entrance certificate was 37 percentage points (see Appendix F12).

Schools do seem to have an impact on pathway over and above parental background. There are relatedly two mechanisms linking the residualization of lower-strata schools to declining vocational education.

*Maintained tight coupling between school types and pathways.*

We saw above that there is a formal or associational relationship between school-strata and likelihood of pursuing an academic upper secondary pathway. In Germany and Austria, this relationship has remained formal, embedded in curricula. Consequently, the movement of students away from lower-track schools mechanically results in a relative increase in academic enrolment, as a default result of school choice. The larger decline of the lower-strata school type in Germany than Austria is evidently another part of the explanation for their different levels of decline in vocational enrolment. While, as we saw in chapter four, the relationship between school type and pathway is no longer as tightly coupled as it once was, it is still primarily students from a Hauptschule who would be embarking on a purely vocational route at upper secondary. Thus the stability in vocational enrolments in Austria is related not only to the presence of the BHS, but the smaller shift away from the lower-track school types.



In Australia and New Zealand, where the relationship is associational, the movement of students between schools would not necessarily entail a change in upper secondary shares. If pathway choice were entirely determined by individual ability, we would expect to see this choice “follow the student”. But organizational features of schools explain why this is not the case.

In Australia, the greater likelihood of embarking on an apprenticeship or leaving school early for VET courses from a lower-strata school can be explained in terms of the growth of school-based VET combined with the logistics of timetabling. For a student to engage in VETiS or a school-based apprenticeship or traineeship, their school must arrange the timetable to facilitate this. Timetabling to allow school-based vocational education was a priority for some schools I spoke to. A number of schools take the approach of allowing students to choose options, then seeing what would run, and then a second round of selection [AU18, AU30]. This means that what is offered is determined by the preferences of other students. For those working in VETiS, timetabling was perceived as a major problem [AU11, AU3].

It always come[s] down to the timetable and the lines that go up for year 11 and 12 – when we’re looking at the pattern of study available for kids – when we develop the lines that form the timetable, okay we put really high cognitive load ATAR subjects in each line, then we try to look and accommodate artsy kind of kids, to make sure they’ve got at least one choice in each line, and then we look at students [here] who are not necessarily here to receive an ATAR, and make sure we have a subject choice in each line to satisfy those kids. That’s not always popular and successful, because we’ll have kids who want to do Biology and also Food and Beverage. There’s a little bit of juggle, a little wiggle room, but not a whole lot just because of the numbers and teachers we have. [AU23]

Timetabling was also a major issue in New Zealand [NZ28, NZ11, NZ26, NZ21, NZ20]. As a Ministry employee who had tried to work on curriculum reform put it: “the timetable is a major obstacle, it drives what happens in schools” [NZ34]. The timetable, not just teachers’ time, is governed by the PPTA’s collective agreement [NZ34]. Adapting to a model like Trade Academies that provided additional funding for vocational learning was difficult because it meant aligning a

timetable with a polytechnic [NZ25]. In addition, low-decile schools, unlike others, were eligible for a wider range of support programs, including a variety of “Gateway” programs offering free VET places to students at decile 1-5 schools (Vaughan et al. 2003). Movement away from these schools makes fewer students eligible for these programs. While the distinctions between New Zealand’s schools initially appear less significant than those between Australian schools, when it comes to vocational provision, there are material differences.

A further factor in the relatively greater vocational decline in New Zealand (unit standards) and Germany compared to Australia (VETiS) and Austria is the relative size of the residualized school group. Hauptschule in Germany and low-decile schools in New Zealand arguably have more of a diminished status, relative to their overall size. To what extent does this prompt reactions as part of a cultural process of trying to manage perceptions?

*A strategic response to the fear of residualization – and a cultural process?*

In addition to the maintained strong coupling between school type and upper secondary pathway, a second mechanism relates declining lower-strata schools and declining vocational share. This is the strategic response of schools to try to become more “academic” in order to avoid residualization.

This response is not easily observable but is reported across all contexts experiencing residualization, namely big cities. In Berlin, for example, whether a school has an Abitur route, or the size of the route, is seen as a signal of a better comprehensive school in Berlin (Helbig and Nikolai 2017). In Vienna, too, the response to a bad reputation is to “upgrade”:

you have like ghettos in the new middle schools, and they have a bad reputation, and they try to really upgrade it, in Vienna they called it, I guess co-operative middle schools at first, so they tried to upgrade it and get more kids in [AT2]

The idea of “co-operative middle schools” is that they would be closer to the AHS.

The flipside of this is that pure vocational offerings are stigmatized. This was widely discussed as a problem in Australia, where it is most distinct in the state of Victoria, where offer of a separate Victorian Certificate in Applied Learning (VCAL) is a more distinct indicator of a vocationally-oriented schools<sup>112</sup>. As one career co-ordinator described it:

VCAL has grown. Certainly VET in schools has grown massively. But not all schools do VCAL, a lot of the private schools don't ...Some schools have a thing about being a VCAL school, they don't want that supposed stigma. [AU14]

The implication is that adopting too much vocational programming would put them at risk of being perceived as a school for low-attaining students, which could trigger a spiral of decline. In contrast, VET in Schools, as part of senior secondary certificates, was less visible. It also kept students on the school roll. At the senior secondary level, schools are funded according to the number of courses a student is taking with them, as opposed to on a per-student basis. This is intended to make it more possible for schools and TAFE to offer senior secondary in partnership, but in practice schools lose out through such partnerships. Consequently, while VET or career coordinators I spoke to were generally in favor of students being able to go offsite [AU1, AU43], school leaders were less so [AU18]

In contrast, the need to maintain a focus on academic subjects as a way to attract parents was a universal theme in New Zealand, where school leaders I interviewed described intense between-

<sup>112</sup> There is no evidence that taking individual VETiS *courses* is widely stigmatized. As we saw in chapter four, more privileged students are more likely to be those completing higher level VETiS certificates and ASBAs successfully, particularly in areas like Sports and recreation. Stanley & MacCann (2009) using NSW Board of Studies data from including the introduction of VETiS courses from 2001, found there has *not* been a “flight” from VET in Schools courses by higher-achieving students. In breakdowns of VETiS course taking by students, what we see is that many students take *one* VETiS course: the maximum allowed to contribute to an ATAR.

school competition.<sup>113</sup> When I asked about the potential pressure from government targets, one principal of a secondary school corrected the impression that this was a key source of pressure:

The 85%? [Better Public Services target]. To be honest that has been less significant for me than the competition with the school down the road. That sense that pass rates are being compared by prospective parents has been far more powerful than any government target. ... In my first year there was significant roll decline and I had to reduce the staff roll by 7, and when you have to do that it's awful, you never want to do that again, so you tend to want to play a big media game and make things look good. [NZ17]

This Principal of a large secondary school asserts that government accountability is less important for him than a sense of competition for students with a neighboring school that students could also go to. He experienced the “temptation” to offer the Cambridge International Examinations (CIE), the more purely academic alternative to NCEA [NZ17].

The importance of reputation was stressed in descriptions of the competition between schools in international cities:

Canberra is an interesting town in that it's got high SES population, it's got one of the most highly educated populations of any city per capita, and yet there's real diversity or perceived diversity amongst the schools, by the community. And it's happening in other cities as well, where people are getting in their cars and driving halfway around town to get their kids in a particular school. ... Lots of people want to get their kids into the French Australian school – those schools are perceived to be the place where all the diplomats send their children – people are choosing schools based on a cohort. The schools that are perceived to be struggling schools ... they get maligned in the press. The dinner party conversation is where you send your children to school [AU18]

<sup>113</sup> The experience of intense competition can be traced back quite closely to the 1991 reforms. In 1989, NZCER researcher Cathy Wylie began conducting annual surveys of school principals and school trustees. Unfortunately, these surveys were only conducted with primary schools until 2003, but nevertheless they give an impression of the issues salient to schools following the reforms. In a 1991 survey supplied to school trustees, school enrolment was not even considered as an issue that could be of concern (Wylie 1991). By 1993 School principals were observing changes in their school rolls; Wylie's analysis found that 37% of school principals in 1993 observed that actions of another school impacted their school roll, and this was more likely amongst school principals who had seen a change in the socioeconomic composition of their schools (Wylie 1994).

This view represents the most extreme version, but would, I believe, resonate in Vienna, Hamburg, Bonn, Berlin, (along with many cities in the U.S. and U.K.).

*A cultural process – or path dependency?*

Academization as a strategic response to residualization can be understood as a cultural process. But it operates in combination with other forms of change. Despite the perception of spirals of decline, a cultural process alone is not enough to create decline.

In Germany, this strategic response manifests in the adaptation of Hauptschulen into school types which offer route to higher qualification levels (Table 28).

Table 28. New alternatives to the Hauptschule.

Land	Lower track school
<b>Baden-Württemberg</b>	<i>Werkrealschule</i>
<b>Bavaria</b>	<i>Mittelschule</i>
<b>Berlin</b>	(replaced with <i>Integrierte Sekundarschule<sub>a b</sub></i> and <i>Gemeinschaftsschule<sub>a b</sub></i> )
<b>Brandenburg</b>	<i>Oberschule<sub>b</sub></i>
<b>Bremen</b>	<i>Oberschule<sub>a b</sub></i>
<b>Hamburg</b>	<i>Stadtteilschule<sub>a b</sub></i>
Hesse	<i>Mittelstufenschule<sub>b</sub></i>
<b>Mecklenburg-Western Pomerania</b>	<i>Regionale Schule<sub>b</sub></i>
Lower Saxony	<i>Oberschule<sub>a b</sub></i>
North Rhine-Westphalia	<i>Sekundarschule<sub>a b</sub></i>
<b>Rhineland-Palatinate</b>	(replaced with <i>Gesamtschule<sub>a</sub></i> , alongside standalone Realschulen)
<b>Saarland</b>	(replaced with <i>Gemeinschaftsschule<sub>a b</sub></i> )
<b>Saxony</b>	<i>Mittelschule<sub>b</sub></i>
<b>Saxony-Anhalt</b>	<i>Sekundarschule<sub>b</sub></i>
<b>Schleswig-Holstein</b>	<i>Regionalschule<sub>b</sub></i>
<b>Thuringia</b>	<i>Regelschule</i>

Note: States in bold no longer have Hauptschule as a named school form.

This movement needs to be understood as a response to demographic change as much as to any cultural process of stigmatization. While all but three states have renamed or replaced the

Hauptschule, all of the former East German states had already made this move *before* the most recent period of decline; upon reunification they never really adopted the Hauptschule, which as a nine-year secondary school would have been a regression from their former 10-year Polytechnic Secondary School.<sup>114</sup>

The apparent cases of rebranding are in Baden-Württemberg and Bavaria, the larger south-western states who have converted Hauptschule into “Mittelschule”. The intended signal is that these schools lead to the new upper levels created in the FOS, BOS and OBZ (oberstufenzentrum, upper level centers). The fact that the three large and neighboring states in the North-west – Hesse, Lower Saxony and North Rhine-Westphalia – have maintained the Hauptschule as a model implies that from a policy perspective whatever social perception problems these schools may have are not entailed in the *model*, but in its structural composition when it becomes too small to be of value to stakeholders and employers. The fact that the relationship between residualization and vocational decline is based primarily on student numbers as opposed to general cultural perceptions is evident when we contrast the cases so far with that of Austria and Bavaria.

*In (rural) Austria and Bavaria, tracked middle schools supply the hybrid system*

In Austria, while the NMS are clearly a less desirable choice in their resources and social composition, the shift towards higher-strata schools has been capped. Even in the cities, growing youth populations have meant that while the Hauptschule/NMS are not popular, they are not

<sup>114</sup> A significant deviation from the tripartite system arose after reunification between West and East Germany in 1989. The new Länder of former East Germany agreed to adopt the tripartite system, but in practice, the Eastern state never really adopted the Hauptschule, which as a nine-year secondary school would have been a regression from their former 10-year Polytechnic Secondary School. Only Mecklenburg-Vorpommern introduced it as a separate school, but usually in combination with a Realschule. In Saxony, Saxony-Anhalt and Thuringia the Hauptschule was integrated as a school type within comprehensive schools. Brandenburg introduced a tripartite school system with a different type of school in place of the Hauptschule (Weishaupt 2009).

shrinking . Although schools in thinly populated areas have been decreasing in size, schools in densely populated areas are declining less on average and larger schools even show increasing sizes (Bruneforth et al. 2016, 84). Overall, the larger share of Austria's Hauptschule/NMS, relative to Germany's Hauptschule, has allowed them to maintain their status as a "general school" as opposed to a "school for the rest". Here we see the significance of a bipartite as opposed to tripartite school system: while having two as opposed to three tracks is classified in comparative studies as "less tracking",<sup>115</sup> it in fact creates a starker divide between the pathways, and a larger share of young people firmly in a non-academic pathway.

Here, we can compare the dynamics with Bavaria's Hauptschule, now Mittelschule. Of the German Länder, Bavaria has maintained the highest Hauptschule enrolment share. As we saw in chapter four, this is in part because of the development of the Fachoberschule as a continuation path to the FHR/Abitur. The fact that the NMS and Bavaria's lowest-track schools can live up to their name as a "middle school" relies on the existence of hybrid pathways that allow their students to progress to higher education, if they choose.

In these cases, therefore, we can see evidence of a mutual relationship between tracking and hybrid pathways: a lower track that has maintained a reasonable share of youth can serve a hybrid pathway with prepared students; equally, a high-functioning hybrid pathway quells calls for reform to the tracked system. The emergent systems can accommodate the two main desires of the two competing groups of parents: the desire of (upper) middle class parents to educate their children separately, and the desire of working and lower middle class parents for their children to reach a higher educational level than themselves.

<sup>115</sup> The main indices of tracking policies have adopted "number of tracks" as an indicator of severity, but it is actually not clear whether more or fewer tracks creates a stronger sense of social divides.

The final important note is that this settlement does not negate the relationship between residualization and the decline of *youth apprenticeships*. While Austria and Bavaria have maintained a higher share of enrolment in low-track schools and in upper secondary vocational, they have done so only by turning their low-track schools into middle schools and expanding school-based hybrids at upper secondary. This leaves students who struggle with reading or written work with as limited options as in the other contexts. Based on the widening gap between the general skills of apprentices and BHS/AHS students in PISA, Austrian scholars see apprenticeship and academic education only drawing further apart (LL) (due to Austria phasing out reporting PISA results by school type from 2006, we cannot see whether this divergence is visible in skills).

*Conclusion so far: the pressure for numbers*

Overall, we can understand how a cultural process of stigmatization might work by observing the differences between cases in the degree of residualization. Only when the pool of students in a school type or program becomes small does this choice seem to become stigmatized. Consequently, demographic pressures on the school system and the political context which determines the level of school choice are key factors in any such process.

Any argument resting on stigma must also tackle the remaining variation. If vocational choice were widely stigmatized, this would point to a decline in all vocational offerings. But this does not square with what we observe in the data, in terms of the increase of VET in Schools – or of expansion of vocational schools despite their poor reputation in Germany. The explanation for this remaining variation forms the final piece of the puzzle.



## 5. Choice, constrained: quasi-tracked systems produce quasi-vocational education

So far we have perceived a dynamic which would all move in one direction: rising educational aspirations (either as a constant or generational factor) are translated into movement towards higher-attaining or more “academic” schools, leading other schools to become more “academic” in response, to avoid the threat of decline.

But we have also seen that this movement is shaped by the structures and politics of the school system. The particular education politics of Austria, which rely on a two-thirds majority to create structural change, explain the limited expansion of choice in this context and relatedly the limited residualization.

Austria is not the only context with constrained choice, however. As the school choice literature points out, school markets are *not* perfect markets and parents and students cannot always get what they want. In this section, I argue that the ways in which choice has remained constrained explains the failure of hybridization.

### In Australia and New Zealand, constrained choice results in quasi-tracking

In Australia and New Zealand, given the increasing incentives to attend independent or high-decile schools, we might expect to observe an inexorable growth in these schools and shrinkage of low-strata schools. But this is not the case. In Australia, while there are now more small and fewer large government schools, in recent years there has been an increase in very large government schools (over 1200+ students). This increase reflects the growth of government schools in urban areas.

Likewise, in New Zealand, low-decile schools have started increasing in size again (observable in Figure 20 above). This pattern appeared as early as 1993 in a study of Christchurch schools: all schools in higher SES areas increased in size, but some schools in poorer areas also increased in size (Ainsworth et al. 1993).

The explanation of this dynamic is evident from the geography of cities. Desirable independent or high-decile schools are often centrally located, with limited space to expand. In contrast, outer suburbs with cheaper housing are home to government or low-decile schools serving growing, often immigrant populations and often have large, more modern buildings to fill. These facts of geography provide the reason for in-demand schools to limit their intake.

The way in which limits on intake result in stratified choice is particularly evident in New Zealand. While the 1991 reform abolished school zones, it introduced a new admission policy of “balloting”. Parents could apply for any school (though choices remained limited by transport considerations; the government provided free buses only for children to reach their closest school). Over-subscribed schools would ballot for places. From 1992 onwards, schools were allowed to design their own enrolment schemes. The government set the bounds of schemes but these were apparently exercised flexibly; a commentary from the time gives the example of Christchurch Girls’ High School, where the headmistress individually interviewed applicants. (Liz Gordon 1994). School choice was therefore coupled with an element of selection on the part of schools. By 1994, 12% of schools had enrolment schemes, primarily secondary schools in urban areas. By 1997, after the introduction of the decile system, almost one third of schools in the top three deciles had enrolment schemes. While zoning was reintroduced in 2000, by this point there was established a clear hierarchy of schools. With tight residential enrolment zones, school choice takes place by house choice. Over-subscribed schools effectively became selective, drawing their students from a more tightly defined geographic area. Newspaper articles comment freely on the attraction for house-buyers of the “double grammar

zone” (Auckland Boys Grammar and Epsom Girls Grammar) and there exists a noted phenomenon of faster rising house prices in the zones of particular schools.<sup>116</sup>

While this situation of *school's* choice is particularly evident in New Zealand, we should recall that it is the default situation for independent schools in Australia and Gymnasia in Germany. All three systems have elements of a tracked system: where there is a set of schools which consistently have higher investment and higher attainment, but limit their entry. While in each case the predominant means of limitation is different – academic selection in Germany, school fees in Australia, or house prices in New Zealand – the consequences are similar. In terms of the share of overall variation in achievement that lies between schools, each of these systems is starting to look more like a tracked school system.<sup>117</sup> Equally, there are distinct resource and attainment differences between independent and government schools in Australia, and high-decile and low-decile schools in New Zealand. While residualization in terms of the declining *size* of lower-strata schools appears to be already self-correcting, the emerging systems are quasi-tracked.

In much of Germany, new school types are simply low-strata schools

While the lower secondary systems of Australia and New Zealand have been evolving to look more like that of Germany, it would appear that Germany is moving towards a comprehensive ideal.

Would these new comprehensive schools not be a perfect breeding ground for hybrid models?

<sup>116</sup> Examples of media coverage of house prices associated with school zones in New Zealand: <https://www.nytimes.com/2012/02/17/greathomesanddestinations/school-boosts-home-values-in-an-auckland-neighborhood.html>; <https://www.interest.co.nz/opinion/77551/stresses-rolls-grammar-zone-schools-can-only-really-be-fixed-pricing-signal-argues>; <https://www.stuff.co.nz/business/property/89675313/aucklands-grammar-zone-house-prices-are-through-the-roof>

[https://www.nzherald.co.nz/business/news/article.cfm?c\\_id=3&objectid=12045024](https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=12045024)

<sup>117</sup> As noted above, the share of overall variation in mathematics achievement that is between schools (PISA 2012) in Australia and New Zealand is 28.1 and 30.7. The comparative figures for Finland, Canada, and United States (untracked systems with varying variation in the population): is 6.3, 18.4 and 22.6 respectively, while in Austria it is 48.1 and Germany 57.7.

Perhaps, were the secondary school system in Germany not developing in two inter-locked steps. On the one hand, there is a great increase in choice through the growth of comprehensive schools as well as reduction in the number of states exercising “binding” decisions on entry to the Gymnasia (grammar schools). These changes have allowed more parents to choose an academic pathway for their child at age 10. On the other hand, however, the comprehensive schools have grown only as a very much second-tier option to the Gymnasia, and while some Länder have been relaxing “binding” decisions, others have re-introduced them.

As noted above, comprehensive schools initially scored below Realschulen on average in PISA. The most recent rounds of PISA in 2015 and 2018 have not divided out the scores for comprehensive schools but grouped them with other “*nicht gymnasialen Schularten*” (non-Gymnasium school types). The justification given for not disaggregating further is that the non-Gymnasium school types are “no longer comparable between the different federal states”<sup>118</sup> (Reiss et al. 2019, 18). It does seem to be the case that the status of comprehensive schools varies according to whether they are the only lower track school type, or a new, unique alternative, as in NRW.<sup>119</sup> From the perspective of the PISA team, however, all comprehensive schools are closer to Hauptschule than Gymnasia.

And indeed, while comprehensive schools and some of the extended school types give students access to an academic curriculum, they have not improved in the extent to which they prepare

<sup>118</sup> “...zwischen den verschiedenen Bundesländern nicht mehr vergleichbar sind”. The same judgment is made in reporting PISA 2015 (Sälzer & Reiss, 2016).

<sup>119</sup> An interviewee in Bonn (in NRW, where Hauptschule and Realschule still exist alongside) observed that the comprehensive school was very desirable and had become the most competitive to get into. This is in part mechanical – there are only five comprehensive schools in Bonn, compared to over 20 Gymnasium – but also implies that this model is in demand. Likewise, comprehensive education is becoming more popular in the private sector; from 2006 to 2016, private gymnasium enrolment fell, while of the 100,000 additional students in private general schools, over two-thirds were in comprehensive or multi-track secondary schools. In contrast, interviewees teaching in comprehensive schools in Hamburg saw them as no real challenge to the status of Gymnasia; as one put it, “as long as the Gymnasium exists, upper class parents will choose that school” [DE8].

students for an academic pathway. The average reading score across of all non-Gymnasium school types in 2018 was 458. This is almost exactly the same as the average score for comprehensive schools in 2000 (459), which sat roughly between the average for Hauptschulen (394) and Realschulen (494). Despite falling Gymnasia scores in other domains, the reading score was quite stable; the average score for Gymnasia was 582 in 2000 and 578 in 2018. The emerging system is therefore one in which schools are increasingly divided by investment and attainment into informal strata, as opposed to formal tracks. In structure, therefore, the German system is becoming more like the Australian or New Zealand system.

#### *Low-strata schools and demand for the path of least resistance*

The dynamic we have observed in New Zealand, Australia and most parts of Germany is one where the *stratified* increase in school choice results in part in the shrinkage of some schools, but that this shrinkage is limited. What is emerging therefore are systems which maintain relatively large shares of enrolment in low-strata schools, which have less access to resources, and where students have lower socioeconomic backgrounds and distinctly lower skills than their counterparts in other schools. In this section we see how this undermines the conditions for hybridization.

Because of their student composition, the lowest-strata school types are not well-placed to supply balanced hybrid education. They cannot supply full academic education, because they primarily serve the two-fifths of the youth cohort who, at age 15, do not appear to have the reading skills to undertake academic upper secondary work.<sup>120</sup> They cannot supply full vocational education, which

<sup>120</sup> This share corresponds to proficiency at level 3 or above in PISA literacy. Proficiency at level 3 in reading means that students can copy or paraphrase a relevant part of a text to answer a straightforward question. The share of PISA respondents who were not proficient at level 3 or above is: Australia: 40.7; Austria: 47.1; Germany: 41.8; New Zealand: 39.8. Calculation based on OECD PISA 2018: Figure I.5.1 related table: Students' proficiency in reading (computer-based assessment)(OECD 2019a, 90–92)

would require employers to take their students on in apprenticeships or for students to complete optional but extensive additional work.

Across all cases, educators describe adjusting the anticipated purpose of a program when it is mismatched with the cohort of students coming into it. A teacher of a “VCAL” class, preparing for the Victorian Certificate of Applied Learning, describes this process:

I taught VCAL last year. I had one class, because it was just leftover in the timetable. ...I started out with these ideas and then your expectations just drop to – okay, as long as you do something this lesson. ...VCAL is designed to be self-starting students but by nature it’s the students who are not. So employers don’t want to take a grumpy, kind of disengaged teenager. By nature those are the kids who are doing it [so]... It’s difficult to get work placements. [AU21]

This problem will surprise no one familiar with teenagers. What is important to highlight is that employer-based vocational education does not work with low-attaining students, regardless of the cultural context.<sup>121</sup> A teacher at a comprehensive school in Hamburg, who taught a special class trying to prepare students for an apprenticeship by giving them work experience, described the same phenomenon of a mismatch between the expectations of the class and the perception of it:

The image of the class is not the best at the school. It’s just because it still has like a loser image, the class, and of course it involves more work for them. Normally when they’re in their internships they work from 8 to 4, they have a normal working day, and sitting in the back of the class doing nothing, it seems more chilling. So they see they are asked to do a little bit more, although the image is shitty. [DE9]

This teacher still thought it was a good idea that students should get work experience rather than working on school subjects on which “they already failed throughout their whole education”, but because the students in the class did not want to go into central Hamburg to get good internships, they did not get good work experience. And yet, even within my fieldwork, educators in Australia and New Zealand imagined that things were different in Germany:

<sup>121</sup> New South Wales requires students to take part in work placements as part of VETiS certificates, Polesel suggests this this “strict component” is the reason that NSW has the lowest VETiS completion rates [AU22].

It's that odd divide that for every country other than the Germanys if you're not good at stuff you're vocational rather than that you're really good at the vocational. [The message is] If you can go through academic then do that. [AU29]

What this chapter highlights is that the message: “if you can go through the academic, do that” applies in all countries, with the slight adjustment of academic to “hybrid”. This dynamic is not a culturally-specific one but a structural one. It is not just about perceptions but about the schools that students are in and the learning opportunities offered by those schools.

In the past two decades, an increase in school choice has created a movement of students away from the lowest-strata school types. But this movement has amounted in two cases to no more than a re-sorting, with some students in a worse position and some in a better one. Overall, there is no improvement and no students have access to a more academic pathway. In the sorting, however, the pathways into a pure vocational route have gone. In the other two cases (Germany and Austria), this movement has brought slightly more students into learning environments with more opportunity to pursue an academic pathway. But the benefit – as measured in academic learning outcomes – is marginal, and the consequence in Germany has been a mass decline in the upper secondary vocational system, whereas in Austria it has not.

The next chapter analyzes the contests for recognition that determine which kind of skills are recognized in education systems: a process underpinning both sorting by attainment and the elision of pre-vocational and vocational offerings.

### **Conclusion: increased school choice undermines hybrid models**

This chapter demonstrates the relationship between the level of choice at the lower secondary stage and the conditions for successful hybridity at upper secondary. I find that only where systems have maintained formal tracking is there a sufficient share of students to supply demanding hybrid

models at upper secondary. Elsewhere, the supply of students bifurcates into those who can opt for a competitive academic route, and those who opt for a route of least resistance.

This increase in choice varies across the cases. While lack of a sufficiently strong SPÖ majority in Austria prohibited the introduction of increased choice, this factor was absent in parts of Germany which were forced to increase choice because of demographic change. Likewise, governments of both stripes increased choice in New Zealand and Australia. The greater number of distinct strata in the school systems in Germany and New Zealand is associated with a greater degree of residualization (a small “leftover” school sector), and greater decline of the vocational share.

Despite the increase of choice, because of academic or income-based restrictions on school entry, the school systems in Germany, Australia and New Zealand can be described as *quasi-tracked*. This quasi-tracking inhibits the potential of double-qualifying hybridization. Instead, all schools whose students can perform in an academic pathway need only the academic pathway, and there is some evidence that cultural processes of stigmatization encourage them to do this. Schools with a low performing intake try to offer hybrid options but do not have this option, and instead seek diluted pre-vocational options. Thus it becomes apparent that increase in school choice is also related to the degree of *substitution*, described in the previous chapter, whereby vocational learning substitutes for academic curriculum, but does not lead to a valued qualification.

The findings of the chapter build on the study of stratification in school markets by demonstrating the implications of increased school choice and course choice across diverse institutional contexts. While previous scholars have drawn attention to the potential for inequalities arising from school choice in particular cases, including, recently, in terms of curriculum differentiation (Perry and Lamb 2017), this chapter is the first to conceptualize the relationship between increasing choice and upper secondary pathways in comparable terms.



## Chapter 6. Micro: the battle to be the signal amongst the noise

In chapter four we saw that, at the macro level, each of the cases has introduced new hybrid pathways through upper secondary education. The hybrids offer opportunity to work towards academic and vocational education simultaneously, thereby allowing students to pursue vocational education without opting out of an academic pathway. In chapter five, we saw that the changes in the organization of lower secondary schooling can undermine the intentions of hybrid paths. The successful hybrid, the BHS, relies on Austria's maintenance of a tracked school system providing students who are oriented towards the path. In the other three cases, the emergence of quasi-tracked school systems means there is no natural constituency for hybrid models; all who *can* pursue an academic path do so, and those who cannot are not equipped to take a hybrid path.

These chapters have gone some way to explaining the patterns of vocational enrolment we see across cases. But they also leave some puzzles unexplained. Low-attaining students may be unable to complete hybrid pathways, but why would high-attaining students not be pursuing hybrid paths at higher rates? We saw that stigma is not a sufficient answer, as there are relatively higher rates in Australia than New Zealand. Why this variation?

To address these final questions we have to consider the most fine-grained way in which students are differentiated in upper secondary: through assessment and reporting. Assessment and reporting shape differentiation at the individual level, creating additional constraints and incentives. Chapter five highlighted an important change in the situation of young people across the cases in terms of their ability to *signal skills* through upper secondary. As choice has increased, differences in general capabilities that once would have been signaled by school type (or stream) have become more

opaque. This potentially places greater weight on assessment and reporting, or “skill signals”, as key differentiators (Piopiunik et al. 2018).

In this chapter, we see that while young people are trying to differentiate themselves via assessment in upper secondary, educational policy has increasingly been trying to render them equivalent. But the persistent demand for differentiation from employers means that these policy efforts at equivalency are ultimately unsuccessful. Political and technical factors then result in the strengthening of formal differentiation through skill signals – but only for academic subjects.

The emergent assessment structures therefore are ones which create different incentives for pursuing academic and vocational education. Students with confidence in their general abilities have increased incentive to pursue an academic path and differentiate themselves, while the rest seek to avoid vocational credits, courses, or schools which would associate them with the less skilled. While the resulting patterns of choices can appear to be motivated by *social* factors concerning peers, discrepancies suggest they are at least in part motivated by *symbolic* factors, namely the desire to signal skills.

### **Theoretical background: factors determining the relevance and credibility of skill signals**

In chapter one, we saw that upper secondary choices can be described as a means to develop skills and to signal skills. If choices were only an attempt to develop skills, we could expect all young people to pursue a hybrid pathway, which offers the maximum potential to develop different types of skills. But if young people also have to consider how they signal their skills to universities, employers, and society in general, then different upper secondary pathways offer different opportunities to signal skills through assessment and reporting in terms of credentials, grades, and test scores. The following sections set out what we know about how these signals work.

### *The need for skill signals*

To understand the role of skill signals, we need to return to the conception of education introduced in chapter one, where I suggested that a person's skills, or their education as a whole, can be considered an "opaque good" (Karpik 2010). Like a work of art, each educated person and their bundle of skills is unique. Unlike exchange goods, which acquire a value through a market, Karpik argues that opaque goods acquire value through various "judgment devices". These can range from expert opinion to review aggregators.

In education, our key judgment devices for evaluating skills are tools of standardization and assessment. These formal devices can support more informal skill signals to help us make more accurate inferences about a person's skills. For example, let us say we are looking for a candidate for a job that requires comfort with complex texts. If we are introduced to a student from a failing high school, we might assume that they had not had a very good education and would not be well prepared to handle complex texts. If we were then told they were an A grade student, this would improve our estimation of their skills, but we might still be concerned that the standards of the school are not very high and while they may be competent they were unlikely to have read many complex texts. But if one also had the information that that student scored a 750 on the verbal part of SATs, this would change that assumption. What the student could actually do would be no different in any of these circumstances, but the addition of the final, clearer signal of their skills – clearer in the sense that it is made by a well-understood, nationally-used assessment as opposed to a classroom assessment – changes how they are perceived.

This example highlights the utility but also limitations of formal skill signals. Students who can excel on widely recognized tests are able to send clearer signals of their skills. Students with different kinds of skills – perhaps a student who is very conscientious and knowledgeable about a particular

field but does not speak good English – would not be able to use the SAT as a good skill signal. Such a student might try instead to show what they can do through a behavior reference or an occupationally-specific credential. Whether either of those skill signals would be valued as highly as the SAT would depend on what they are applying for, but also on the institutional context of the country and the degree of standardization, reliability, and credibility of behavior references or occupational credentials.

Overall, from the perspective of the users of skill signals – students, universities and employers – their relative strength relies on two key factors: credibility and granularity. As we will see, these two factors are similar to reliability and validity, but where those terms each have a number of specific meanings in psychometrics that can be evaluated statistically, the notions of credibility and granularity capture how a skill signal is perceived by a non-expert user, as indicated by studies of labor markets:

1. **Credibility:** the extent to which the signal is trusted to mean the same thing across time and place. Users of skill signals typically do not have access to details of the individual's actual performance or knowledge. Consequently, they have to trust that what they infer from a credential, grade or score is consistent across time and place. Users place more weight on more standardized or more centralized assessments (De Paola and Scoppa 2010; Woessmann 2002). For example, the returns to a high school diploma are typically higher in jurisdictions that make use of centralized exams compared to those which use only school-based assessment (Backes-Gellner and Veen 2008; Piopiunik, Schwerdt, and Woessmann 2013).
2. **Granularity of level and domain-specificity:** skill signals can differ in whether they just give a general impression of someone's skills, or make fine-grained distinctions either by the level

or domain of skills. Granularity by level determines whether or not signals can provide a basis for fine-grained competitive selection, which can be desirable to create simple and transparent selection processes (Linn 2009). Domain-specificity impacts the match between the skills of interest and the skills that are credentialed, assessed or reported on. The degree of match is related to the overall *linkage* between education credentials and jobs, which can vary by country. In countries with stronger occupational linkage, job outcomes tend to be more strongly related to the attainment of credentials (DiPrete et al. 2017; Marsden 1990; van de Werfhorst 2011a).

Credibility and granularity are not stable attributes of assessment and reporting, but can change over time, potentially changing the incentives to pursue different kinds of signals. I next introduce what we know about how this can happen.

#### *Changes to credibility: credential and grade inflation*

Credibility is a very difficult variable to pin down but we know that it can vary because the credibility of skill signals is regularly drawn into question by the phenomena of credential and grade inflation. The notion of credential inflation was introduced by sociologist Randall Collins to describe the “rising credential price in jobs” (Collins 1979). The phrase described the perceived phenomenon that, in a parallel process to price inflation, higher credentials were being required to perform the same jobs. Collins tied this observation to a view of education as a positional good: that is, that education does not confer skill levels of absolute value, but only credentials which allocate people to higher or lower *relative* positions in the labor market and society. Evidence of such credential inflation has been perceived in a number of countries in the sense that the return to a college degree (whether in income or occupational destination) has decreased as the share of the population holding such a degree has increased (Bernardi and Ballarino 2014; Triventi et al. 2016).

As in economics, ‘inflation’ has proved to be a slippery notion in education because it can be used to describe a phenomenon without making any claim as to its cause. Sometimes, inflation can be attributed to particular actions, such as when students or teachers ‘game’ assessment preparation to optimize their performance on a particular type of test. In these cases, it is possible to identify score inflation in terms of unwarranted increase in subject test scores or grades through comparison to results from a different standardized assessment of the same subject (Koretz 2017, 54–63). Likewise, the lack of alignment between general educational credentials and scores in international tests of adult literacy and numeracy skills can be interpreted as a sign of credential inflation in terms of an unwarranted increase in diplomas and degrees (e.g. Lindberg and Silvennoinen 2018; Shields and Sandoval Hernandez 2020). But from Collins’ perspective of education as a positional good, inflation can also come about simply through the gradual increase of holders of a particular degree type, such that the relative position this confers worsens.

We can now advance forward from Collins’ perspective, however, because contemporary comparative scholarship shows that the degree to which an education system is susceptible to credential inflation – which we might now describe as the degree to which education in that system is *positional* – is not fixed but depends on contextual factors. A system can be described as “more positional” when job outcomes are better explained by an individual’s relative position (i.e. years of education relative to the population) as opposed to their absolute position (years of education) (Bol 2015). Whether a country has a larger share of degree holders, high unemployment, or a smaller vocational training system all correlate with a more positional education system (Di Stasio, Bol, and van de Werfhorst 2015; Smyth and McCoy 2011; van de Werfhorst 2011a). From the skill signal perspective, we can re-interpret this literature to say: when the signals from a given educational credential are opaque, employers fall back on evaluating individuals relatively, which makes the value of education more positional. When signals are clearer – when credentials include more granular

information about descriptive standards and/or when there are close linkages between particular credentials and occupations – then employers rely more on absolute levels of education. Overall, then, we can say that a weakening of skill signals makes a system more susceptible to inflation. This is an advance because unlike in the general theory of credential inflation, we have identified the specific mechanisms by which skill signals become stronger or weaker.

*Changes to granularity: commensuration and the eradication of specific skills*

Different kinds of skill signals offer different levels of granularity. Table 29 illustrates different tools which might be used across an education system to give rise to skill signals.

Table 29. Centralized sources of skill signals in education

Centralized sources of skill signals	Means of supporting judgments or comparisons
Report cards	Standardized grade scale
Standardized assessments or centralized examinations (e.g. AP exams, A levels, subject-based exams forming part of high school diplomas)	Standardized questions, conditions, marking/scoring and grade scale
Qualification frameworks	Number of credits, related to number of required study hours
Graded diplomas (e.g. the Bacc, IB, Abitur, Matura)	Combination of scores based on pre-defined weighting
Indices (e.g. Australian Tertiary Assessment Rank, UCAS tariff points)	Equating based on statistical linking or professional judgment

The first of these tools, report cards and standardized assessments, are familiar and are well known for offering granular information by level (e.g. A, B, C) for specific domains (typically school subjects). There is a large literature in education on the use of standardized assessments to rank or sort individuals or organizations for the purposes of selection or accountability (Anagnostopoulos,

Rutledge, and Jacobsen 2013; Braun 2016; Koretz 2008, 2017; Mehta 2013; Stobart 2008). The next, qualification frameworks, are used particularly to allow for comparison both within domains and *across* domains, by evaluating different skill sets in a common framework. Focused mostly on tertiary education, there is a body of literature on the spread of these national and international qualification frameworks (Allais 2011; Elken 2016). Qualification frameworks make claims about the *equivalency* of credentials in very different domains. Whether publics find these claims credible is an open question.

The final tools – graded diplomas and indices – are particular to upper secondary education but serve the same purpose as qualification frameworks: each involves judgments about what level of performance within a particular domain can be considered equivalent to a given level in another domain. An index combines several performance measures – for example math and language scores – into one overall metric, while a graded diploma combines the results of several examinations into one score. Both indices and graded diplomas have to establish, prior to any combination, what domains will be included and how they will be weighted. This process is one of establishing equivalency and/or making judgments about the relative importance of subjects. The resulting tool takes on the nature of a performance measure, however, and thus the process of comparing domains is hidden and subsumed beneath that of creating a performance measure.

Graded diplomas and indices consequently collapse differences across domains, and reduce the domain-specific granularity of skill signals. Their construction can be understood as *skill commensuration*, as commensuration, in sociology, describes the “transformation of different qualities into a common metric” (W. N. Espeland and Stevens 1998, 314).<sup>122</sup> Commensuration allows us to

<sup>122</sup> In Sociology, the study of commensuration has increasingly been replaced by a sociology of quantification, not least by its originators (W. N. Espeland and Stevens 2008; W. Espeland and Yung 2019; Mennicken and Espeland 2019). Espeland and Stevens 1998 portrayed quantification and commensuration as on a continuum, where quantification forms the precursor for commensuration. But the idea of a continuum loses an important distinction. Where



compare things which are different in a particular way by putting them on a common dimension. It has a meaning that is usefully different from, for example, measurement or quantification because it changes our understanding of something in particular ways. Taking the example of size, I can measure a person's height in centimeters, but if I were to describe size according to body mass index (BMI), I would recognize that this combines dimensions on a single scale in a way that loses some of the information that was present before. Commensuration has been studied in education in terms of the impact on education systems or organizations of being made more comparable (W. N. Espeland and Sauder 2016; Lingard et al. 2016).<sup>123</sup> Just as in these studies, the particular way of making education systems or organizations more comparable has impacts on organizational behavior, I propose that when we make skill sets more comparable, we impact teaching and learning behaviors.

### *Informal and formal skill signals*

To conclude this section: there are two processes by which skill sets are evaluated. The first is an informal process, which relates to perceptions of the capabilities of students with certain grades, or who study certain courses and qualifications. This is a social process in which employers, the media and educators are influential. The second is a formal process which assigns a qualification, course or

quantification may be used to render a perceived quality into a quantity, for example, a person's stature is translated into height or weight, *commensuration* implies the comparison of *different* qualities. Through commensuration, entities that we can perceive are qualitatively different are rendered as one, as when height and weight are combined to make a body mass index. Commensuration thus has the particular nature that two entities can receive the same metric but we can still perceive differences in them.

<sup>123</sup> In education, the original studies of the impacts of commensuration focused on organizational responses to being compared or ranked (W. N. Espeland and Sauder 2007, 2016; Gerdin and Englund 2019). Commensuration has more recently been observed in the activity of multi-lateral organizations to compare or rank education systems, in particular through the OECD's Program in International Student Assessment (PISA) (Lingard et al. 2016; Lingard, Martino, and Rezai-Rashti 2013), or through the "Europeanization" of education, in terms of the transition amongst European countries from seeing education as a purely national, specifically incommensurable concern, to one that is of mutual interest in terms of collective skill formation within the European region (Landri 2016, 19–28).

performance to a particular domain and level. This is a technical and political process carried out by ministries under the influence of stakeholders.

When differentiating between skill sets, different comparative tools reflect and constitute different understandings of skills. There are many possible implications of the design of assessment for the social process of making inferences about skills.<sup>124</sup> For the purpose of this study, I focus on those which are most clear-cut: changes in the introduction (or removal) of assessment and reporting, which either scaffold differentiation or render skill differences more opaque. In doing so, I am examining the ways in which changes in assessment policy relate to young people's choices to pursue different kinds of pathways.

### **Case Analysis**

In comparison to the structuring of credentials and of school choice, the design of assessment has followed the most similar dynamics across the cases. The sections that follow trace a series of steps in which policy changes relate to cultural processes:

1. Scaffolding for differentiation has been removed, despite the complaints of employers.
2. A shift in the purpose of assessment away from differentiation and towards recognition aligned with perceptions of credential inflation in upper secondary.
3. Increasingly standardized and external assessment allowed for greater differentiation within the academic pathway, mitigating the problem of credential inflation for high attainers (but this has been slower in Austria).
4. The perceived incompatibility between external assessment and vocational skills meant that differentiation has not been possible in the vocational pathway, reducing its attractiveness

<sup>124</sup> A recent insight of the sociology of status is that it matters not just who is in which status group, but what the gaps between groups are (Sauder, Lynn, and Podolny 2012). This would suggest that changes to assessment which create additional gradations create greater status differentials between top and bottom groups. But this likely depends on whether gradations are attached to specific opportunities and thus it is difficult to tease apart the implications of the assessment tool and the structure of opportunities it may have been brought into sort for.

for aspirational students. In addition, down-weighting of vocational units or courses reduced their relative attractiveness as part of hybrids. Claims of equivalency of vocational and academic credentials are doubted.

Across the cases, these steps have appeared to a different degree and with slightly different timing however. The following sections explain how and why this is the case, leading to an overall explanation of how assessment policy relates to vocational change.

### **1. Choosers want differentiation, but it has been eroded**

Choosers like differentiated reporting because it smooths matching. But across the cases, there has been a loss of these signals as standardized methods of assessments and reporting have been challenged for their unreliability or high failure rates.

*Most education stakeholders want a means to differentiate*

At age 15, young people vary considerably in their general skills. We can see this in PISA, and we also know it anecdotally. Consequently, young people with more general skills want a way to signal their skills. One way to do this is to attend a selective school, or a school that is known to be academically demanding. We saw in chapter five that student flows have moved toward schools that are higher attaining on average.

Where they cannot signal their skills through their school, students report more concern with differentiating themselves by other means. In PISA 2018, less than half of German and Austrian students agree that they want to be “one of the best students in their class”, while over 70% of Australian and New Zealand students agree with this. This difference does not appear to be due to differences in sense of aspiration: there is no real difference across the cases in aspiration to “be able to select from among the best opportunities” upon graduation (Table 30). Nor does it seem to be related to differences in general perceptions of classmates; there is no real difference in sense of belonging at school. The difference in competitiveness implies that students in Australia and New

Zealand perceive it to be more important that they stand out in terms of academic performance. In line with this, 15-year-olds in Australia and New Zealand are more likely to say they feel anxiety about tests even when they are prepared.

Table 30. Percentage of students who agreed/strongly agreed with the following statements.

	I want to be one of the best students in my class	I want to be able to select from among the best opportunities available when I graduate	I feel like I belong at my school (2012)	Even if I am well prepared for a test I feel very anxious
Australia	74.2	95.8	88.0	67.5
Austria	46.8	92.3	88.7	50.8
Germany	42.7	90.9	87.2	41.6
New Zealand	70.0	94.5	85.9	72.0

Source: PISA 2015 Results (Volume III) Students' Well-Being. OECD 2017

Looking across a wider set of countries, there is even greater evidence that this difference in within-class competitiveness relates to the lack of differentiating signal acquired from one's schools. If we array PISA's index of competition (which includes the 'best in class' question as well as four similar questions) against a measure of school tracking, we see a striking pattern (Figure 29).



Figure 29. Experience of competition at school in relation to achievement distribution across schools

The x-axis shows the variation in performance between schools: the common indicator of level of tracking, which might arise from informal or formal differentiation by ability between schools. We can see that countries with larger variation in performance between experience much lower levels of competition *within* schools.<sup>125</sup> The pattern implies that young people in more comprehensive systems experience a greater incentive to differentiate themselves from their peers by their performance in the classroom, whereas those in more tracked systems may feel their skill level is already clearly signaled.

<sup>125</sup> See note 108 on the relevance of the measure of variation in scores that is between schools. Data is from 2015 (Science) and 2018 (survey question) as the latest years when all countries are available (Austria's 2018 figures for between school variation have not been released). There is not much change in the pattern of responses across years.

*Each of the cases has lost signals from lower secondary completion*

Before upper secondary became a universal phase of education, the end of lower secondary was marked by standardized certificates or report cards. In Australia and New Zealand, there are now no external differentiated standards for lower secondary completion. We saw in chapter four that this occurred gradually from 1980-2000 through the abolition of the grade 10 certificates and move towards school-based assessment. And as we saw, in both countries, employers spoke out against the removal of external assessments.

In Germany, some of the equivalent signals have been maintained. Optional extensions to the Hauptschulabschluss, the *erweiterter Hauptschulabschluss* (taken after 10th grade in Berlin, Brandenburg and Bremen) or *qualifizierende Hauptschulabschluss* (taken after 9th grade in Bavaria, Hesse, Saxony, Saxony-Anhalt, Schleswig-Holstein and Thuringia), both involve an external exam. But there has been loss of non-academic information, through the removal of *Kopfnoten* (“top notes”) from school report cards. Top notes are grades awarded for behavior (typically divided up into different categories, such as “order”, “diligence”). From 1989 onwards many states have stopped using top notes or replaced them with written comments. (This is a fluctuating situation, however: top notes were temporarily re-introduced in NRW in 2008).

Top notes were important to employers. In 2012, the German Chamber of Commerce and Industry (DIHK) called for the return of top notes on report cards. *Zeit* reported the DIHK President Hans-Heinrich Driftmann saying at the presentation of the survey that:

The information on social skills such as behavior, diligence or order would make it easier for companies to give young people with bad grades a chance of a training place. (dpa 2012)

In essence, he claims that top notes help to broaden employer focus away from a single dimension of general skills. Equally, a recent case in Saxony, one of the few states to still award them,<sup>126</sup> illustrates the significance of top notes for apprenticeship hiring. The case has arisen from a student requesting a report card without top notes, and then challenging the practice as unconstitutional. As part of the case, lawyers commissioned surveys of employer associations. Amongst companies that are part of the Dresden Chamber of Crafts, 88 per cent stated that top notes were important or very important when selecting apprentices (MDR 2019).

There are good reasons why these practices have been dropped. There is no standardized approach for awarding grades in top notes and they are likely subject to cultural and language bias.<sup>127</sup> In addition, for many employers additional information about non-academic performance would not necessarily be a deciding factor. The same DIHK survey found that 75 per cent of companies asserted that “lack of training maturity” (*Ausbildungsreife*) prevented them from hiring apprentices (DIHK 2012, 31). This would imply that for many employers, it is not information they are lacking, but skills.<sup>128</sup>

Austria, too, experienced a loss of signals in the move to the NMS. While Austria is unique in offering no academic school-leaving qualification below that of the Matura, so there is no equivalent of Germany’s variants on the Realschulabschluss or Hauptschulabschluss, tracking within the

<sup>126</sup> The precise levels and methods of awarding differ by Land. In Saxony, top notes are awarded as a 1-5 scale (1 being the best) for four domains: behavior, diligence, cooperation and order. It is typical to receive a one or two. The student who requested to have his top notes removed had received a four and a three.

<sup>127</sup> Scores for top notes are not awarded by an individual class teacher, however, but by all teachers who teach a student, and a conference is held to determine borderline cases.

<sup>128</sup> The concept of “training maturity” (*Ausbildungsreife*) or of being “ready for training” (*Ausbildungsreife*) is a controversial one. Some researchers claim that this is more an excuse of companies for not taking apprenticeship, as this perception has no clear definition (see note 160). It is however an official category used in the federal vocational training report and reported on (dpa 2010).

Hauptschule operated as a differentiating signal. Traditionally, this was a division of an A, B and C (sometimes just A and B) streams, whereby it was understood that A stream students were being prepared for the Matura level. The importance of this signal was illustrated through recent “political turbulence” over the abolition of within-school tracking in the Hauptschule, when it became the NMS [AT6]. This brought all students in the NMS onto the same grading scale – however, a lower set of grades was demarcated<sup>129</sup> (grades given with an asterisk) [AT8]. This allowed for a sub-section of students to “pass”, without signaling that they had attained the traditional level of the A track.

In addition, Austrian report cards still include a single top note, known as a “*Betragensnote*” (literally “amount mark”) which is perceived as a mark for behavior.<sup>130</sup> Comments suggest they are valued by companies,<sup>131</sup> but as in Germany they have met with opposition from some students and their parents.<sup>132</sup> Teachers, in contrast, at both AHS and compulsory schools remain in support of them (Die Presse 2014).

Overall, while each of the cases has lost signals, the degree of loss differs.

<sup>129</sup> In the law that guides school assessment, it is specified that students in the NMS have to be graded according to whether they fulfil the requirements or “basic” or “in-depth” education (BGBl/472 n.d.).

<sup>130</sup> Officially, these *Betragensnote* are only meant to be for feedback to students and not for use in selection. According to the school law, the *Betragensnote* cannot be awarded in the final year of a school, that is, the fourth year of elementary or eighth year of the middle schools. The equivalence of the concept of *Betragensnoten* and *Kopfnoten* is evident where Austrian newspapers use the term interchangeably when reporting on the court case in Saxony (Heute 2018).

<sup>131</sup> A comment from a BMHS teacher on an article in *Der Standard* about report cards asserts: “We are in constant contact with companies, one of the most requested wishes in the classroom is the delivery of punctuality and reliability.” [Wild Gardener July 25th, 2013, 23:22:47] (APA 2013).

<sup>132</sup> In 2008, when NRW students were demonstrating against top notes, Austrian student representatives also spoke out against their use in Austria (Der Standard 2008). In 2014, the Vienna Parents’ Association of middle and higher schools called for their abolition, but the Ministry of Education asserted there was to be no consideration of this (Die Presse 2014).



## 2. Assessment changes laid the foundation for perceived upper secondary inflation

In addition to the loss of differentiation signals in terms of specific assessment points, the remaining assessments in secondary education have shifted from a logic of differentiation to one of recognizing attainment. This has further eroded the scaffolds for differentiating between sub-completion levels of attainment.

*Differentiation has been eroded by the move to a competency-based orientation*

In the past two decades, each of the cases has shifted from a logic of assessment as a tool to differentiate to one of assessment as a tool to allow recognition of pre-defined competencies. Table 31 summarizes the policy changes associated with this shift across the cases. These include the introduction of national standards and associated assessments.

The shift to a logic of recognition took place across the cases. But it only most deeply reached into changes in assessment practice in New Zealand and Germany. In Australia, the variety of curriculum and assessment boards and the long tradition of assessment expertise (in the Council of Australian Research in Education) has mitigated against dramatic change. In Austria, the teachers unions have strongly resisted the introduction of testing related to the standards.

The shift in assessment approaches in Germany and New Zealand has two main implications. The first is that, by introducing an entirely new assessment system where standards and pass rates were not linked directly to prior standards or pass rates but to a conception of competency, they make it *possible* for more people to attain. The second is that, by creating a series of assessment-based qualifications in sequential years as opposed to separate qualifications for separate tracks, they locate all young people in the same qualification pathway. Let us look at each of these in turn.

Table 31. Shifts towards standards- and competency-based assessment, and a logic of recognition

Australia	New Zealand	Germany	Austria
1997: New South Wales introduces standards-based reporting in the Higher School Certificate	2007: New Zealand curriculum standards in all subjects	2003: KMK approval of first national standards in German, Math, English/French	2003: Initiation of a low-profile project to develop national standards in German and Math (grades 4 and 8) and English (grade 8)
2008: First year of standards-based NAPLAN testing (English, Math, Science in grades 3, 6, 9)	2010: National standards in reading, writing, and math <sup>133</sup> with accompanying optional assessments	2006: benchmarking assessments against national standards in grades 3 and 8	2008: Founding of BIFIE, responsible for educational monitoring and standards development
2008: start of development on the first national Australian Curriculum (all subjects, grades K-9)	2012: Better Public Services (BPS) target for 85% attainment at Level 2	2009: national standards for the <i>Hauptschulabschluss</i>	2013: <i>Zentralmatura</i> in AHS; introduced in the BHS 2014 (agreed in law 2009)
2009: Council of Australian governments target of 90% attainment of “Year 12 or equivalent” by 2015		2012: New standards for central Abitur subjects (German, Math, English/French) (agreed by KMK 2007)	

*Competency- or standards-based assessment makes it possible for more to attain*

In a logic of differentiation, grade boundaries, and consequently the proportion of students who attain at each level, are designed to remain stable. In contrast, in a logic of recognition, all students

<sup>133</sup> Interestingly, in New Zealand considerable amounts (more than is invested in the international surveys, PISA and TIMSS) are spent on assessing the implementation of the breadth of the curriculum across schools [NZ30]. This implies that the Ministry does value breadth, but no schools talked about this; in their view the Ministry’s focus was targets and attainment.

who can be considered to have demonstrated some competency can be expected to attain.

Consequently, expansion becomes possible, or even, expected.<sup>134</sup>

In New Zealand the shift in the logic of assessment occurred through the introduction of NCEA from 2000 onwards. As we saw in chapter four, there was a long build up to that change, which included criticism that the School Certificate was “failing” too many people. A senior researcher from New Zealand’s Council of Education Research describes the change in philosophy that underpinned that reform:

one of the positive things about NCEA is that no matter how strong kids are as traditional academic learners, if there are areas where they are capable, they can demonstrate their learning, and why shouldn’t they, but of course, there are some people who are skeptical about that... The tension is seeing NCEA as a recognition of what you have done, and as a sorting mechanism, so opponents of personalization hold very strongly to the sorting mechanisms. [NZ33]

The admission here is that NCEA is not very good as a sorting mechanism. NCEA’s methods of assessment was designed for students to be able to show what they could do, not to compare students. It was influenced heavily by the theory of criterion-referenced assessment, which posited that assessments should be developed using descriptive information of what students can do (Glaser 1963, 1994). In New Zealand, this approach influenced the development of assessment against achievement standards or unit standards, initially with no moderation or scaling of scores across a cohort. From the start, employers complained that this approach would not allow for comparability and consistency across years. Alongside the opposition of the Business Roundtable (operating through the Education Council, see chapter four), in 2005, the CEO Employer and Manufacturers

<sup>134</sup> In psychometric terms, this shift can be equated to a change away from norm-referenced and towards criterion-referenced assessment, but the actual assessment practices used in all cases involved elements of both types, in that they involve assessments against curriculum or standards, combined with an element of moderation to ensure pass or grade rates remain somewhat similar across years. The shift from primarily teacher-led assessment to more centrally designed assessment tasks makes it difficult to say anything definitive about assessment practices used in Germany and Austria prior to this change.

Association, the main Auckland-based member association of BusinessNZ, published a piece in the *New Zealand Herald* and in the EMA's magazine for members challenging the assessment method of NCEA (Thompson 2005). Some statistical moderation of scores had to be introduced after the first few rounds of assessment to create more consistency (Hipkins, Johnston, and Sheehan 2016)

Nevertheless, as we saw in chapter three, the extent to which pass rates of non-externally assessed standards have increased over time. It is still a subject of controversy. The New Zealand Initiative, a think tank formed from a merger between Business Roundtable and another, has now published several critical papers, which, for example, compare increasing performance on NCEA to declining performance in PISA (Udahemuka and Johnston 2016). During my fieldwork, Ministry officials tried to defend the approach:

There is a paper coming out from a group called the New Zealand Initiative and it's asking this question – how come the numbers have increased? – well, because they're standards based. [NZ34]

We look below at how the partial response to the criticism has created a qualification structure that greatly incentivizes academic learning for high attainers.

A similar dynamic has unfolded in Germany. The desire to focus more on 'what people can do' has translated into more potential for attainment. Germany's rapid shift in the dominant assessment practices in the first half of the 2000s was associated with the introduction of a "competence orientation" (*kompetenzorientiertem*), described as one that focuses not just on "material" (*Stoff*) but "what students really can do" (*was Schüler wirklich können*) (V. T. Kerstan 2010). This shift is associated with Germany's "PISA Shock".<sup>135</sup> As one of the designers of Germany's educational standards described it to me:

<sup>135</sup> While Germany had the archetypal PISA "shock" with its unexpectedly low results in 2000, each country has experienced shocks when their performance is not what they have been led to expect it should be (Sellar 2015). Australia

the PISA became the role model for our understanding of competencies. ... the life skills orientation of PISA was very influential. It's called the competence-orientation in Germany, and basically it's this life skills [approach], you don't want students to build up inert knowledge but gain applicable knowledge. [DE1]

While the competency-orientation and educational standards appear to have had limited impact on pedagogical practice,<sup>136</sup> their most direct impact was on the design of the new centralized assessments for the Hauptschulabschluss, Realschulabschluss and Abitur (the first two were technically renamed). For critics, the competence-orientation amounts to tests that are easier to pass, because they demand less knowledge retention. Hans Peter Klein, an academic at Goethe University in Frankfurt, conducted studies of the new exam papers that are based on the standards. I translate here a passage from an article in which Klein is being questioned by Thomas Kerstan and Martin Spiewak, two veteran education reporters for *Die Zeit*, because it is such a clear explanation of his analysis:

**Klein:** Personally, I don't want to blame anyone for anything. What is certain, however, is that we have seen a radical change in the German school system since the beginning of the nineties, i.e. after the first Pisa shock. In order to standardize the level, certain competencies were defined, which all students should master depending on the subject and class level.

**ZEIT:** There has always been something like this, only it may not have been called competence.

**Klein:** Many teachers said that at the beginning. Bit by bit, however, it became clear that the specialist content played a far less important role in this concept of competence than before. Rather, it is now a question of the pupils being able to deal with given texts, graphics and tables, the contents

experienced smaller versions of a PISA shock in 2009, and New Zealand in 2012, when their performance dropped (Baroutsis and Lingard 2018; New Zealand Initiative 2013).

<sup>136</sup> Some academics talk about the competency-based movement as quite significant, but Klieme, one of the authors of Germany's educational standards, describes them as thus far having limited impact on practice: "Even if teachers know about standards, they might somehow take them up, and this famous notion of competence based instruction has caused a lot of misunderstanding and irritation within the system. ... I would expect that students would not know about the whole thing... They may participate - they should participate in these standards based assessments once or twice in their school career, and that's it" [DE1]. Likewise, a teacher in Vienna described competencies as just "knowledge by another name" [AT4].

of which can be exchanged as desired. So it is no longer about the matter itself, but only about the extent to which it can be of use to us.

**ZEIT:** How do you fix that?

**Klein:** We looked at the Abitur tasks in various federal states. At first glance, they look quite sophisticated, with a lot of text and a lot of graphics. On closer inspection, however, you can see that an important part of the examination is to reproduce what is already in the task text. That means that even those who don't know anything can manage it

The accusation that tests have become “easier” is hard to verify or disprove without extensive analysis of the demand-level of questions and the breadth of the curriculum, both of which could make it more or less likely for a given student to do well. But less requirement for knowledge retention is not the only way that standards- or competency-based assessment can potentially relate to increased attainment. We have already seen that this assessment approach *enables* increased attainment, if it involves a new setting of standards and expected pass rates. In addition, as standards or competencies can form the basis of assessments and also of the curriculum, this can create more predictable questions because of the close alignment of what is taught and what is tested. Similarly, a teacher commenting on the article suggesting that Germany has seen credential inflation argues instead that the exams have become more transparent, and students can prepare better:

Today, however, students can find out exactly what they need to know for the A-Levels through the respective ‘Obligatory’ and can prepare themselves for the examinations in a targeted manner. According to my observation, pupils today are much better prepared for the oral exam (as a general requirement) than for my school days - with corresponding results. (Zeitonline reader “Erik Schmittmann” commenting on Agarwala 2017)<sup>137</sup>

<sup>137</sup> This is an extended newspaper article making this claim about Germany. It includes the view of an exam writer (whose Land is kept anonymous): “...there was in fact no direct order from above, from the Ministry of Culture, to ask the high school graduates only light questions in the future. But everyone involved was clear, says Mr Frese, that all the reforms would have been pointless if all the new high school graduates rattled through the test. So in many rounds with departmental heads from the school authorities, the standards had been “boiled down”, according to Frese. Here a little less analytic geometry, there some simpler algebraic equations.”

Many such “obligatories” can be found on the internet.<sup>138</sup> This increasing standardization of expectations through the more centralized design of assessments, coupled with targeted preparation, and increasing test scores is familiar to countries with high-stakes exams as “teaching to the test” (Jennings and Bearak 2014; Miller and Seraphine 1993). When tests become more predictable, we would expect to see higher pass rates, regardless of whether the content has actually become “easier” (Holcombe, Jennings, and Koretz 2013). In addition to increased predictability, where the shift to a logic of attainment orientation is coupled with increased accountability or monitoring, students become more familiar with how to take tests, and familiarity also tends to improve scores over time (Koretz 2015). As a school counsellor carrying out the first testing of 9<sup>th</sup> graders in Germany in 2009 put it, “Today’s student generation has grown up with central learning controls” (Wiarda 2009).

It is not possible in this scope of this study to fully establish whether the demands of assessments have decreased over time or their predictability has increased because of more centralization. What is presented here is only suggestive evidence that this has taken place, pointing to a potential relationship between changes in a test’s requirements and a loss of confidence in the differentiating power of that assessment or associated credentials. What is potentially more important for understanding young people’s upper secondary choices is a second change brought about by the shift in assessment practices, which was in the relationship of different qualifications to each other.

<sup>138</sup> For example, a “didactics corner” includes “working aids” for teaching German in the Zentralabitur, with details of the question specifications: [http://www.fachdidaktik-einecke.de/9\\_Diagnose\\_Bewertung/zentralabi\\_nrw2007-2009\\_deutsch\\_arbeitshilfen.htm](http://www.fachdidaktik-einecke.de/9_Diagnose_Bewertung/zentralabi_nrw2007-2009_deutsch_arbeitshilfen.htm) (for the advanced level course, for example, students know that they need to know the “relationship of language, thinking and reality”, specified as “the Sapir-Whorf hypothesis”. For the basic course, the social relevance of language varieties in terms of “dialects and sociolects”).

*Competency- or standards-based assessment located everyone in the same qualification pathway*

In New Zealand, NCEA quite clearly organized all possible learning into three levels. Students can progress through the levels and also use credits from an earlier level towards their later qualification. The explicit intention of this was motivational and to allow for higher achievement (Hipkins and Vaughan 2002). Principals report that, while level 1 has no real value, it is motivating for students to start gaining credits [NZ5].

In Germany, the standards and the competency-orientation in exams marked a technical and a conceptual change in the relationship of the school-leaving qualifications. In the development of standards for the new school-leaving certificates, for the first time the “HSA” (Hauptschule) and “MSA” (middle level certificate) certificates were constructed as related standards intended to represent particular levels of skills, with one being a step to the next, as opposed to the conclusion of entirely different school tracks (Harsch, Pant, and Köller 2010). This was a shift that had been occurring before PISA, since Germany’s participation in TIMSS (Trends in International Mathematics and Science Study) in 1995. In 1997, the Education Minister’s Conference (KMK) agreed in the “Konstanz resolution” that the Länder school systems should be compared:

I remember this well, when first individual Länder and then the KMK started to actually work on standards, it very quickly became clear that they were facing the difference of how standards for Hauptschule relate to standards for Realschule and standards for Gymnasium. And this was hotly debated because we had this tradition of making the systems [distinct]. But at the same time we had the promise of moving up, and the fate of moving down for many, ... so there was some need to align the standards [DE1]

The design of assessments which could be taken by students from different school types would prove challenging. The introduction of 9<sup>th</sup> grade testing was postponed temporarily in 2008, for the rumoured reason that too many Hauptschule students would fail (V. T. Kerstan 2008). This alignment continued after PISA, which made it conceivable – and even mandatory – to compare performance across school types (see Appendix F13 for recollections of this change). It is of course



natural for someone associated with PISA to see it as of great significance and most described it as more of an accelerant than a transformation.<sup>139</sup> But if we recall chapter five, one of the key reasons given by German scholars for the decline of the Hauptschule and movement to a two-track system is the decoupling of school qualifications from school types, which was a direct consequence. In contrast, PISA had relatively less impact in Austria (evidence for this detailed in Appendix F14).

To what extent the increased publication of poor results from the Hauptschulen was an accelerant of their decline in many states – or whether the relatively good results of Hauptschulen in Bavaria has been important to their maintenance, is difficult to say. We can say that the introduction of centralized standards and linked qualifications created a pathway through which students were *expected* to progress, with standards building on each other, as opposed to deriving from entirely different curricula. This allowed for the situation in some states where the only students who would be applying for youth apprenticeships were those who were not able to progress in attaining general qualifications. As a comprehensive school teacher described it:

We are two years together and then they make the final exam, and then the schools and the teachers decide together is this person able to go to the second certification or not, and then if not we write applications for Ausbildung. [DE2]

<sup>139</sup> An interesting example of what this acceleration of change looked like. In October 2003, in the wake of the second round of PISA, the Hamburg Craft (Handwerk) chamber of commerce proposed the scrapping of the tripartite school system and introduction of a 9 year school, on a Finnish model. Their general manager, Jürgen Hogeforster, explained to *die Zeit* that they hope this would solve the long-term problem of weak applicants, a problem they had been talking about “For at least 15 years. We have submitted analyzes and proposals, thick papers. Everything was unheard. Since Pisa it is suddenly an issue.” (Kahl 2003). While the argument is clear here that skill problems themselves are a long-term phenomenon, the Handwerk groups had always been staunch supporters of the tripartite system. For (albeit in Hamburg, which had experienced early residualization) indicates how PISA shifted the debate on the organization of students across different school types.

Only for students who cannot take the next exam is the “choice” an apprenticeship. It is not surprising that their options for apprenticeship training are only in the occupations “nobody wants...cashiers, the supermarkets” [DE2].<sup>140</sup>

Just as in New Zealand, where it was envisioned that a standards-based approach could merge academic and vocational education, the competency-based approach in Germany was meant to bring academic and vocational paths closer together.<sup>141</sup> But instead the shift was coupled with a greater emphasis on academic pathways and the possibility of going to university (evidence on this point is included in Appendix F15).

With this clear focus, rates of university going went up, though not as quickly as young people gaining the necessary upper secondary qualification to be *eligible* for university. As we saw in chapter three, over half of young people now hold this qualification in all cases. This increase in attainment might be expected to fuel a narrative of inflation, and indeed, this was the case.

<sup>140</sup> The full description of their apprenticeship choices highlights the downgrading of expectations these students have to go through: “they take apprenticeships that exist too many of and nobody wants them, so cashiers, the supermarkets, so you will find your Ausbildung, but maybe you wanted to learn gardening [so you don’t necessarily get the one you want]. [DE2]. This downgrading of expectations is similar to the “cooling out” described in U.S. schools, whereby students in comprehensive high schools can in theory all aim for college, but are gradually directed away. The only difference in Germany is that the necessity to divert expectations arises not only from the academic demands of the university sector, but the demands of employers.

<sup>141</sup> As DE2 describes it: “With the so-called competency based standards, the pedagogical movement was towards a more applied, realistic kind of curriculum, moving away from inert knowledge towards applicable knowledge...So it’s a practical turn, and actually I’ve never thought about how this might impact student’s choices, this is my first time thinking about it, but theoretically you might think this practical turn should motivate more students to go into vocational, because they might understand this is an interesting and demanding thing, to apply my knowledge in a practical context. So they may feel more prepared for this kind of career than previous cohorts, at least in Gymnasium, because [before] they had all this inert knowledge. They never applied their knowledge, they never realized their knowledge is relevant, so thinking about doing an apprenticeship in a further area is far off, it was considered to be something different and downgraded. So theoretically the standards may have this impact that practical thinking may have a higher value, it’s more prominent in the curriculum, it’s respected as relevant and important, it counts, even for grades and certificates. But, actually I don’t believe that this has reached the teachers and less reached the students.” [DE1]

### 3. Post inflation, only the academic path acquired new scaffolds for differentiation

The expansion of opportunity to undertake and succeed in an academic pathway created concern about inflation. As major assessment points shifted from a focus on differentiation to one of recognition, “choosers” sought more opportunity to differentiate themselves. New opportunities for differentiation emerged in ways that further incentivized academic over vocational options.

#### *Increased attainment is perceived as inflation*

As with the specific equivalencies promoted as part of targets, publics are skeptical about attainment that has been driven up as a policy goal. Across the cases, commentators voice the impression that the higher education entrance qualification has become “cheaper”.<sup>142</sup> This quote refers to Austria’s Matura, but similar views are voiced about the Abitur. A 2016 article in Germany claims that “the logic ‘more high school graduates = easier Abitur’ is long since the standard repertoire of education policy” (Rabe 2016). A department official in Australia referred to, “the dominant narrative of standards being lowered” [AU19]. And as we saw above, NCEA has drawn fire for its standards; a think tank operative argued that NCEA “permits schools to churn students out who aren’t functionally literate and numerate yet they look great on the stats” [NZ6].

In addition, where attainment is defined by national qualification frameworks, which make claims that a particular level of attainment is equivalent to another, this is met with skepticism. Vocational learning is particularly susceptible to this. In Australia, the school-leaving target counted whether a young person had completed year 12 or a Level 2 certificate (as of 2016 this was upgraded to Level

<sup>142</sup> This phrase is from a comment on an article about the introduction of the centralized Matura (my translation): it gets easier, it gets cheaper, that's for sure. the only question is how cheap the matura will be in the future. my thesis: she is hardly worth anything anyway. if now the different types of schools, some of which are preparing neatly for occupations like HTL, HAK, etc., will be watered down and the gymnasium will be devalued by breaking down the humanistic content to the level of the other school types, then what? the coronation would be that the Berufsreifeprüfung serves as a benchmark - they have already announced that they want to abolish the matura essay (German). then you do not even need to write anymore. (deleted user May 12th, 2010, 08:10:18)

3). New Zealand's target focused on attainment of NCEA Level 2 or an "equivalent" certificate. In both cases, there was a surge in attainment of level 2 vocational certificates. Local informants view these growths with skepticism, specifically the notion that what has been attained is equivalent [AU6; AU22; NZ17; NZ20]. A lead on VETiS in one of the state departments of education said that while the Australian Qualification Frameworks claims that "all certificate IIs and IIIs are equal", those working across multiple training packages in the sector are aware "that's not always the case." [AU35]. Equally in New Zealand, the claim that each standard represents ten hours of learning and/or assessment is doubted; as a teacher union representative said, "10 hours is quite subjective because it depends so much on the student and what they bring through it." [NZ22].

In and of itself, the view that standards have lowered is evidence of nothing. It is probably perennial and can stem from employers with too high expectations of the skills of young people applying for low-paying jobs, or from the older generation of university graduates who want to maintain the exclusivity of their degrees, while wanting them for their children (Rabe 2016). But the more specific doubting of the claims of equivalency clearly undermine the value of qualifications, particularly when the number of holders is increasing.<sup>143</sup> One consequence of this has been a swing in rhetoric back towards the vocational. But the alternative response is to introduce more differentiation. This

<sup>143</sup> There are at least two mechanisms explaining the relationship between the increased numbers getting a qualification and falls in the perceived value of that qualification. The first is one of credential inflation, whereby the more qualified now fulfil roles that were traditionally filled by the less qualified. A neat illustration of this view is found in a comment on a 2010 article in *Der Standard*, about companies having difficulties finding apprentices: "With "education for all" (good in itself), unfortunately, the apprenticeship occupation [*Lehrberuf*] was gradually devalued. Better a skewed *Phantasmaster* and "studies" than a "*Hackler*" [heavy worker]. ...today, the business graduate [*BWL-Absolvent*] does what 20 years ago, even apprentices have done." [moody 100 July 29th, 2010, 11:28:19; this was the most 'upvoted' of the 450 online comments on this article. [derstandard.at/1277339124878/Umfrage-68-Prozent-der-Wiener-Unternehmen-finden-keine-geeigneten-Lehrlinge](http://derstandard.at/1277339124878/Umfrage-68-Prozent-der-Wiener-Unternehmen-finden-keine-geeigneten-Lehrlinge)]. The second is a view that there is some mechanical relationship between the numbers in the pathway and the quality and level of learning. For example, a 2010 article in Austria on increasing numbers in the BHS receives the lamenting comment that it is "probably logical" that this increase "will not have a positive effect on the already declining level of these schools" [Comment by "Clangi", (Nimmervoll 2010)]. Underpinning this view seems to be an elitist assumption that mass education is more likely to be poor quality education.

response not only minimizes inflation on the academic side, but, as we shall see, makes the vocational less attractive in comparison.

*Young people up their game, and are rewarded with cleaner signals*

Over this period, there is evidence of young people exerting additional effort to differentiate themselves within an academic route. In Germany, we see this in the increase of “*Einskommanix*” (1,0) grades in the Abitur, which rose five-fold in Berlin from 2006 to 2015 (Reiter 2016). In Australia it is evidenced in the anxiety over the “ATAR”, the Australian Tertiary Admission Rank, which has become a source of major anxiety (Harvey et al. n.d.; Milligan n.d.; Pilcher and Torii 2018).

The political dynamic through which one scaffold for differentiation is replaced by another is particularly evident in the case of New Zealand. In the first few years of NCEA, after the abolition of the School Certificate and university entrance exam (“Bursary”), there was mass uncertainty about the value of the qualification. Schools who had done well under the old system threatened to revolt and switch over to international school exams (such as the IB or Cambridge International; 20 schools did).<sup>144</sup> To “get some of those conservative schools on board” [NZ17], the Labour government agreed to reintroduce an exam for the competitive university bursaries. A teacher recalls how the differentiating approach of this exam worked to quell the opposition:

the scholarship exam ...is marked on a standards-based assessment first then ranked heavily, so you might get an 8 but then suddenly 8s turn into 4s, because of where everyone is, but the irony is that was sort of the system that saved it. [NZ20]

<sup>144</sup> Cambridge International Exams were recalled in an informal conversation with someone who had left school in around 2010: F: There was this other set of exams people could do. / A: Cambridge International? / F: Yes, those. It was made to seem like that was the elite, or the international standard. Like those would be the people who went far.

The re-introduction of a scholarship exam (as well as a system for standardizing pass rates in NCEA Level 3) was not enough to quell the demand for differentiation, however. In addition, NZQA introduced “endorsements”, whereby students received additional recognition on their certificate if they gained enough of the “achievement credits” at the level of “merit” or “excellence”, or “subject endorsements” if they did so in particular subjects. Endorsements soon made their way into university entrance requirements. New Zealand’s experience highlights that assessment policy that tries to work against the level of differentiation required of upper secondary is not successful.

In Germany and Austria, the increased pass rates and grades in the Abitur and Matura have also been met with differentiating reforms. One of the drivers here is demand from the higher education system. In Germany, because of the *numerus clausus*, the system limiting the number of places to study at university, the Abitur grade can be consequential for admission to desirable university courses,<sup>145</sup> Medicine being the most demanding (T. Kerstan 2011). Austria does not operate *numerus clausus*, and traditionally, insiders have believed that Matura grades are not significant.<sup>146</sup> Recently, however, limits have been introduced in the highly popular subjects of Medicine and Psychology [AT4]. This adds to the demand for differentiation.

The introduction of the “centralized” Abitur and Matura is intended to bring meaning back to differences in grades, in the context of pressure on university places from the *numerus clausus* and a lack of comparability across states (Fries 2008; Zeit 2011). These reforms took some time, but all

<sup>145</sup> German commentators have described the introduction of the *numerus clausus* and the point system (*Punktesystem*) in the Abitur as a point where grades became “currency” (*Rückmeldung*) to get “sought-after study places”, where “previously, the matriculation certificate (*Reifezeugnis*) was sufficient, no matter what was written in it” (Kahl 2007).

<sup>146</sup> Austrian comparative educationalists Karl Heinz Gruber describes the difference thus (my translation): “While in most countries the “meritocratic” rule applies – the better the grades in the certificate, the more “powerful” it is, that is, the greater the chances of choosing ones university and field of study – the Austrian Matura certificate gives each person the same unrestricted study, no matter if it's one of “all one's,” [top grades] or all fours, earned with choking on the second rehearsal. In Austria there is no “bonus” for a good Matura certificate.” - [derstandard.at/2098197/Alte-Matura-und-neuer-Numerus-clausus](http://derstandard.at/2098197/Alte-Matura-und-neuer-Numerus-clausus)

states with the exception of Rhineland-Palatinate now use centralized assessment questions.<sup>147</sup> In Austria, students sat the *Zentralmatura* for the first time in 2013.

The introduction of more centralized examination processes could have been a major deterrent for young people considering whether to pursue an academic pathway in Austria; indeed, the prior *absence* of centralized exams appears to have been related to greater expansion.<sup>148</sup> In Germany, rates of Abitur-taking increased more over time in Länder *without* centralized exams (Backes-Gellner and Veen 2008). In addition, Abitur rates are higher in the states where students can expunge from their overall score grades in weak subjects (possible for example in Hamburg and Berlin, but not in Bavaria or Baden-Württemberg) (Reiter 2016). And the only state which has not seen an increase of “1,0” grades is Baden-Württemberg, which uses a practice of two external markers (Reiter 2016).

On the other hand, centralization improves the signal for young people from previously “easy” states.<sup>149</sup> And the introduction of centralized exams does not seem to have occurred in a way that

<sup>147</sup> In the first move to try to improve comparability both within and across states, German states reduced flexibility in the Abitur. In 2001, Baden-Württemberg was the first state to move away from the *Kursesystem*. Their new Abitur model, involving compulsory core German, Math and a foreign language, was first implemented in 2004. In 2006, a resolution from the KMK adopted this model of common compulsory subjects. The introduction of the Zentralabitur, which featured centrally in discussions from 2005, was delayed several times and has ultimately occurred gradually, state by state (with the exception of Rhineland-Palatinate). The aspiration of reformers has also gradually changed from that of a single set of exams that all students would sit on the same day, to that of common standards used within each state and, increasingly, harmonized across the states (Kahl 2007).

<sup>148</sup> The prior absence of centralized exams alone could explain prior academic expansion, as this condition was also present in Austria. The Principal of Vienna’s only multi-track school explains, speaking after the introduction of the centralized Matura, describes how the absence of centralized exams for much of this period allowed teachers to adapt the Matura process to be inclusive: Earlier on...we designed the Matura and we know where the strengths and weaknesses are. Maths, maths is the main thing, the teachers just calculated maths problems no end and said learn those 20 or 50 and four of them will be Matura. They learned them by heart, didn’t understand anything but they could calculate them, and if they learned hard enough they passed. [AT8]. It would appear rather than most teachers did not feel pressure to use this flexibility. An AHS teacher described grading as always difficult, but that it was rarely necessary to fail students [AT4].

<sup>149</sup> Heinz-Peter Meidinger, Federal Chairman of the German Philology Association reflected this view in a 2008 interview (Fries 2008): “*There is this somewhat simplistic but beautiful sentence...that a four in Bavaria is synonymous with a three in Baden-Württemberg and a two in North Rhine-Westphalia.*” He similarly voices the view that the former East German states have different cultures of grading, and are less likely to give bad grades.

would immediately restrict expansion. As we saw above, in Germany there is a view that the introduction of common standards only lowered standards further, as state governments sought to harmonize around the standards of less demanding schools (Agarwala 2017; Reiter 2016; Sadigh 2007). In Austria, too, there is a fear that the Zentralmatura represents a co-ordination of standards around the level of the lowest diploma-awarding school types.<sup>150</sup> And, while pass rates did at first go down when the centralized exams were introduced, they then reached a comparable level to the previous year through the “compensation” oral exams allowed for students who had failed the first written test (Nimmervoll 2016). Naturally, these compensation tests drew criticism for having much higher pass rates [AT8].

For some young people at the margins, therefore, centralized exams might put them off, but for the majority, more trusted grades offers the opportunity for valuable signals. Notably, it is not just high-attaining students who are motivated by the finer granularity of academic assessments. In Australia and New Zealand, school leaders make use of the granularity of academic assessments, publishing average SSC scores, ATARs or NCEA credit numbers [AU22; AU18; NZ17] There are signs of this beginning in Germany: average Abitur marks are now published in Berlin. In Vienna, school-level pass rates are still the focus in the central Matura [AT8].

<sup>150</sup> See e.g. note 142. In contrast, others describe the introduction of the Zentralmatura as “setting the standards higher” [AT6]. Certainly, teachers are of the view that the qualification has become more difficult, by demanding a level of Mathematics that teachers had previously been able to circumvent [AT4; AT8].



#### **4. Lack of differentiation disincentivizes the vocational pathway**

*These methods of differentiation are not deemed possible in the vocational pathway*

It is possible to assess skills specifically relevant to a vocational pathway in a differentiated way (Stanley 2017). Even in the case of occupationally-specific skills, the existence of “World Skills” competitions attest to the possibility of fine-grained differentiation. More generally, we saw in the case of top notes that it is possible to give quantitatively different judgments on human qualities that are somewhat orthogonal to skills based in reading, writing or numeracy. Whether because of the potential for discrimination or simply the cost implications of this more personal assessment, countries have been turning away from differentiated assessment of specific skills. Repeatedly across the cases, in the vocational pathway both educators and employers default to a competency-based perspective: whereby a skill is either demonstrated or not.

In the development of hybridization in Australia, Boards of Studies repeatedly made the choice to abandon standardized assessment, rather than adapt it to the needs of vocational subjects. When in 1970 Radford perceived that the current examinations restricted the ability to focus on “oral expression” or “practical work” (Radford 1970, 94), the response was not to devise alternative examination methods, such as the oral or apprenticeship examinations used in Germany, but to abandon external examinations altogether. This decision would be replicated across the other Australian states at each point this tension arose. One key difference between the German-speaking and English-speaking contexts is that the latter have no tradition of oral examinations, or examinations by performance. And yet oral examinations are playing a decreasing role in the German-speaking countries, and as we saw in the skeptical response to the higher pass rates for the oral “compensation tests” in Austria’s Zentralmatura, could yet go the same way as speaking examinations in other countries with centralized high-stakes exams (e.g. England).

To interrogate the source of the association between vocational education and a lack of differentiating assessment, we can look to New Zealand. NCEA is a relatively new qualification structure and we cannot therefore ascribe its approaches simply to lack of innovation. This poses a question as to why an association appears between a *lack* of differentiating assessment and vocational pathways. Formally, the distinction between unit and achievement standards in NCEA is one of assessment technique and should not map onto a vocational/academic divide. Yet even senior leaders in NZQA (the qualification agency, who in their words “own” the unit standards) describe the difference in those terms, seeing an inherent relationship between vocational or practical learning and lack of differentiation. When asking about what role unit standards play, two participants in a joint interview responded this way:

P1: Probably more targeted towards a vocational application

P2: What you can do

P1: That’s why they’re mostly not graded, so that’s why they have a strong practical application, and they lend themselves to assessment in those modes.

For teachers – in this case a teacher at a relatively elite school near Wellington – the mode of assessment in unit standards is associated with their use for low-level tasks:

The first thing was the unit standards and those were seen as an alternative, in a way, to end of year assessment, so seen as a lower option or for those who weren’t achieving as well or those who didn’t have [a] possibility of achieving as well, so they were used here and there but there were some utterly ridiculous things, filling in a form or picking up rubbish [NZ20]

This respondent has no hesitancy at writing off the unit standards as a whole as only for those who “weren’t achieving as well”. If you could achieve more, why would you not want something that could show it? For those who first developed the unit standards, this is a misunderstanding: the intention was that to demonstrate higher level learning, you simply earned a more challenging unit standard [NZ6]. But this perspective does not align with the tendency to understand what counts as a good performance comparatively as opposed to in absolutes . As it is, unit standards are seen as

being ‘smaller’ than achievement standards and qualifications made up entirely of unit standards are simply looked down upon as being of lesser value.<sup>151</sup>

Beyond social perceptions, the one explanation offered for the weakness of unit standards was that, unlike the achievement standards, they are not rooted in the national school curriculum [NZ33].

Notably, this lack of an underpinning curriculum is not a universal situation in vocational education.

A shared curriculum has traditionally been seen as an asset of the German system, although it has become more complex in recent years through modularization, which is thought to break down the coherence of a “Beruf” (occupation), traditionally the basis for a vocational curriculum.<sup>152</sup> The situation in Germany is now contrasted by one German informant with that of Switzerland, where “everyone” – the employer organizations, apprenticeship coaches, and part-time vocational schools – “works towards this goal which is fulfilling what is required spelt out in this short paper” [DE4].

Even in this description, however, the goal is absolute, not comparative. More specifically, the separation from “subjects” appears to be a core concern, as in both Australia and New Zealand there has been resistance to assessing cross-disciplinary aspects of their curriculum.<sup>153</sup>

<sup>151</sup> A number of my interviewees shared a view that unit standards are easier, e.g. “some schools might do really easy unit standards that get really high pass rates, and yet these league tables compare schools as if they’re working on even playing fields” [NZ17]

<sup>152</sup> Modularization is a relatively new trends in Europe and Australasia and have caused considerable angst (Deissinger 2012; Ertl 2002; Keating 2003; Strathdee 2003). The main concerns are that students and their teachers are incentivized to choose the easiest route to reach a particular level, potentially combining short courses or units which lack the educational power of the whole. A particular concern in German-speaking countries is that, by enabling new combinations, equivalencies disrupt the traditional concept of *Beruf* (occupation), a holistic body of (embodied) knowledge and skills (Deissinger 2015).

<sup>153</sup> A notably example of this comes in their inability to match their curriculum-based promotion of “general capabilities” (Australia) or “key competencies” (New Zealand) with assessments (written into revised national curriculum frameworks released New Zealand: 2007; Australia: 2013). In both contexts there have been discussions about whether these skills should be assessed, and there have been experiments (particularly in Australia) with self-assessment and teacher assessment (Griffin and Care 2015; B. Lucas, Claxton, and Spencer 2013; Masters 2015). But anecdotally, few take these efforts seriously. A director in the qualifications authority in Queensland summarizes this feeling, talking about social skills in the workplace: “it’s ironic, people say they want those things, but if you were to ever take those separately from the content pieces and just assess that, you’d be hung drawn and quartered.” / I: *By who?* / P: By the media, and – the dominant narrative of standards being lowered. [AU19]

From an educational perspective, perhaps the most important consequence of lack of differentiation is that assessment remains limited to its function of recognizing the level of skill or knowledge required to “pass”, as opposed to incentivizing the effort required to know or do more, or do something fluently<sup>154</sup>. But for the purposes of explaining upper secondary patterns, the key implication of a lack of differentiation in vocational education is that, in the push to standardize, it is disincentivized.

*Differentiation in vocational pathways takes place through academic assessment (commensuration)*

The lack of differentiation in the vocational pathway poses a problem to employers if they feel, because of expansion, that they are uncertain of the signaling power of traditional credentials.<sup>155</sup>

Larger employers offering desirable jobs or apprenticeships can simply raise their entry threshold in line with the new modal level of performance. We saw in chapter three how this is happening in Germany with the Abitur replacing the Hauptschulabschluss as the modal qualification of new apprentices.<sup>156</sup>

<sup>154</sup> This difference as highlighted by a New Zealand union representative discussing the practice of giving “credit” for things that students had learned outside school: “In the days of the previous quals people would say ‘there are kids who prefer to learn with their hands or we want to do practical stuff and recognize that’, I’m not sure if they thought about we want to be able to recognize but also develop them in those areas” [NZ22]

<sup>155</sup> As a researcher at *ibw*, Austria’s leading research institute for vocational/business education research, describes it to *Der Standard*: “The educational expansion of the last few years has also given the apprenticeship to those who were formerly unskilled laborers, which on the one hand is welcome, but creates a very heterogeneous target audience for the companies.” (Kremmel 2010)

<sup>156</sup> This is a long-term trend, but as it has developed so has a way of defining apprenticeship occupations in relation to academic attainment, in the contrast between “*Studienberechtigtenberufe*” and “*Hauptschülerberufe*”. The 2016 BIBB report coined these terms to refer respectively to training occupations typically taken by those with study eligibility, and by those with a Hauptschulabschluss. They have continued to use the terms in subsequent reports (see e.g. p. 23-25 of the 2019 report). Similar terms are used colloquially prior to this. The concept “Hauptschulberuf” has 276 hits on google, with only one page of results from before 2016 (see my details on its informal uses). “*Studienberechtigtenberufe*” only has 64 hits on google and all are from after 2016, most referencing the BIBB report. The hardening of these categories appears to have occurred gradually. Pilz (2009) writing in English commented on the differences between “training occupations for Abitur holders” and “training occupations requiring secondary school education” as informal categories (Pilz 2009: 56).

For companies recruiting from less qualified students, the lack of differentiation in the vocational pathway results in a reliance on additional tests. In Germany amongst those who recruit from the Hauptschulabschluss level, it has become common to require apprenticeship applicants to sit tests as part of selection. My initial assumption on hearing of these tests was that they would be literacy and perhaps numeracy tests. But as a teacher and coordinator of an apprenticeship preparation class in Hamburg, who prepares students for this test, describes it:

...it's like German knowledge, basic knowledge, when was the end of the second world war, something like that, then some maths tests, yeah some calculations, maybe some physics tests, something like that. [SL]

These are of course things we might hope a young person would know, but it is hard not to draw the conclusion that these tests are screening for nationals, or cultural literacy, as well as general ability as measured by math ability, more than for skills that might be directly relevant to a job. The fact that these tests are usually not specific to particular occupations is another indicator that they are not aiming to promote or screen for specific skills.

As we saw above, the logic of recognition allows credit to be given for anything that a young person *can* do. The absence of differentiation from this logic does not stop it from arising, but means it arises in perverse alternative ways, such as in the use of academic assessment. In a different of how differentiation appears, a career coordinator in New South Wales describes how they run two slightly different VETiS courses in their timetable:

There is business studies but the language is really high order and they were struggling with it, whereas business services they were having a lot more success with because of the practical focus and case study focus, so we had business services up and running as of the beginning of this year. The way we structure the timetable is to run business services at the same line as business studies, so that students after their first assessment task can decide if they want to drop. [AU23]

The approach allows for differentiation within schools, and an employer familiar with each syllabus would know that a student with a certificate in business studies would have stronger language skills

than one with a business services certificate. But this is a murky signal (as one government administrator pointed out, the claim of the qualification framework is that, “all certificate IIs and IIIs are equal” [AU35], even if those working in VET know “it’s not always the case”). Moreover, if a “business services” student *has* spent two years improving their language, there is no way in which they can demonstrate that.

When both employers and educators use academic knowledge and skills to differentiate, it increases the incentive to focus on the academic pathway. For young people interested in a particular industry, a *hybrid* pathway offers the opportunity to get their HE-entrance qualification – the key signal of general skills – and start to develop experience in a sector. But as we have seen, other than in Austria’s BHS, very few young people are actually pursuing higher level vocational learning as part of hybrids. Why might this be?

*Processes of commensuration mean that, even in hybrid models, there is less incentive for vocational education*

Increased differentiation in academic assessment and the lack of differentiation in vocational disincentivizes balanced hybrids. This comes about through the processes of commensuration that construct hybrids. Qualification frameworks specify what parts of academic and vocational learning can be combined to create a particular level. These specifications determine whether and how vocational learning can play a role in attaining a higher education qualification. The differences in the way that vocational learning is weighted provide additional explanation for the pattern of vocational enrolment.

In New Zealand and Australia, while hybrid pathways are relatively permissive in terms of basic requirements, only small amounts of vocational learning can contribute to a full entrance qualification for higher education. In Australia, just one VETiS subject can contribute to the

calculation of the Australian Tertiary Attainment Rank (ATAR). Consequently, a student could take a vocational certificate in Sport and Recreation (as many do) instead of an academic subject, and it would not harm their overall ATAR score. This appears to be why we see high rates of students taking a single vocational certificate, as opposed to more (Stanley and MacCann 2009). It also may explain the relatively low rates of completion of a full VET certificate, as opposed to just the credits necessary to count as a course in the senior secondary certificate (SSC): for many students, the VET certificate was never their goal. The complexity of how credits contribute to an SSC as opposed to a VET certificate is likely another deterrent to for students attempting to plan their attainment of both.<sup>157</sup>

The extent to which vocational learning can contribute to the higher education qualification is even less in New Zealand. While a student could if they chose compile their NCEA Levels primarily out of unit standards, and simultaneously acquire one or more fully-recognized VET certificates, if they are aiming for the level of “University Entrance” this requires attainment in “three subjects at level 3”. A “subject” means 14 credits compiled from achievement standards, drawn from an approved list.<sup>158</sup> For school principals, the construction of University Entrance from subjects is their main limit to making use of the flexibility of NCEA [NZ5; NZ26; NZ28].

In Germany and Austria, the contrasting ways that frameworks weight vocational and academic pathways also seems to be an important factor in the different use of hybrid pathways. In Austria,

<sup>157</sup> A VET researcher based in Canberra explained the complications: “Even across the ACT there are different amounts of credit for completing VET competencies. Now a confusing thing is that some of those competencies are completed by TAFE and some of those competencies aren’t accepted in their awards. It’s messy...if all of these things counted, if the senior secondary certificate were made of a mix, it shouldn’t matter, at the end you just get a tick, a piece of paper, but at the ACT it’s quite possible for you to complete years 11 and 12 and not get ticked off, and if they’re not counted status is always going to be an issue.” [AU11]

<sup>158</sup> The current list of approved subjects in NCEA: <https://www.nzqa.govt.nz/qualifications-standards/awards/university-entrance/approved-subjects/>.

the qualifications that young people get from the BHS are placed at Level 4 or 5; the prized HTL (the technology and engineering version of the BHS) leads to a “Diplom” set at level 5. This was a subject of contention when the European Qualification Framework was created. In contrast, in Germany, while the Fachgymnasium and FOSBOS, as we saw in chapter three, are set at 4A, many of the vocational qualifications received at a Berufskolleg are set at Level 3. Most vocational qualifications obtained through these routes are not a federally-backed vocational qualification in the same way as the apprenticeship qualification. But if a young person completes the Abitur and then embarks on an apprenticeship, their learning is allocated to Level 4 and they can move more quickly to the “Meister” level.

Seen from this perspective of gaining signals, young people are doing exactly what we would expect: in each case the most popular route is that which leads with least effort to the clearest signal.

Because of their lack of external assessment, vocational learning is not deemed a reliable par of higher education qualifications. Consequently, equivalencies deter young people from vocational education in three of the four cases.

*“Who wants to be a stupid person?” The risk of social contamination from blunt standards*

Across the cases, we have seen the structure of skill signals change to allow for greater sorting according to centralized assessments of academic skills. With no means of differentiation between vocational students, scepticism that *some* students do not meet the level they are assigned contaminate the perceptions of the whole group. This kind of stigmatization has always been a problem, but is exacerbated by the expansion of and greater sorting for the academic route (i.e. the residualization of vocational routes), as well as the loss of signals in cases such as the removal of “top notes”. Not only in Australia and New Zealand but across the cases, vocational education is associated with lower general skills: there is an assumption that students take it when they cannot



cope with the standardized assessments of the academic path. Informants report that young people would avoid vocational education to avoid that assumption. As one educator in Victoria describe it:

[We need to get to a point where] it's not just about saying 'I can't cope academically, so we'll put you in VCAL, put you in VET']. And the moment it's either there are students who are pushed into VCAL and not given the option to do VCE, or [they want to do VCAL, but] their peers say 'why are you doing that?'. So then it becomes this cycle and it's really hard to break that. [AU14]

This perception – that only those who cannot qualify for the academic route would do something vocational – passes quickly to new options. A civil servant in New Zealand laments how this has influenced the perception of the new “vocational pathway” awards:

When we brought in the vocational pathways, they too have been seen for the less able, and that was never the intention, just when you hear people talk you can hear the language. It's a bit sad really. [NZ34]

The potential for contamination is also described in Germany. In responding whether anyone from a Gymnasium would ever go into the craft sector, one informant immediately though no, because it is “connected to someone who isn't really smart – and who wants to be a stupid person?” [DE11].

Even for the Minister of Education in Bavaria (Schneider), quoted in 2005, it is only “weak” students who are expected to directly pursue an apprenticeship route.

Ultimately, our goal is to optimally promote each student according to his ability. Good Hauptschule students should be able to take the intermediate maturity [*Mittlerer Reife*], weaker students should be introduced in so-called practice classes to a career perspective. (Kerstan 2005)

Likewise in Austria, some informants see a dynamic whereby anyone who *could* pursue the Matura is pushed to do so, and so anyone who does not risks being perceived as stupid:

because Craft or whatever other jobs are in such low esteem, that it's very hard to find good people there, and there are smart people, good people who would make perfect, let's say, carpenters or whatever, won't ever go in these craft jobs, because everybody says, 'no, you're smart, you have to do Matura', and they just sit here, not just in our school but in every school, and are actually bored because they don't want to do Maths or French or whatever they actually want to do something with their hands, but society tells them you have to do Matura. I think it's a society problem, all over Austria or Europe or whatever, the crafts, or in sales or whatever, all kinds

of jobs without Matura, people would like to work, students would like to work, but the teachers, the system tells them ‘no you don’t have to work, you have to learn’. [AT8]

These perceptions – that anyone who can do an academic route should, and therefore that anyone who cannot is not capable – are inevitably self-fulfilling.

If interpreted in terms of cultural prestige, we might argue that this problem would affect any route associated with the word “vocational”. A similar development of associations is observable in Australia, but occurs at the level of courses rather than that of standards. In the state of ACT, for example, a principal said that, according to students,

there’s still this divide between a ‘tertiary student’ and an ‘accredited student’ – the kids doing tertiary are university bound, that’s why they’re doing those courses.

The labels “tertiary” and “accredited” actually refer to courses which are approved to contribute to the ATAR because they include external assessment. A “tertiary student” may not end up getting a degree, or even go to university at all, but they are on a course that requires an external exam. As a principal in ACT explained, these labels are hard to eradicate:

I think they come from the students themselves. I think the teachers – even though we try not to say “oh you’re doing tertiary but you’ll have to drop down to accredited” – even if we change the words there’s probably micro body language that continues. [AU18]

The divide would continue because it reflects not just labels but different capabilities. If a route has one clear design feature – its absence of a challenging (i.e. external) assessment – it is not surprising that it is consequently defined by that and not by what it leads to.

The ultimate challenge for vocational learning is that if there is no means of differentiation between students, then skepticism that *some* students do not meet the level they are assigned contaminates the perceptions of the whole group. In Australia and New Zealand, a *lack* of standardization and differentiation are the defining features of the vocational route – at least in the social imagination.

### *What does equivalency serve?*

In this chapter we have seen that the formal and informal processes of evaluating skills often work at cross-purposes. External exams are deemed more credible, regardless of domain-specificity, than qualification frameworks that claim equivalency of qualifications across domains. Across the cases, we see employers (and the media) using metrics, even when they are a poor proxy for what they say they are interested in. Yet policymakers continue to try to incentivize teachers and students through such tools, which only seem to undermine perceptions of equivalence between academic and vocational.

What, then, is the purpose of equivalency? It is hard not to be skeptical here about the value of equivalency to anyone but policymakers. The translation of ‘vocational education’ into a single offering at different levels, as opposed to in different occupations, disguises what is most significant about vocational education: that it provides specialized occupational preparation. This can lead to situations which disguise or misrepresent the nature of contemporary upper secondary education. In New Zealand, for example, the new Vocational Pathways are presented as a form of vocational qualification:

Achieving a Vocational Pathways Award means that students have achieved the standard in a coherent programme that aligns their skills with those that employers are looking for within six broad industry groups<sup>159</sup>

Moreover, the policy is justified on the ground of this claim:

School leavers who obtained upper-secondary or post-secondary non-tertiary qualifications were more likely to be employed if they had studied in vocational rather than general programmes. (OECD, 2017).

<sup>159</sup> <https://www.educationcounts.govt.nz/statistics/indicators/main/education-and-learning-outcomes/vocational-pathway-awards>

The basis of the claim is a reference to the OECD's *Education at a Glance* and is based on evidence from countries where students work only towards vocational qualifications, as opposed to completing credits as part of a general program. Furthermore, the distribution of Vocational Pathway awards across industries implies that this award is operating more as a form of extra-curricular opportunity than a major vocational pathway. This is similar to what we see in Australia where a considerably proportion of VETiS enrolment is in Sports and Recreation. The fact that this is disguised in all conversations based on analyses of certificate levels confuses the debate.

The persistence of such confusions stem ultimately, perhaps, from unresolved tensions as to the value of different kinds of learning in the post-compulsory phase. Layered onto these, are unresolved questions as to the purpose of assessment at this phase.

*Lingering uncertainty: the purpose of assessment in upper secondary*

It is very difficult to draw any general conclusions about the micro level of upper secondary education. What represents success for one person would be a failure for another; consequently, what could be an incentive for one person could be a disincentive for another.

Part of this uncertainty stems from uncertainty about the nature of ability. As we have seen, both educators and employers are quick to make judgments in terms of core academic skills: reading, spelling, adding up. Few would disagree that these skills matter. And yet we know that people can still successfully get and hold jobs with low levels of skill.<sup>160</sup>

<sup>160</sup> In Germany, this fact translates into criticism of the notion that “lack of training maturity” is the problem: “Even if you control for PISA test scores and people with less than Hauptschule skills, people were able to successfully pass through the VET system and get qualified jobs, the PISA cognitive ability thing is a political discussion, because there was a shortage in training places and the companies had to explain why people weren't able to enter the VET system” [VE]. One such study demonstrating this is: (Kohlrausch and Solga 2012)]

Another uncertainty arises from confusion about what assessment was trying to do. This uncertainty is particularly exposed after assessment reforms. A striking feature of interviews in New Zealand was the number of times in which interviewees, who were all professional educators, policymakers or researchers most of whom had been working for many years in the sector, found themselves stopping to think about what they were saying about assessment.<sup>161</sup> This was not a response I expected but arose as part of conversations about the role of standards or assessments in their context. What becomes apparent is that contemporary assessment reforms have exposed fundamental uncertainties about the purposes and ethics of education and assessment, which have not been resolved but set to one side in a focus on technical complications.

This uncertainty was not limited to New Zealand. In Germany and Austria, it is now manifesting in confusion over whether different types of upper secondary pathways should be expected to reach the same academic standards. An article in Austria's *Die Zeit* on the outcomes from the first round of the Zentralmatura, written by a staunch SPÖ academic, highlights the weak assumptions of the past two decades of commensuration, and argues that different school types should *not* be considered comparable.<sup>162</sup> This may be the start of a swing backwards, but, as New Zealand and Germany have learned, it is difficult to reinstate confidence in something “different” once one has made so clear that it is “lesser”.

<sup>161</sup> For example, this is a senior leader at NZQA, referring at first to the suspicion that students are being entered for easier standards: “There is some suspicion shall I say, particularly by stakeholders that there could be that kind of – but on the other hand if learners are achieving and their deriving a certain sense of identity and confidence from that, with more diverse programs – then you could say that provides the precondition for subsequent employability and sense of self – It’s very complex” [GK]. This is a head of department who had been a teacher for twenty years, breaking off while describing the suspicion parents had of NCEA as something new: “Because what is an assessment for? Is it to rank kids or what? That’s an interesting question really, I mean seriously, what is an assessment for? Is it to determine where a chap is on a skills scale or scale of knowledge? But it’s also to judge a school, and also to allow entry into some next, so-called “higher” degree of learning, and it’s also to ascertain how successful a teacher is, so there is so much...” [JD]

<sup>162</sup> A key extract: “In fact, it is neither fair nor meaningful to expect ORGs [Oberstufenrealgymnasien], whose students are mostly graduates of secondary schools [Hauptschulen] with a less than academic climate, to have the same learning skills as AHS long-forms, which their students at the age of ten choose for their more demanding school culture and their "Minderleister" in the course of schooling have repelled (even to ORGs).” (Gruber 2016).

## **Conclusion: obscuring the skills developed in vocational education**

This chapter has proposed a way of understanding upper secondary education in terms of the structure of skill signals. I have set out how in the past two decades each case has seen changes in the way that the main upper secondary credentials are perceived, which amount to credential inflation. The threat of inflation has been mitigated by centralized assessments, graded diplomas and indices which allow for granular differentiation by level of performance, but these tools are only available for academic credits or courses, or, where they combine attainment across academic and vocational domains, down-weight vocational attainment. In both cases, these tools disincentivize the pursuit of vocational learning for aspirational students. This in turn, I argue, further contributes to the decline of vocational pathways and the predominance of substitution over balanced hybridization: if aspirational students have less incentive to take vocational courses or to follow hybrid pathways, the hybrids serve only students who doubt their capabilities, and these are not the students best placed to succeed in a demanding double-qualifying route.

This chapter is more exploratory than its predecessors as it is not possible from available evidence to draw firm conclusions about the sequence of processes proposed. Skill signals and the incentives they create rely on slippery public perceptions and as such are difficult to operationalize. Some cross-country evidence, namely of correlations between tracking and within-class competition, lend weight to a general theory of upper secondary education as a period in which students are trying to differentiate themselves, and I hope in future work to be able to create better tests of the additional steps in the theory proposed.

This chapter has also highlighted the process of commensuration whereby performance in different domains is combined to form individual metrics such as number of NCEA credits in New Zealand, an ATAR in Australia, or an Abitur score in Germany. I do not claim that the commensuration of

skills via new metrics created a whole set of new dynamics in education systems: educators, students, parents and other stakeholders have always had a tendency to draw general distinctions between more and less 'able' students that already collapse differences between domains. But we might hope that the formal differentiation carried out by our public education systems would work against this tendency. Instead, the rise of metrics which commensurate skills has the effect of reinforcing it. These metrics increase the incentives for students and teachers to focus on measured, academic skills, which becomes signals of general ability or performance.

Moreover, and perhaps most importantly, commensuration of skills decreases the ability of policymakers to make good policy about specific skill domains, including vocational domains. As with students and educators, policymakers have little incentive to focus on vocational skills which produce no improvement on a commensurated metric. Commensurated metrics cannot distinguish between better and worse vocational provision, opening the way for substitution over addition and the elision of pre-vocational and vocational programs. The rise of skill commensuration therefore explains how the perpetuation of the other dynamics has proceeded without intervention from policymakers, and what change will be necessary to give a better chance of creating stable, high-quality vocational pathways.

## Chapter 7. Conclusions

This study has presented findings on changes in upper secondary education across four cases, explaining the decline of purely vocational education and the rise of hybrid models. In this final chapter, I set out the explanations for this hybridization and its varied success across the cases, as well as what questions have been raised for future research. I conclude the chapter by proposing implications from this study for upper secondary policy-making, educational inequality, and the school-to-work transition.

### Summary of findings

#### *Mass hybridization and its variants*

The key finding of this study is that, even in contexts which are known for their vocational education, upper secondary education has hybridized, with the creation of new pathways which combine the pursuit of academic and vocational credentials. Across Australia and New Zealand but also Germany and Austria, only a small minority of students still pursues only vocational credentials. This is contrary to what is recorded in international comparative statistics and, as is further discussed below, requires new approaches to analyzing upper secondary education.

The secondary finding is that this hybridization has occurred with mixed success. Hybrid models offer the opportunity to keep options open such that more young people can work towards higher education entry and a recognized vocational qualification simultaneously. Thinking back to the dilemmas for upper secondary education set out in the introduction, our hope might be that hybrids would increase levels of general skills, while also allowing for the development of occupationally-specific skills, striking a balance for contemporary labor markets. Yet it is only under very particular



conditions that these models are successful in these terms. In Australia, Germany and New Zealand, hybridization has primarily taken the form of *substitution*, whereby a vocational school (in Germany), vocational courses (in Australia), or vocational units (in New Zealand) stand in for the general to allow for the attainment of a school-leaving credential. This substitution can be viewed positively, for example, as in the Bavarian FOSBOS, where it is enabling the increased attainment of higher education entry by minority groups. Yet it is also associated in these cases with observed credential inflation. Moreover, it means that hybrid routes are not providing a path to industry-recognized vocational credentials.

In contrast to these three cases, Austria's hybrid *berufsbildende höhere Schulen* (BHS), with their high-investment model of five years of education in well-equipped colleges, reliably allows for the *addition* of vocational and academic learning leading to double qualification. While the BHS have relatively high drop-out rates, they more consistently provide students with recognized qualifications than the other models.

#### *Explaining the variation in hybridization*

Three sets of factors explain this mixed success: timing of origin, degree of tracking in lower secondary, and the quality of skill signals available in different upper secondary pathways.

First, explaining this mixed success requires us to consider the role of time and the special nature of upper secondary education as a phase which has transitioned from being non-compulsory to quasi-compulsory. As it expanded, each new part of the in-school cohort was not directly equivalent to the previous part, but – we can theorize – relatively less prepared for demanding school work. The earlier timing of development of Austria's BHS in the 1960s proved crucial for determining its initial composition: the large strata of baby boomers eager to be the first in their families to pursue higher education and in-demand from a strong economy. The balanced demands of employers and higher

education expansion supported high investment and a strong double-qualifying pathway. As we would expect from policy feedback literature (A. L. Campbell 2012; Pierson 1993), once established with this strong stakeholder buy-in, the BHS were able to maintain its high investment model.

In contrast to the BHS, the later hybrid models were the product of the last phase of expansion, when more young people stayed in upper secondary education over getting jobs during the periods of high youth unemployment in the 1980s and early 1990s. The models designed for this part of the cohort were premised on flexibility over rigorous demands. As they developed, they lacked a core constituency of capable young people who were attractive to employers and would motivate employer involvement in their vocational components. Consequently, they did not experience a positive spiral of recruitment and uptake. Instead, these later hybrids were shaped only by the demands of the school system and have become a means of acquiring a school completion credential through an alternative route. The “education logic” that Polesel observed in Australia can therefore be observed in hybrid offerings in New Zealand and even Germany (Polesel 2008, 2017).

Differences in the timing of origin were then accentuated by different changes to lower secondary tracking and choice. In Germany and New Zealand, the increase of school choice at the lower secondary phase has allowed more students to pursue a purely academic route, and hybrid routes are under-utilized. Many young people remain without a school choice, however, creating a kind of *quasi-tracking* in which lower-strata schools are left worse off through processes of residualization. The declining size of these lower-strata schools contributes mechanically to vocational decline because these schools were key feeders for upper secondary vocational process. In addition, there is some evidence that cultural processes of stigmatization discourages schools from offering vocational routes.

Australia has secured higher levels of enrolment in hybrid models, because the lowest strata of schools, the government schools, is also the largest. Therefore, despite experiencing a decline in share it cannot be described as residualized and continues to supply growing numbers of students into VETiS. To explain why this does not lead to higher rates of double qualification we have to include the next factor, the structure of skill signals. Finally in Austria, the maintenance of tracking through the conversion of Hauptschule into NMS paradoxically created the conditions for better options at the upper secondary level, by securing a steady supply of students for the BHS. Overall, successful hybrids are associated with lack of choice. In Austria and Germany, the relative share of hybrid enrolment is associated with the relative share in lower-track schools. Where lower-track schools are strong, hybrids are strong, and vice versa.

Finally, the inability of hybrid models to gain traction in Germany and New Zealand, or to result in high levels of double qualification in Australia, is more explicable when we understand upper secondary education not only as a developmental phase but one which results in important skill signals. The reduction in lower secondary tracking is consequential in this sense, as I show evidence that students in tracked systems experience less within-class competitiveness; I interpreted this as meaning that they are more resigned to the skill level signaled by their school. In contrast, in quasi-tracked or comprehensive systems, young people rely on program choices or performance in assessments to differentiate themselves.

The reduction in tracking is not the only factor which has made skill signaling more pertinent for upper secondary students. Participants across the cases described a situation of reduced valuation of general upper secondary credentials, indicating apparent processes of credential inflation. While it is not possible with the data in this study to draw firm conclusions about degrees of credential inflation and related student responses, there is some evidence that in response, more students have

sought to differentiate themselves through the attainment of higher grades or scores. In each of these systems, this kind of granular differentiation by performance level is currently only accessible through an academic track; vocational pathways offer only attainment, not finely differentiated achievement levels. Where upper secondary courses are brought together into a single indicator of achievement, vocational learning is not included or is down-weighted compared to academic courses. This, I suggest, is a further reason for the segmentation observed between academic courses as a route for high-potential students and vocational courses as a route for those with no other choice.

Overall, therefore, I argue that these three factors are key to understanding vocational decline and the prevalence of substitution over true hybridization in these cases. While it is relevant to know that across all cases this was a period of expanding higher education and a perceived rise in the importance of general skills, the specific variation across the cases is best explained by these three factors.

### **Avenues for future research**

The findings above give rise to a set of predictions about where hybrid models would and would not be successful, which could be tested across additional cases or in modelling studies. Such further research could help to refine conclusions that are currently uncertain as the patterns across these cases are over-determined. For example, we cannot know whether a high-investment model such as the BHS, with strong stakeholder buy-in, could be successful even in the absence of tracking. Perhaps in another system young people *would* choose hybrids at higher rates even if a less time-consuming, purely academic program were open to them. In addition, due to the absence of cases with stronger differentiating signals in a vocational pathway, we cannot know whether this factor

could generate more successful hybrid models over time. Identifying and investigating such a case would be a worthwhile future avenue.

### *The importance of rurality*

Stepping back from this set of linked explanations, there are a series of additional findings from this study which would be worth further exploration. Firstly, all cases show signs of quite different patterns of enrolment for rural and urban areas. In particular, the patterns of residualization of lower-strata secondary schools and related consequences for vocational upper secondary seem to be particular to major cities. Austria's much greater rurality is therefore another factor to consider in the different trajectory of that country, but more generally for policy development and exchange, urbanicity needs to be a major factor in discussion. The OECD has only recently recognized the particular conditions of rural schools and urban versus non-urban is still a rarely discussed variable in their main collection, *Education at a Glance* (Echazarra and Radinger 2019). Given the common experience across cities in this study, there is a continued role for networks such as the Global Cities Education Network (GCEN) which focused on city governments in North American, Pacific and East Asian cities.

### *The influence of the international sphere*

More facilitated international exchange could be fruitful as it is evident from these cases that informal policy borrowing has been a recurrent feature of upper secondary education. Reviews of international approaches fed into the later hybrid models, often with mixed results, for example where New Zealand attempted to make Scotland's vocational assessment method the basis for all upper secondary assessment, or the state of North Rhine-Westphalia attempted to model *Berufskolleg* on colleges in the UK. The mixed history of policy borrowing in education is well documented, and

these cases only add to the warning that adaptation of policies could benefit from clearer understanding of the dynamics of systems, including less visible as well as more visible components (Mehta and Peterson 2019).

In further evidence of the significance of international activity on national policymaking, these cases illustrate the significant role of the OECD's PISA in shaping educational goals and practice – or at the least catalyzing and disseminating trends across countries. While this influence is most directly evident in Germany in terms of re-orienting curriculum and assessment to a competency-based model, it is apparent also in the interviews and policy documents of the other three cases, as well as in the competency orientation of assessment now common across all four countries. What cannot be determined from the data in this study is to what extent PISA – in assessing students at 15 – is responsible for a relative *lack* of focus on upper secondary education amongst policymakers in the past two decades. This lack is evident: my interviews and document analysis did not turn up coherent perspectives on upper secondary policy and, as discussed at the end of chapter six, an emergent theme was one of lingering uncertainty as to what upper secondary should fulfil. It is my hope that this study may be one small piece of a re-orientation to focus attention on this complex phase and what its policy goals should be.

#### *The interaction of formal skill signals and ascriptive characteristics*

Finally, while I have not focused on ethnicity or gender in writing up this study to avoid too many dimensions of variation, the factors presented, and particularly the notion of skill signals, could also be used to understand the lower rates of participation and poorer outcomes for girls and ethnic minorities from vocational education. More broadly, the concept of skill signals could be developed to provide more elaborated theories as to in what form and under what conditions vocational education is desirable.

## Implications

We saw in the introduction to this study that upper secondary education forms a transition point between compulsory schooling and society. Changes to the structure of this phase consequently have major potential implications for a range of societal phenomena: such as inequality, employment, status, and segregation. While it is important not to overstate the significance of one phase – as we have seen, the unfolding of upper secondary education is to an extent determined by structures lower down the school system – it is worth considering how changes to this phase might be significant for these wider issues.

### *Implications for policy and practice*

One of the motivations for this study was to examine what was happening to vocational education upon observing a resurgent interest in apprenticeship models within the U.S. and U.K.. In particular, this resurgence was interesting as it was occurring simultaneously to an observed decline in upper secondary vocational education in some of the countries with well-established apprenticeship systems. What was happening to explain this? Was the renewed interest in apprenticeship systems misplaced? This study does not alter the conception that Germany does vocational education well. The apprenticeship system still provides a fine pathway into work. Where we must alter our conception is in *secondary* vocational education. It is not the case that half of young people in Germany – or even Austria – choose to leave school “early” and still make their way to skilled employment. Recall that now only about 20% of 17 year-olds in Germany are in the apprenticeship system, and most of these are students who have not had the grades to progress pass the *Hauptschulabschluss* and are apprenticed in low-wage roles.

From this study, we gain a different picture of the way that people move through secondary schooling across these countries. Their movement is dictated by lack of choice as much as choice. When choices are expanded – as they have been to varying degrees across these cases through hybridization, increased school choice, and competency-based assessment – the consequence is a move away from pure vocational pathways. We can therefore perhaps set aside the notion of vocational education as a choice.

In its place, we have to focus on understanding the new hybrid models and the conditions under which they can lead more young people to meaningful credentials. To that end, this study offers two important linked insights into the contemporary nature of upper secondary education, with important implications for hybrid models:

- Upper secondary cohorts vary greatly in their skill levels and the nature and sustainability of specific upper secondary programs is to an extent determined by which part of the youth cohort typifies the program.
- Upper secondary is a phase in which young people are looking to differentiate themselves, and pathways, tracking and skill signals collectively contribute to these differentiation efforts.

These insights together pose a challenge if our desire would be for untracked schools and hybrid models that allow young people to keep their options open. In a system with distinct qualification pathways, tracked schools, and assessment at the lower secondary, students are differentiated before they begin. In a system with none of these, their only opportunity for differentiation is to work towards the external exams that are located in academic pathways. Even if vocational education might offer a valuable credential at the *end*, if students cannot differentiate themselves before entry, they will not be of interest to employers and will not be able to access work-based learning.



This situation has three particular implications for policy and practice.

- First, there is a need for centralized skill signals in vocational pathways – or, to put it in terms that would be adaptable to hybrid pathways – centralized signals of occupationally-specific skills. These might take the form of micro-credentials, backed up by forms of assessments designed to suit the specificities of different kinds of skills. As we saw briefly in chapter six, companies are already increasing the use of their own assessments, although there are questions as to whether these just replicate the focus of school systems and test for general skills only.
- Important process of assessment cannot be left to companies. The public system is arguably better placed to promote fairness of assessment methods and equitable access to preparation.
- The school system, rather than reducing assessment as is often the current goal, may need to *increase* its use of assessment – albeit while thinking differently about when and what it is most valuable to assess.

#### *Implications for educational inequality*

The implications of hybridization and substitution for educational inequality depend in part on how we view the role of vocational education. On the one hand, vocational decline could mean less tracking and separation of young people by prior attainment, socioeconomic status or race and ethnicity. On the other, it represents the loss of opportunity to develop occupationally-specific skills. If the value of education is in part positional, occupationally-specific skills are particularly important for young people who due to prior disadvantage have less opportunity to excel in the competition to signal general skills. This study highlights some questions we might ask to weigh between these

perspectives: if vocational courses, credits or schools are operating primarily as substitution, they represent a loss of opportunity to learn, and should be questioned. In contrast, if students are working towards vocational qualifications in a hybrid pathway with sufficient investment and a good track record of success, this might be a justifiable reason to allow separation. Each of those judgments requires considerable further interrogation and debate in specific contexts, however.

This study has some further implications for current debates about educational inequality. Firstly, it adds to a set of arguments about the resilience of educational inequalities. These arguments are expressed in concepts such as effectively maintained inequality (S. R. Lucas 2001, 2017), opportunity hoarding (S. Kelly and Price 2011; Reeves 2017), and the Mathew effect (Bonoli, Cantillon, and Van Lancker 2017; Kerckhoff and Glennie 1999). Each offers a version of the argument that as education systems try to become more equitable – through additional investment, detracking, or raising universal expectations – advantaged groups have ways of using their resources (whether material, relational or symbolic) to remain ‘ahead’. The concepts can be considered refinements of Bourdieu’s argument that the middle classes use education to reproduce their capital, often relying on cultural capital to do so (Bourdieu and Passeron 1990).

Much work remains to synthesize these theories and establish under what conditions they apply in contemporary upper secondary systems. This study adds an additional piece in illustrating how hybridization serves to maintain social separation and preserve pure academic routes for the most advantaged, while allowing more young people to pursue a path to higher education. Thus, from this study, we see something of how, in the last two decades, advantaged groups have maneuvered to protect their advantage in the context of upper secondary expansion. In addition, this study offers suggestive evidence about the way that upper secondary education is required to function as a phase of differentiation. We have seen that there are relationships between the formal differentiation that

can be carried out by tracking or assessment and the informal or *cultural* differentiation that occurs through the stratification of schools, the stigmatization of particular programs, or inflation of certain credentials.

The evidence from these cases suggests that, in the absence of formal differentiation, cultural processes of differentiation occur. With the case of New Zealand, we see most clearly how policies can subvert one other when these cultural processes of differentiation are not taken into account. New Zealand has moved furthest towards promoting choice in the design of pathways. And yet, because of the stratification of choice of schools and the weakness of centralized skill signals, school leaders feel they cannot deviate from what the elite schools offer. A school leader in Auckland from a relatively new school of students from mixed socioeconomic backgrounds reflects anxiety about departing from established academic subjects:

There is this other thing called subject endorsement. Now, immediately it says in its title, learning will be packaged around subjects, so that's a barrier to connected learning already. And then it says you can call anything you like whatever you like, and that can be a subject. So a kid could get a merit endorsed subject called 'Fly With Me', but how is that going to stack up against a kid from Auckland Grammar who's got a merit endorsed Physics? People are just going to laugh at our kids. [NZ26]

This kind of behavior is an example of “isomorphism”: the quest for legitimacy through imitating higher status schools (DiMaggio and Powell 1983). But we see here that this is not simply “institutionalized” behavior. When assessment is not perceived as a reliable form of differentiation, we make comparative judgments based on other sources of information.

In this study I have emphasized structural and policy differences between the cases. I have de-emphasized the role of cultural and social processes, where I found that structural and policy differences can be complete explanations. But if in these cases policies seem to have enabled or accelerated certain cultural processes, this does not mean that reversing policies can undo those

processes: cultural perceptions can be resilient. A comment on an article about the first results of the Zentralmatura in Austria asks, “Why are there different school types at all, if you mash everything back to a uniform mush at the Zentralmatura anyway?” [soschaut'saus 2.2.2016, 09:45:14] (echoing a question asked by education journalists of the designers of Austria’s standards). The response from another commenter: “One does not want to send his children to the same school with the workers' mob” [DrSchatwal 2.2.16, 10:03:49]. From this commenter’s perspective, the different upper secondary school types – including the types of BHS and AHS – are tools of social segregation rather than educational development.

Overall, what I conclude from these cases is that school policies or *technical* processes – such as pathway design, school choice policies or centralized assessment – cannot undo perceptions of difference that exist in society or processes of differentiation that will take place one way or another. All they can do is try to make those processes as fair, transparent and principled as possible. The evidence in these cases would suggest that policymakers have lost confidence in promoting the institutions that carried out differentiation, and have tried instead to make them institutions only of recognition. The risk in doing so is that it is only prior stratification that comes through.

#### *Implications for the school-to-work transition, skill systems and labor markets*

In the introduction, I set out how the share of upper secondary education that is vocational, characterized as the “vocational orientation” of an education system, forms a key variable in comparative studies of nations. Both the school-to-work transition literature and that of comparative political economy hold that vocational education supplies something *different* to general education – whether that is “specific skills” or credentials to support “occupational labor markets” (Estevez-Abe, Iversen, and Soskice 2001; Marsden 1990; Shavit and Müller 1998). These specific/occupational skills are somewhat orthogonal to general skills, allowing them to support a

broader base of middle skill employment and (when combined with effective bargaining) provide the basis for a strong middle class (M. R. Busemeyer and Iversen 2011).

From these perspectives, substitution has important implications. The fact that in three of these cases a large portion of what is registered as secondary vocational education would be better described as the use of hybrid pathways to attain academic credentials indicates a weakening of occupational skill systems. If vocational education is now increasingly chosen only when it can help an individual reach the next *level* of education (i.e. higher education) as opposed to being chosen to develop a set of occupational skills, this implies that the market for mid-level occupational skills has fallen away not only in countries that have experienced sharp vocational declines, but across the board. It would imply that supply and demand now organises around reaching the highest level possible of perceived “general skills” – only at the high levels supplemented by the occupational or specific skills of true vocational education. This would indicate further decline of occupational labor markets with all the implications this has for productivity and income inequality (Marsden 2007).

This study does not provide conclusive evidence as to the extent of this weakening of occupational labor markets, but highlights substitution as an important process to consider in these investigations. Specific findings regarding Germany are also worth considering. The rapid rise in Abitur holders, the extent of de-tracking across the state school systems, and the introduction of general standards for all students means that Germany’s compulsory education system now looks much more like that of English-speaking countries than it did two decades ago. While it is evident that apprenticeship – traditionally associated with occupational skill systems and labor markets – remains a particularly important part of the German and Austrian systems, in the case of Germany this has moved primarily to a post-school activity. This aligns with what Marsden has found in recent investigations, that apprenticeship may be serving less as a period of training and more as a recruitment period for companies (Marsden 2015).

## Conclusion

This final chapter has aimed to summarize the key findings of this study and set out the potential implications for policy and practice as well as for our theoretical understanding of educational inequality and how education relates to work. These implications all require further inquiry, and thus, together with the avenues for future research, represent many more studies to come on the subject of upper secondary education. The ultimate contribution of *this* study, then, is to provide a new basis for that work within education policy research, as well as new bridges from that field to the study of education in other social science disciplines. The shift is from one of understanding upper secondary education as a choice between academic and vocational pathways, to one of hybrid pathways offering different opportunity and incentives for the development of general or occupationally-specific skills. I have proposed that addition versus substitution is a key dimension of difference to observe of hybrid pathways, and have identified the timing of development of pathways, the degree of lower secondary tracking, and the structure of skill signals as key factors to consider in understanding the success of pathways and how they are utilized by young people and other stakeholders. I hope these concepts will form part of a paradigm of cumulative research on this vital educational phase.

I finish by returning to the key finding of this study concerning hybridization, and its tendency to take the form of *substitution*, where vocational units, courses or schools are used to reach general or academic credential. Beyond the implications raised above, this finding might concern us if we consider specialization in upper secondary a good in and of itself. The title of the study, “the road less travelled” – which in one sense just describes the observed situation of vocational decline – aims also to capture this particular implication that vocational decline marks a loss of some opportunity for positive differentiation. For the poet Robert Frost, “the road less travelled” was good *because* it

was less travelled: more personal, less crowded, perhaps with more room for learning in-depth. This is a rosy view of vocational education – I do not claim that it often lives up to this ideal – but perhaps, it is what it could aspire to be. The uniting theme of these final sections has been what it would take for upper secondary education to be structured in this way: to offer some kind of differentiation by specialization, as opposed to by separation and stratification.

## Appendix A: UOE data collection

UOE is the International Database on Education Systems, maintained through joint data collection of UNESCO, OECD and Eurostat. In total, each year, 46 mostly high-income (developed) countries report figures to the UOE. UOE data collection began in 1998 and so most indicators are captured from the 1998/99 school year onwards, but it builds on the long-running UNESCO statistical year book, with information from several decades before (depending on the country).

To submit enrolment numbers, countries code programs using the International Standard Classification of Education (ISCED), the only standardized international classification of education programs and qualifications. What scholars refer to as upper secondary education equates to Level 3, which is defined as:

“[p]rogrammes ... typically designed to complete secondary education in preparation for tertiary education or provide skills relevant to employment, or both.

ISCED was updated in 2013 but all up to and including 2012 use ISCED97. Under ISCED97, all Level 3 programs are coded by their “orientation” as general (“G”) or vocational (“V”), and also by their destination: higher theoretical (A), further vocational training (B), or the labor market (C). The commonly used indicator of the vocational orientation of a school system is enrolment in ISCED 3V. The 2013 classification codes programs with a three digit numeric code to include more information. 34X programs are general and 35X programs are vocational. Numbers replace X to indicate the typical program destination.

### *The origins and limitations of ISCED 3V as a comparative indicator*

The share of upper secondary education that is vocational became an important indicator through a series of major works in political economy examining the role of *skill specificity*. This work has its roots in Becker’s distinction between “general skills”, which are widely valuable and developed by



theoretical higher education, and “specific skills”, which are relevant only to particular jobs or fields and are developed by vocational education (G. S. Becker 1964). The theory of “varieties of capitalism” proposed that countries could become rich and productive on the back of either “general skills” (e.g. USA) or “specific skills” (e.g. Germany) (M. R. Busemeyer and Trampusch 2011b; P. A. Hall and Soskice 2001). Different balances of these skills were then associated with different configurations of social protection and labor market institutions, and became a major and lasting way to understand differences between countries (Estevez-Abe, Iversen, and Soskice 2001; P. A. Hall 2015; Iversen and Soskice 2001). While the distinction between “general” and “specific” skills has been challenged (Streeck 2011), it has nevertheless proved resilient as a way to explain relationships between educational configurations, income inequality, and growth across countries (Baccaro and Pontusson 2016; Iversen and Soskice 2019).

To indicate the importance of vocational education in a country’s skill system, these works adopted a UNESCO indicator of the share of secondary education that is vocational (UNESCO), referring to this indicator as one of the “the share of an age cohort” that is in vocational training, or vocationally trained (Cusack, Iversen, and Rehm 2006, 382–83; Estevez-Abe, Iversen, and Soskice 2001, 170–71; Iversen and Soskice 2001, 889). Importantly, these first works described their indicator as using not just ISCED 3 but also ISCED 5 (postsecondary). Subsequently, in seeking to create a set of comparative indicators of the features of education systems, sociologists Thijs Bol and Herman van de Werfhorst created an indicator of vocational orientation which combined the above UNESCO figure and the share of vocational enrolment in OECD Education at a Glance, for ISCED 3 only (Bol and van de Werfhorst 2013b). The OECD figure made use of the new method (used from 2004 onwards) of categorising upper secondary program as either “pre-vocational and vocational”. This OECD figure gave quite different readings for the same country, most notably the UK (OECD: 71%, UNESCO: 32%). Others with disparities in that dataset include Belgium (68% and 55%),

France (56% and 43%), and Finland (60% and 54%). Consequently, they chose to take an aggregate of these two figures (using 2006 in both cases) to cover a wider range of countries.

This dataset, “educsys4”, is available online and their efforts to understand the trade-offs made by different education system configurations has become, with good warrant, a touchstone for the comparative study of education and inequality (Bol et al. 2014, 2019; Bol and van de Werfhorst 2011, 2013a; van de Werfhorst 2011b, 2016; van de Werfhorst and Mijs 2010).

*Who is the “secondary school age cohort”?*

Upper secondary education is typically viewed as a stage where students are still of school-age. Of Level 3, ISCED proposes that, “pupils enter this level typically between ages 14 and 16”. Yet UES data collection uses qualification level rather than age as the means for collection and many countries have adult education programs which, due to national qualification frameworks, are also coded Level 3. More of these adult program tend to be vocational.

Consequently, the share of enrolment that is vocational looks quite different depending on whether we are looking at all age groups or only those aged 15-19. Table 32 illustrates the size of the percentage point gap between the vocational share of enrolment amongst all age, versus that amongst 15-19 year-olds. Countries shown are those with a particularly large or varying gap. A positive gap indicates that the share of vocational enrolment is higher amongst adults than it is amongst 15-19 year-olds.

As can be seen, in the case of Australia and New Zealand this gap is large and has changed over time. In fact, it accounts for much of 1998 - 2012 change in vocational enrolment share. Likewise, Finland’s gap is among the largest, and explains a good part of the rise in vocational enrolment share in that country. What should we conclude from this?

Table 32. Percentage point difference between upper secondary vocational share (L3V / L3) for all ages and amongst 15-19 year olds, OECD countries with varying gaps

	1998	2001	2004	2007	2010	2012
Australia	0	39	38	35	27	30
Austria	-3	-3	0	0	0	0
Belgium	na	10	8	10	13	13
Canada	0	14	na	na	na	na
Denmark	22	22	13	16	15	18
Finland	12	16	17	21	21	21
Germany	4	5	6	7	12	12
Greece	1	-1	-1	5	4	6
Iceland	9	10	11	13	12	12
Netherlands	11	11	11	11	12	15
NZ	0	0	0	0	19	15
Spain	6	10	8	12	11	13
Sweden	-9	6	-3	0	-3	2
Switzerland	3	3	3	4	4	5
U.K.	15	21	22	-1	1	5

This inclusion of over-age enrolment compromises ISCED 3V / ISCED 3 makes sense from a stocks and flows perspective on education: anyone studying at that qualification level is in line to join the particular “stock” of upper secondary qualified people. But if we are trying to understand the initial choices of young people, we want to focus only on the enrolment of those at a typical secondary school age. This means that numbers registered in upper secondary education include all

those studying for ISCED Level 3 qualifications, many of whom may be adults studying in evening classes or part time. Over-age enrolment inflates the numerator of any calculation of participation rates, and if it has increased over time or differs across country this makes it difficult to get an accurate perspective on whether youth cohorts are making different choices over time.

Notably, prior use of this indicator has not been clear on the question of exactly what it is measuring. While the works using this indicator refer to each other, the precise nature of the indicator has changed over time. For Iversen and Soskice (2001) it was:

the number of people in secondary vocational training as a percentage of those in the secondary school age cohort plus the number of people in postsecondary (ISCED5) vocational training as a percentage of those in the postsecondary school age cohort (p. 888).

The UNESCO 1999 yearbook, as far as it describes, does not limit its enrolments to specific age cohorts here; it is also not clear whether they are allowing for the fact that people may not complete their program. Subsequently, Cusack et al. use the same measure, but describe it as “the share of an age cohort going through vocational training” (Cusack, Iversen, and Rehm 2006, 382–83). When Busemeyer and Jensen use the measure (updating to the 2004 UNESCO statistical yearbook), they justify their choice with references to these two previous works (M. R. Busemeyer and Jensen 2012, 534). But they describe the measure as “the share of secondary-level students in technical or vocational education” (p. 534). The switch to “secondary-level students” reflects UNESCO’s update to recognize that age cohort was not an accurate way of describing who was in each age group.

Busemeyer and Jensen conclude that this measure “exhibits little meaningful variation over time and is treated here as an invariant institutional variable” (ibid). 1999 was the last year that the statistical year book was published in a paper version; subsequently statistics moved to uis.stat. The 1999 yearbook held vocational activity from 1980 to 1999). (or from 1990). For Germany, for example, it increase by one percentage point for most of the listed years from 1993 to 1997, from 34 to 37%.

For comparative purposes of what this indicator looks like when used twenty years ago to now, replicates calculations based on the 1999 UNESCO statistical yearbook. (The yearbook does not, at least in the printed version I could locate, include figures for post-secondary vocational).

Table 33. Replication of calculations based on the 1999 UNESCO statistical yearbook

(1996/97)	Germany	Austria	Australia	New Zealand
Secondary vocational training	114,137	24,941	103,287	6,136
All secondary	542,383	79,806	NA	28,548
Share	21.0	31.3		21.5
2017/18				
Share of all students in upper secondary education enrolled in vocational programs	45.6	68.6	55.1	29.4

The implication here is not that conclusions of prior research were unsound, but that vocational orientation is not a stable feature of a country, but one that changes over time.

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Australia	0	0	0	39	39	40	38	36	36	35	35	27	27	28	30
Austria	-3	-3	-3	-3	-3	-3	0	0	0	0	0	0	0	0	0
Belgium	na	8	8	10	10	10	8	10	9	10	13	13	13	13	13
Canada	0	0	0	14	na	na	na	na	na	na	na	na	na	na	na
Chile	na	-1	-2	-2	-2	-2	-2	-2	-1	-2	-2	-2	-2	-2	-2
Czech Republic	0	0	0	0	1	1	1	1	1	1	1	1	0	0	2
Denmark	22	23	23	22	21	20	13	15	15	16	16	16	15	16	18
Estonia	na	na	na	na	na	na	na	1	0	1	1	1	1	1	2
Finland	12	14	16	16	16	16	17	20	21	21	21	21	21	21	21
France	3	2	2	2	2	2	2	2	3	3	3	3	3	3	3
Germany	4	5	5	5	6	6	6	6	7	7	7	11	12	12	12
Greece	1	-1	0	-1	-1	-1	-1	-1	6	5	5	5	4	5	6
Hungary	-1	-1	-2	-1	-1	-1	-3	-2	-2	-2	-1	-1	-1	-1	0
Iceland	9	9	10	10	11	8	11	12	13	13	13	13	12	12	12
Ireland	0	0	0	0	0	0	4	4	3	3	3	4	5	3	3
Israel	-1	2	-1	-1	-2	-2	-2	-2	-2	-2	-2	-2	0	0	0
Italy	1	0	0	3	1	1	1	0	1	1	0	1	1	2	1
Japan	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Korea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Luxembourg	6	2	2	4	4	4	5	3	3	3	4	3	4	4	4

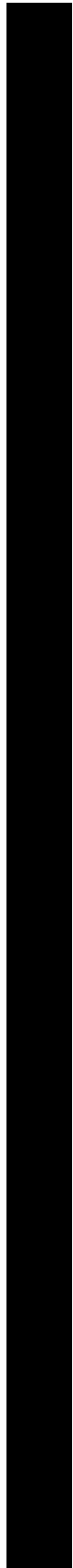


## **Appendix B: Details of Case Selection**

The following tables illustrate the early process of coding country cases to establish dimensions of difference. Table 36 uses variables in the comparing education systems program, educsys4 (Bol & van der Werfhorst, 2013), including updating data points. Table 37 includes variables used to classify country skills systems (Busemeyer & Iversen, 2011). In each case, we can see that there is some variation within countries across time, leading to difficulty in allocating countries to clear positions or clusters.



	Vocational enrolment (2006) - as in educsys4	Vocational enrolment (most recent)	Change in Vocational enrolment, 1999-2014	Proportion of population with ISCED 3 completion	Tracking	Vocational prevalence (enrolment)	Vocational specificity (% in dual programs)
USA	0	m	m	88.41	-1.315	-1.844	0
Canada	0	7.8	m	82.75	-1.315	-1.723	0
Australia	61.63	50.5	-14.4	75.56	-1.078	0.967	m
New Zealand	m	32.1	7.8	69.54	-0.546	m	0
England/UK	31.77	42.7	8.5	74.71	-1.078	0.467	0
Ireland	32.33	31.9	-2.6	66.37	-0.128	-0.354	3.8
Spain	42.54	35.2	4.0		-0.803	-0.001	2.8
France	42.71	42.7	-14.5		-0.477	0.393	11.3
Poland	45.14	49.2	-16.8	83.49	-0.043	0.296	6.5
Denmark	54.44	42.5	-10.8	77.75	-0.93	0.455	47.7
Finland	54.02	71.3	18.1	73.57	-0.93	0.737	10.5
Netherlands	67.98	68.5	1.2	69.57	0.971	1.26	20
Switzerland	64.15	65.3	-0.1		-0.024	1.078	58.3



	Degree of firm involvement (B&I)	Public Commitment to VET (B&I)	Degree of firm involvement (2012)	Public Commitment to VET (2014)	Public Spending on vocational us as % of GDP (2014)	Public Spending on upper secondary as % of GDP (2014)	Share of Up Sec students by vocational orientation, all ages (2014)	Summary classification
USA	0	0	m	m	m	m	m	Liberal
Canada	m	m	a	0.1	m	1.5	5%	Liberal?
Australia	m	m	m	0.4	0.2	0.8	51%	Liberal?
New Zealand	m	m	a	0.5	0.4	1.5	34%	Liberal?
England/UK	m	m	17	0.7	0.5	1.7	43%	Statist?
Ireland	3	0.01	a	m	a	0.8	a	Liberal?
Spain	5	0.3	1	0.3	0.3	0.9	34%	Southern Euro
France	10	0.78	12	0.6	0.5	1.3	43%	Statist
Poland	m	m	7	0.4	0.5	0.9	49%	Southern Euro
Denmark	50	0.65	44	0.5	x	1.2	42%	Collective
Finland	10	0.8	11	1.1	1.1	1.5	70%	Statist
Netherlands	22	0.6	18	m	0.9	1.2	m	Statist/Collective
Switzerland	60	1.05	60	0.9	1,0	1.3	66%	Collective
Germany	48	0.78	42	0.5	0.6	1	48%	Collective
Czechia	m	m	32	0.7	0.8	1	73%	Statist/Collective

## Appendix B2: Classifying vocational programs in the short list

From my longlist of countries, in fall 2017 I identified twelve examples of vocational pathways, primarily from extant literature but in the case of British Columbia from prior fieldwork. (My initial conception of these programs was as examples of “differentiated standards”, adopting an insight from Rosenbaum’s work that vocational education offers a different standard of success when it operates well. The features I took to define a quality differentiated standards are the same as those which I would take to define a quality vocational pathway). I coded these cases according to the criteria suggested in literature that typifies strong vocational programs.

Table 37. 12 cases of vocational upper secondary with their key features

	<i>Required Employer contact? (1 = work placement, 2 = apprenticeship)</i>	<i>Centralized assessment? (1 = some external, 2 = mostly external)</i>	<i>Separate institutions? (1 = can be separate, 2 = separate)</i>
<i>Victorian Certificate of Applied Learning, Victoria, Australia</i>	1	1	1
<i>Secondary School Apprenticeships, British Columbia, Canada</i>	1	0	0
<i>EUD (youth vocational education), Denmark</i>	1	1	2
<i>Ammatillisia perustukintoja (basic vocational), Finland</i>	1	0	2
<i>Certificat d'aptitude professionnelle and baccalauréat professionnelle, France</i>	1	2	1
<i>Hauptschulabschluss and Gesellenprüfung Germany</i>	2	1	2
<i>Leaving Certificate Vocational Program, Ireland</i>	0	1	1
<i>VMBO and MBO (vocational and professional programs), Netherlands</i>	1	2	2
<i>National Certificate of Educational Achievement Level 1-2, New Zealand</i>	0	1	0
<i>EBA and EFZ (federal vocational certificates), Switzerland</i>	2	2	2
<i>Technical Awards and Technical Certificates, England, UK</i>	0	1	1
<i>Career Diploma, Louisiana, USA</i>	1	1	0

## Appendix C: Comparative baselines across the cases

### C1: Comparing the cases using census data

To establish a comparative picture of educational attainment across the cases, I use census data. A census is carried out every five or ten years in each of these case countries, and records levels of educational attainment. Germany has not carried out a national census since 2011, so this is the latest we can focus on for full comparative purposes. Ideally, one would focus on the youngest age group to have completed schools. However, the outcomes of their educational choices are not yet apparent in overall educational attainment (for example, educational “careers” tend to be extended in Germany, and consequently, in the last census, while only 2.4% of the 20-24 age group have a university degree, 12.3 of the 25-29 age group have a degree). As indicated in Table 38, the oldest members of the 25-29 age group were 14 years old in 1995. This represents changes in educational choices of those who went through upper secondary education at the start of the period of change, compared to those who went for before the period.

Table 38. Ages of cohorts captured in the most recent census available for each country case

	25-29 year olds	45-49 year olds
Germany, Australia, Austria (2011 census)	aged 14 in 1995-1999	aged 14 in 1975-1979
New Zealand (2013 census)	aged 14 in 1997-2001	aged 14 in 1977-1981

Table 39 summarizes the correspondence of different attainment levels across countries, as captured in their national census.

Table 40 illustrate the change in attainment across different age cohorts.

Table 39. Country-specific census categories corresponding to levels in comparative census table

	Germany	Austria	Australia	New Zealand
Bachelors/ Level 7	University degree, UAS degree, doctorate	Universities/ Fachhochschulen (Universities of Applied Science)	Bachelor degree or Level 7 qual; all post-graduate degrees	Bachelor degree or Level 7 qual; all post-graduate degrees
Higher technical	Technical college qualification	Higher technical and vocational schools	Diploma or Advanced diploma	Level 5 or Level 6 diploma
Apprenticeship / Vocational certificates	Apprenticeship qualification	Apprenticeships	Certificate Level	Level 2 or 4 certificate (level 3 is equivalent to school-leaving)
Compulsory education or below	No professional qualification, and the lowest school qualification or no school qualification	Compulsory schools (includes persons with no formal education)	Year 10 or below as the highest school level	No qualifications or Level 1 certificate

Table 40. Change in highest qualification level from 50-44 year olds to 30-34 year olds (share amongst 30-34 year olds).

30 – 50 change	Germany	Austria	Australia	New Zealand
Bachelors/Level 7	+5.2 (21.5%)	+8.3 (17.6%)	+12.1 (32.4%)	+11.9 (30.8%)
Higher technical	-2.8 (10.8%)	+5.7 (11.4%)	-0.5 (9.4%)	-1.5 (8.7%)
Apprenticeship / vocational certificate	-4.8 (45.9%)	-5.0 (32.3%)	-0.1 (20.7%)	-5.1 (15.9%)
Compulsory education or below	-1.0 (13.7%)	-5.3 (15%)	-22.1 (23.7%)	-11.3 (19.0%)

## **C2: Types of vocational education across the cases**

This section is a record of my starting impression of the cases, based on analysis carried out in early 2018.

In Australia, a relatively small number of 16 year olds embark on an apprenticeship after year 10. A slightly larger proportion start a vocational qualification within the Technical and Further Education (TAFE) sector. A much larger proportion, around half of all students in some states, take some vocational education courses as part of their general school-leaving qualification (Klatt, Clarke, & Dulfer, 2017; Knight & Mlotkowski, 2009). New Zealand has a similar system of options, where students can take vocational options as part of general school-leaving qualifications. In contrast, in Germany, most students taking any kind of vocational education do so in a separate “dual” system of apprenticeships. A smaller proportion of students take qualifications similar to those reached by apprenticeship, but study in a vocational school. Another sub-section of students take vocational courses in a school or training institution which do not lead to qualifications (known as the “transition system” because these students are in theory waiting to for an apprenticeship position or to transition to a full-time vocational qualification) (BIBB, 2016; Jacob & Solga, 2015; Konsortium Bildungsberichterstattung, 2016). Austria has similar institutions, but a larger proportion of students are enrolled in school-based vocational qualifications (Dornmayr & Nowak, 2017; Graf, Lassnigg, & Powell, 2012).

Table 41 illustrates the problem of using existing published statistics to understand changes in upper secondary enrolment. OECD *Education at a Glance* reports upper secondary enrolments by age, but only for the 15-19 group. This means that their figures are lower bounds as the denominator (all 15-19 year olds) is larger than the school cohort of upper secondary students; most 15 year olds are still in lower secondary and most 19 year olds are out of school or in tertiary. To indicate proportions by

age, these figures are calculated from enrolment figures in OECD.stat which from 2013 can be broken down by age as well as specific program (e.g. ISCED Level 2 vocational, ISCED Level 4 general). These figures are calculated from the number of individuals in the age group who are enrolled in a vocational program (including at lower secondary), over the full population of that age group who are enrolled in an educational program. These proportions are meant to indicate the size of the vocational cohort relative to the general/academic cohort, at each age.

Table 41: Proportion of enrolled cohort who are in vocational programs, by age 2015.

	Age 15	Age 17	Age 19
Australia	2.7%	7.0%	45.4%
New Zealand	0.5%	3%	2.1%
Germany	2.4%	24.5%	41.0%
Austria	36.2%	40.7%	47.2%

Note: Calculations based on enrolment figures from OECD.stat

The second important feature that is obscured by reported vocational education statistics is differences in types of vocational program. Categorisations of types tend to distinguish based on the location of learning (Green, Oketch, and Preston 2004; Ryan 2001), separating out work-based or apprenticeship programs (referred to in the table below as “Type I”) and school-based vocational education (“Type II”). Some students may take school-based vocational education courses not as part of a stand-alone qualification but as part of a high school diploma or general secondary certificate (“Type III”); in most English-speaking countries, these students do not appear in international statistics as enrolled in a vocational program.

Table 42 indicates my initial estimates of the proportion of upper secondary age students (15-19, or those in the initial upper secondary year of c. grade 10) enrolled in different vocational programs.

Table 42: Initial estimates for enrolment in upper secondary vocational education by type

	Type I	Type II	Type III
Australia	5.6% <sup>0163</sup>	14.4% <sup>0164</sup>	33.0% <sup>0165</sup>
New Zealand	2.7% <sup>0166</sup>	10.3% <sup>0167</sup>	29.6% <sup>0168</sup>
Germany	c. 26% <sup>0169</sup>	c. 10% <sup>0170</sup>	[13% <sup>0171</sup> ]
Austria	34.8% <sup>0172</sup>	24.2% <sup>0173</sup>	11.3% <sup>0174</sup>

<sup>163</sup> Individuals aged 19 and under who are registered as “in-training” in an apprenticeship or traineeship, over the 15-19 population. Source: NCVET vocstats: Reporting period by Training contract status by Age, reporting period Oct-Dec 2016.

<sup>164</sup> OECD figure for “share of students in vocational programs”, for 15-19 year olds, minus the proportion in apprenticeships (column I).

<sup>165</sup> Proportion of the 15-19 year old population that has completed at least one unit of “certificate II” or above VET in the preceding year (2015); this is the indicator that the Australian government now uses to report on VET in Schools. Source: Vocstats, VETiS collection.

<sup>166</sup> The number of “industry training learners” aged 19 or below, including both apprentices and trainees, over the population aged 15-19. Source: NZStats, Participation in Industry Training

<sup>167</sup> Same calculation as for Australia.

<sup>168</sup> The proportion of school leavers who received one or more “vocational pathway awards”, indicating they had completed a particular combination of vocational units as part of their National Certificate of Educational Achievement (NCEA), the general school leaving certificate. The denominator only includes school leavers so at this point is not directly comparable with the Australian figure. Source: Education Counts, Vocational Pathways

<sup>169</sup> Estimated figure based on the proportion of vocational upper secondary education that is work-based (86%) and the proportion of 17 year olds who are in vocational upper secondary education. The upper bound for this is 35%, the proportion of 15-19 year olds entering the training system in 2015 who were in “vocational education and training” as opposed to prevocational training (the transition system), studying for the Abitur, or entering higher education. Source: Integrated Training Reporting System, Federal Institute for Vocational Education and Training

<sup>170</sup> Estimate of 15-19 year olds enrolled in VET minus those enrolled in apprenticeships.

<sup>171</sup> The proportion of entrants into “general secondary education” who enter into a vocational school. Another way to view the separation by types in Germany is in terms of the proportions of entrants to the VET system (so excluding all students in general education) who are in different types of VET: in 2015 this was 50.2% in the dual apprenticeship system; 21.5% in vocational schools; and 28.3% in the transition system. Source: *Bildung in Deutschland 2016*, p. 102, based on the Integrated Training Reporting System

<sup>172</sup> Share of year 10 students in a vocational school for apprentices; this increases to 42.0% amongst year 12 students. Source: BMBF Statistical Guide 2015, school year 2014/15, p. 37

<sup>173</sup> Share of year 10 students in vocational colleges, leading to a recognized vocational qualification. The proportion for year 12 students is 28.3.

<sup>174</sup> Share of year 10 students in schools for intermediate vocational education, not leading to an industry qualification. The proportion for year 12 students is 2.9.



## Appendix D: Contexts of the four cases

Throughout this project, we observe that upper secondary education and training systems are really a set of overlapping sectors and markets. This section provides a comparative account of arrangements in each of the four country cases, and related lower secondary, tertiary and labor market institutions. The information is based on national websites and my own time in the countries, with resources cited elsewhere unless otherwise stated.<sup>175</sup>

The descriptions start with Australia, the system most similar to that of the United States.

### 1. Australia

Australia has eight states and territories. In order of population size, the states are: New South Wales (NSW), Victoria (VIC), Queensland (QLD), South Australia (SA), Western Australia (WA), Australian Capital Territory (ACT), Tasmania (TAS), Northern Territories (NT).

With the exception of Tas and NT, each state is home to a relatively prosperous major city (Sydney, Melbourne, Brisbane, Adelaide, Perth, Canberra), where most of the state population lives, surrounded by a large rural area. Most wealth is clustered in the bottom right of the country. ACT, essentially the area around the capital city of Canberra, is the highest-SES state. Western Australia has a resource (oil)-dependent economy. Overall, almost half of Australia's population lives in the three largest cities: Sydney, Melbourne and Canberra.

Australia is an immigrant country in the sense that one quarter of the population were born overseas (2016 population). Immigration from China overtook immigration from the UK in 2010, and

<sup>175</sup> For which a useful source for contemporary details is: <https://www.worker-participation.eu/index.php/National-Industrial-Relations/Countries/>

immigration from India took over in 2011.<sup>176</sup> The indigenous population, who represent a great number of different aboriginal tribes, make up about 3%. There remain some cultural and ceremonial links with England and the United Kingdom, most notably in sport and visa exchanges, but also in formal government positions.

### *Schools*

The initial features of the education system in Australia are similar to those in the United States. Education is primarily a state as opposed to federal issue, and schools are divided amongst state, private and religious (Catholic) schools. Each state has a department of education which is responsible for funding and government public schools (known as “government schools”).

In comparison to the U.S., Australia’s private and Catholic sectors are much larger and receive significant subsidy from the federal government. The federal government also provides redistributive funding for government schools. Because schools across all sectors receive funding or subsidies on a per-student basis, there is competition between schools for students and consequent attention to published performance statistics such as year 12 completion rates.

Upper secondary education is predominantly integrated into the secondary stage: most secondary school extend to year 12 (grade 12), as in U.S. integrated middle-and-high schools. In two small states, Tasmania and the Australian Capital Territory (ACT), the final two years of school take place in separate senior secondary colleges. Other states have a number of these colleges alongside secondary schools. In previous decades, a third set of upper secondary institutions existed in the

<sup>176</sup>

[https://www.aph.gov.au/About\\_Parliament/Parliamentary\\_Departments/Parliamentary\\_Library/pubs/BriefingBook45p/MigrationFlows](https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/BriefingBook45p/MigrationFlows)

form of technical schools. These were most commonly found in the state of Victoria, and some lasted until the late 1990s. A few examples have been revived in Victoria and New South Wales, but they are a very small part of the system.

### *Tertiary education*

Beyond the school system, a separate system of “tertiary and further education” (TAFE) exists in each state. TAFE colleges serve primarily adults, but students can start taking courses at in TAFE from age 15 or 16, either alongside or instead of staying at school. TAFE colleges operate in public systems that are governed and funded by the states.

Australia has a mixture of public and private universities. It has traditionally been common for students to live at home while studying at university. More recently, there has been increased stratification within the university sector and “brand name” universities such as the University of Melbourne, University of New South Wales (in Sydney), or Australian National University (in Canberra) draw students from across the country. Students can take no-interest government loans to cover their university education.

### *Stakeholders*

Australia has a range of “peak bodies” and they are quite fractured. Representing employers, there is the Australian Chamber of Commerce, the Australian Federation of Employers and Industries, the Australian Industry Group, and the Business Council of Australia. The latter represents the CEOs of the largest employers, and published future-oriented think pieces on education.

The Australian Council of Trade Unions is the largest representative of employees, but is not particularly powerful. More influential in government perhaps is the

Interaction between employer associations

In addition to interactions between employer associations and the government, interactions between the state and Commonwealth government are often a major source of tension.

## **2. New Zealand**

New Zealand is equivalent in population size to Queensland. It is made up of a north and south island. The north island is dominated by Auckland, where about one third of the country's population live. The south island is topped by the small capital and government-dominated city of Wellington, with the medium-sized cities of Christchurch and Queensland further down. The economy and labor market operates in a somewhat dependent relationship with Australia; there is considerable flow of people back and forth. Wood is the main resource and the agricultural sector remains important.

The country increasingly considers itself bicultural. The main indigenous population is Maori, representing 14.95% of the population in the 2013 census.<sup>177</sup> There is a Maori political party, Maori media, and some Maori-medium schools. 7.4% identify as "Pasifika", from the Pacific islands. In addition, New Zealand has high rates of immigration, which, while not as high as Australia, come from similar countries (11.8% of the population in 2013 identified as Asian). Like Australia, there remain some cultural and ceremonial links with England, which are similarly gradually phasing out.

### *Schools*

New Zealand's education system is roughly similar to that of a single Australian state: schools are funded and governed centrally from the Ministry of Education. Major education reforms in 1989-91

<sup>177</sup> <http://archive.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-culture-identity/ethnic-groups-NZ.aspx>

made the system more streamlined, removing local districts and making each individual school self-governing, with a Principal employed directly by a new Ministry of Education. School funding tied to student numbers means that schools directly compete for students. In contrast to Australia, there are relatively few private and religious schools.

At the upper secondary level, New Zealand has a similar set of organizational options to Australia. Most secondary schools are integrated up to “year 13”. New Zealand (along with England, Wales and Northern Ireland) have a school system that is slightly out of sync with North American and many other countries. The additional year for university entrance created a year thirteen, but as most children start Reception (Kindergarten) at age four-turning-five, they are still only 17-turning-18 when they reach year 13, the same age as those in grade 12 elsewhere. Traditionally, the 13th year was just an initial term of university entrance exams, and was only extended to a full year with the introduction of “A Levels” in the UK.

Students who leave school or want to study for a full vocational qualification alongside some school studies can do so at a further education college, which are part of the tertiary education sector although many of their courses would register on a qualification framework below the level of school completion level (“Level 3” for university entrance, or “Level 2” to be considered a school graduate).

New Zealand has a relatively small private school sector. In contrast to Australia, the *formerly*-independent schools make up a much larger part of the secondary system than actual independent schools. In 1996, the year that New Zealand’s standardized school roll data begins, 11% of students were educated in “integrated” (formerly private, mostly religious) schools and 4% in private schools. Instead of Australia’s approach of subsidization, in New Zealand the 1975 Private Schools Conditional Integration Act took private schools into the public sector, creating around 325

“integrated schools”. Integrated schools are distinctive in often being religious (around two-thirds are Catholic school) and single-sex. A smaller number of private schools remained: from 1985-1990, the private school subsidy (which had been 20% of teacher salaries from 1970 and 50% from 1975) was gradually reduced to zero, and in 1990, there were just 136 private schools in the country. Under the decile system, integrated schools are just slightly higher (calculating from individual school deciles released in 2015, state-integrated schools had an average decile of 6.0 compared to 5.4 for state schools)

The smaller numerical size of distinct school sectors disguises other important lines of distinction in New Zealand’s school system, however. The first is the status of former grammar schools. Grammar schools were founded in the same way as the English grammar schools, as school which prepared students for university. The adoption of grammar schools into the government sector started in 1868 with a grammar school appropriation act and all have been adopted into the public system, but remain distinguished by maintaining “grammar” or “college” in their names. The significance of the grammar schools in the public imagination is apparent through informant interviews. “Auckland Grammar” – an all-boys government school located in the central business district of Auckland – often stands in metonymically for such schools. To international eyes, schools like Auckland Grammar School and Wellington College are similar to elite private schools. The buildings and grounds are extremely luxurious and they have active “old boys” networks. Auckland Grammar names amongst its alumni several members of parliament and at least 11 All Blacks (international rugby) players. As of 2012, a change to the enrolment scheme allows preference to “sons of Old Boys”.

The difference between mixed and single sex schools forms a key lined of stratification in New Zealand. New Zealand has high rates of single sex education, particularly at the secondary level.<sup>178</sup> Table 5 highlights differences in progression on a university pathway between single-sex and mixed schools. In 2009, gaining university entrance was the modal experience for all students who had stayed onto year 13, with the exceptions of those in decile 1-3 co-ed schools.

Table 43: Percentages of Year 13 male and female students participating in NCEA Level 3 gaining University Entrance in 2009 (reproduced from NZQA 2009 report, p. 65)

School type and candidate gender	Decile 1-3	Decile 4-7	Decile 8-10
Single Sex Female	59	68	86
Co-ed Female	44	62	76
Single Sex Male	49	59	70
Co-ed Male	36	54	66

### *Tertiary education*

New Zealand has 8 universities and 18 polytechnics. It also has three wānanga, Maori institutions which offer community and vocational courses. The 1989-91 reforms created a new framework for tertiary education along similar lines, combining universities, polytechnics and wānanga – for conceptual if not governance purposes – into one sector. Tertiary education is funded primarily by loans, though young people can win bursaries and some tertiary vocational courses are subsidised.

<sup>178</sup> In 1996, 112 of the New Zealand's 2,558 schools were single-sex, educating just over 11% of the student population. This is almost twice the proportion as in the UK. The proportion is even higher at the secondary level; while 1996 data cannot be disaggregated in this way, since 2010 when this data became available, 29% of secondary (year 9+) students are in single-sex schools.

### *Stakeholders*

Compared to Australia, the teachers' unions – the Primary Teachers Association and Post-Primary Teachers' Association (PPTA) – are more cohesive and more active. In addition, principles of biculturalism have a much stronger role: schools which include teaching in the language and cultures of Maori and to a lesser extent Pasifika are found in many parts of the country.

Since 2001, Business New Zealand (known as BusinessNZ) has been an umbrella organization representing business interests in government. It formed from a merger between the New Zealand Employers Federation and the New Zealand Manufacturers Federation. As a membership organization, its work is carried out through four long-standing regional employer organizations: the Employers and Manufacturers Association (North and Central), Business Central, Canterbury Employers' Chamber of Commerce, and Otago-Southland Employers' Association). The EMA, who cover Auckland, are the largest in size. To carry out advocacy, BusinessNZ has a variety of divisions, including ManufacturingNZ and ExportNZ, and its affiliated industry groups cover all the major sectors.

### **3. Germany**

As of reunification in 1989, there are 16 federal states (*Bundesländer*, typically referred to as just *Länder*, though this also translates as “country”). Berlin and Hamburg are city states, while each of the rest includes at least one major city, with the exception of X and X which are more rural. The East German states remain poorer than those in West Germany, with the exception of Berlin.

### *Schools*

As in Australia, school education in Germany is administered at the state level. Beyond this, the structure of secondary and upper secondary education in Germany differs dramatically from that of Australia and New Zealand. It is defined by the legacy of the “tripartite” system: Hauptschule,



Realschule and Gymnasium. Traditionally, these led mechanically to different upper secondary pathways: the Hauptschule to an apprenticeship at 15, the Realschule to a mid-level school qualification and then an apprenticeship or school-based vocational education, and the Gymnasium to university.

The graphic below illustrated the institutional break after year 9 or 10 (age 14/15 or 15/16) which marks the transition to upper secondary. The main vocational pathways are the “dual system” of apprenticeship and school-based learning (Duales System) or the school-based vocational system (Schulberufssystem). Students who are not accepted into an apprenticeship or a vocational school enter the “transition system” (Übergangssystem).

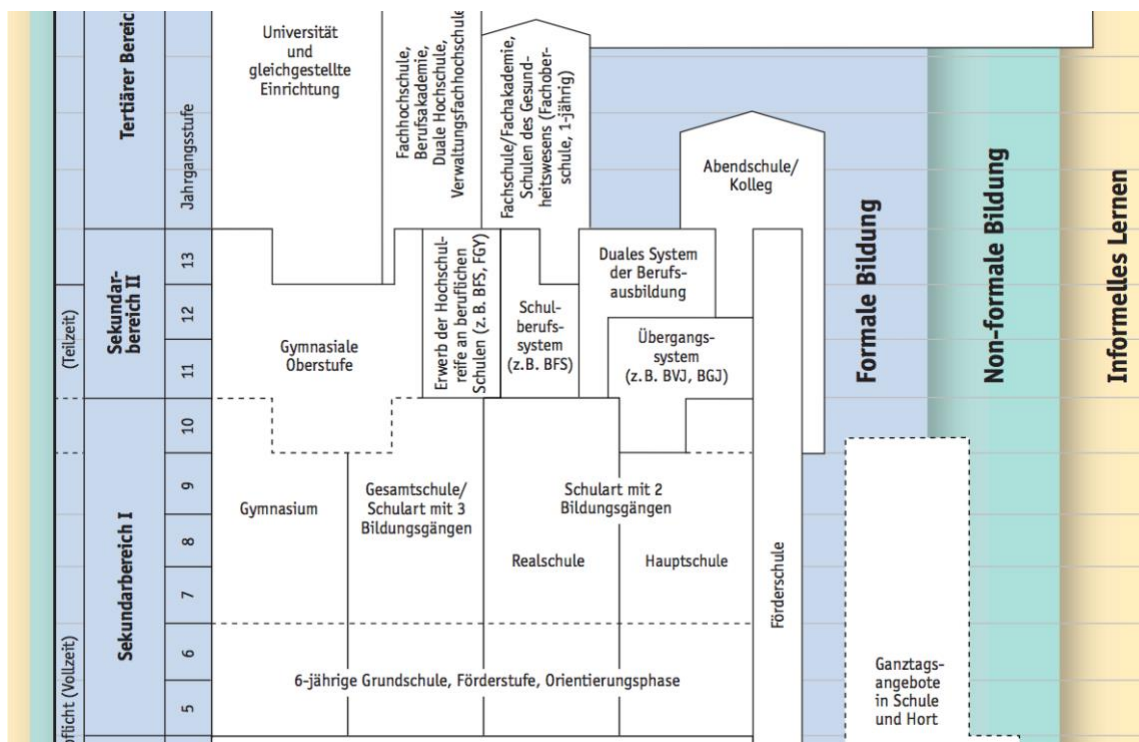


Figure 30. The German Education System

Source: KMK, Bildung in Deutschland (2016)

In addition to the main pathways shown here, there are a range of vocational schools. A federal standardization process in 1975 recognized five main vocational school types: the *Berufsschule* (BS),

the part-time, school-based part of the dual vocational system, and *Berufsfachschule* (BFS), a full-time vocational school, equivalent to a junior polytechnic. In addition, the *Berufsaufbauschule*<sup>179</sup> (BAS, *Aufbau* = construction), and *Fachoberschule*<sup>180</sup> (FOS), were school types designed to lead to higher study in the *Fachschulen*, full polytechnics, and the new *Fachhochschulen* (FH, now called a “University of Applied Science”).

The tripartite system is not just a system of selection. Gymnasium are different not just in their curriculum but have different governance and teachers. Teachers qualify either to be Gymnasium teachers (*Gymnasiallehrer*) or teachers in elementary schools, Hauptschulen, and Realschulen (*Grundschullehrer*). Traditionally, only Gymnasium teachers need to have been to university, although this changed in 2004 with the introduction of new regulations and the upgrading of all teacher education to the Bachelor level. But still teachers qualify into one type of position or other and, perhaps most importantly, Gymnasium teachers receive a higher salary: roughly €500 more per month, up to €1500 more for those teaching the highest grades (Köppe 2017). There is currently a shortage of general teachers but not of Gymnasium teachers. Proposals to allow greater permeability between school types have been resisted by the Gymnasium teacher unions (Himmelrath 2018).

<sup>179</sup> In 1949 the schools which led to the Fachschule were formally legalized in NRW as the *Berufsaufbauschule* (BAS, *Aufbau* = construction), and subsequently recognized in the first agreement of the KMK in 1959. In 1975, the KMK established the BAS, unlike the BS, as offering general education at a standard equivalent to the Realschule. The BAS took on the role of providing a way to upgrade the Hauptschulabschluss into the Realschulabschluss. As more students likely to pursue further study entered Realschulen as opposed to Hauptschulen, the BAS were gradually replaced by the FOS, and in 1996 were formally discontinued.

<sup>180</sup> The *Fachoberschulen* (FOS) were legalized in 1969 (KMK, 2004/1969). The FOS accepted students with the *Realschulabschluss* and prepared them over two years for entry to the FHS, providing education in German, Math, and a foreign language as well as in subjects related to an occupational specialism, and internships. Each FOS would have one or more of six broad occupational specialisms: Business and Administration, Technology, Health and Social care, Design, Nutrition and Home Economics, and Agriculture, biotechnology and environmental technology. The FOS provide the basic format for modern upper secondary education with an occupational specialism. But they did not initially lead to higher education or to a qualification/pathway equivalent to the Abitur.

Alongside this distinction between Gymnasium and non-Gymnasium schools, there are distinct non-government schools, which are known as private schools (*Privatschulen*). The majority of private schools are religious, though there are also private Waldorf schools. As in Australia, private religious schools, which are mostly Catholic, are subsidized by the federal and state government (Klemm et al. 2018). All private schools are meant to hold fees low enough to be “accessible”, however, only some Land regulate this. Overall, private schools are a less important feature of the school system than in Australia, but represent one option for those seeking unconstrained access to academic upper secondary. [See chapter 5]

Private schools have long been used as a way of getting an academic education: in 1996, one in ten Gymnasium student across Germany was in a private school. But this share looked quite different across the Länder. Prior to 1989, there were almost no private schools in the East German Länder: in the 1992/3 school year (the first year of continuous time-series data), private schools formed 6.6% of schools in former West German states and 0.9% of schools in former East German states. The share in former East Germany subsequently rose to match that in the west. Some therefore attribute the overall pattern of increase in the private school share in Germany over the 1990s and 2000s to “pent up demand” (Klemm et al. 2018).

Education is overseen at the federal level by the KMK, the Conference of Ministers of Education and Cultural Affairs (*Kultusministerkonferenz*). It is composed of the state ministers and senators from education, science and culture, and has 34 members. All federal education policy is determined by the KMK with each Land having one vote. It has a secretariat in Bonn and Berlin, but governance rotates so that each year a different state ministry of education oversees the bureaucracy of the KMK.

### *Tertiary education*

Germany has a range of universities (Hochschulen) and “universities of applied science” (Fachhochschulen). The latter were traditionally translated as polytechnics. There are about 300 public universities and a small but growing number of private institutions of both types; currently 19 private universities and 93 private UASs. Public universities were traditionally free to attend, but low fees (about 1000 euros a year) were introduced from 2001 in various states, and were a subject of considerable controversy. They were abolished again in 2014.

### *Stakeholders*

The main representative of employers is the Confederation of employer associations, the BDA (*Bundesvereinigung der Deutschen Arbeitgeberverbände*). It is the umbrella organization for private sector employer associations in Germany and includes the associations for all sectors except the iron and steel industry. Its members engage in collective bargaining annually. From 1996 to 2013 it had the same President, Dieter Hundt. The BDA releases policy positions on a wide range of issues, including education.

In addition, the Federation of German Industries, the BDI (*Bundesverband der Deutschen Industrie*) is another umbrella group, encompassing industry sectors including iron and steel. It does not have as much formal power as the BDA and is perceived as an interest group (Reutter, p. 99).

The “crafts” sector – skilled trades – is represented by the ZDH, the Central Association of Germany Crafts (*Zentralverband des Deutschen Handwerks*).

Representing employees, is the German Trade Union Confederation, the DGB

(*Deutscher Gewerkschaftsbund*) is the umbrella organization for eight major German trade unions and is the largest confederation of trade unions in Germany.

One of the DGB members is the GEW, the Education and Science Workers' Union (*Gewerkschaft Erziehung und Wissenschaft*), which represents compulsory school teachers.

In addition, and not a member of the DGB, the *Deutscher Lehrerverband* (DL) also represents teachers. It was founded as a non-left union, and encompasses four associations:

- *Deutscher Philologenverband* (DPfV) for Gymnasium teachers
- *Verband Deutscher Realschullehrer* (VDR) for teachers of Realschule and, increasingly, teachers at comprehensive schools
- *Bundesverband der Lehrerinnen und Lehrer an beruflichen Schulen* (BLBS) and the *Bundesverband der Lehrerinnen und Lehrer an Wirtschaftsschulen* (VLW) for teachers at vocational schools. In 2018 they merged to create the *Bundesverband der Lehrkräfte für Berufsbildung* e.V. (BvLB).
- *Katholische Erziehergemeinschaft Deutschlands* (KEG) – “Catholic educators community”.

#### 4. Austria

Austria is roughly similar in population size to the states of Bavaria and Baden-Württemberg.

Culturally, it has affinity to the southern German states, and the industrial mix is similar.

Like Germany, Austria has relatively high immigration. 16.2% of the population now hold foreign citizenship.<sup>181</sup>

##### *Schools*

The Austrian school system shares its essential features with that of Germany: a school system made up of different school types; a “dual” system of apprenticeships (*Lehre*) made up of employer-based training and part-time vocational schools (*Berufsschulen*); and a set of other vocational schools:

<sup>181</sup>

[https://www.statistik.at/web\\_en/statistics/PeopleSociety/population/population\\_change\\_by\\_demographic\\_characteristics/population\\_by\\_citizenship\\_and\\_country\\_of\\_birth/index.html](https://www.statistik.at/web_en/statistics/PeopleSociety/population/population_change_by_demographic_characteristics/population_by_citizenship_and_country_of_birth/index.html)

vocational middle schools (*Berufsbildende mittleren Schulen*, BMS) or vocational high schools (*Berufsbildende höheren Schulen*, BHS). Despite their names, the BMS and BHS run concurrently from 9<sup>th</sup> grade, but the BHS lasts for one year longer (see Figure 31).

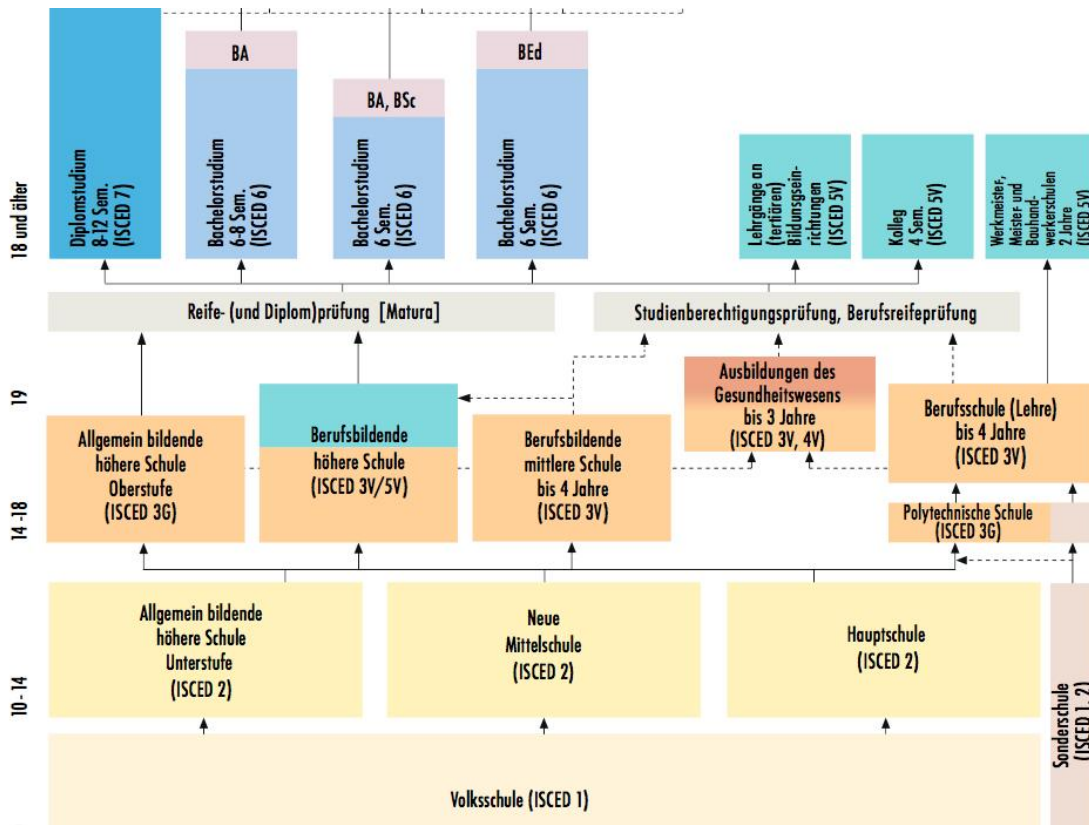


Figure 31. The Austrian Education System

Source: Statistik Austria, Bildung in Zahlen 2015/16

A key difference from Germany is that the secondary school system is a “bipartite” (two-track) as opposed to “tripartite” (three-track) system, missing the *Realschulen*. Like the traditional German *Hauptschulen*, Austria’s *Hauptschulen* (HS) finish after grade 8. Consequently, they do not directly articulate with the apprenticeship system. Instead, students wishing to start an apprenticeship are expected to spend a year in a full-time *polytechnische Schulen* (PS).

*Hauptschulen* were converted over the in the 2010s into “New Middle Schools” (NMS), which retained the feature that they articulate with the vocational schools rather than the apprenticeship system.

At the upper secondary level, vocational schools dominate over the dual system of apprenticeships, which is relatively less prestigious than in Germany and more limited in the sectors it feeds. For example, someone entering commerce in Germany would be quite likely to do so through an apprenticeship, whereas in Austria they would be more likely to go through one of the higher vocational schools.

The *Berufsbildende höheren Schulen*, “BHS”, encompass varieties of colleges offering five years of general and occupational education for ages 14 up. At the time of their integration in 1982, there were four main types:<sup>182</sup>

- **HTL**, höhere technische und gewerbliche Lehranstalt - where the subjects studied are engineering, industrial design and manufacturing (“crafts”).
- **HAK**, Handelsakademie - teaching commercial subjects such as business studies, management, entrepreneurship and accounting, typically as preparation for managing small or medium enterprises.
- **HLW**, höhere Lehranstalt für wirtschaftliche Berufe - literally a higher school for “economic occupations”, covering a wide range of subjects mostly related to service sectors and the media. Many of these were originally women’s colleges. Today, they have diversified and there are separate school types for tourism, fashion, and new social and social sectors.
- **HLFS**, höhere Lehranstalt für Land-und Forstwirtschaft - agriculture and forestry. Now the smallest in enrolments of the school types.

As in Germany, the difference between HS and AHS is one not only of curriculum but of teaching and governance. AHS are administered as *Bundeschulen*, from the federal level via local school

<sup>182</sup> Graf (2013) lists six main types, clumping some of the newer sectors. The Ministry of Education’s website dedicated to vocational school does not separate out higher and middle schools but features seven types that have BHS variants: <https://www.abc.berufsbildendeschulen.at/>

boards, while HS are administered as *Landesschulen*, from the state level by provincial and then municipal governments. Teacher salaries come out of different budgets, and teachers at AHS are paid more, though the difference is smaller: currently €200 more on a starting salary (Herndler 2019). As noted in the previous chapter, teachers are part of different unions or union chapters depending on their school type.

Austrian informants stress the different perceptions of HS in the regions compared to the urban areas, and in particular Vienna. There are observable differences between the HS in Vienna and in the other Länder, in particular the more rural Länder. Municipalities outside the cities are mostly small; over three quarters of all municipalities have fewer than 3,000 inhabitants. Their primary schools are typically very small while HS are larger and AHS larger still<sup>183</sup>. In Vienna, while AHS are also larger, primary schools and HS are on average the same size. HS in Vienna also have larger class sizes and higher student-teacher ratios compared to other Länder (Bruneforth et al. 2016, 107–8).

Unlike in Germany, there is no established tradition of comprehensive schools. Commentators ascribe this to the persistence of the ‘two thirds majority’ principle: that any change to education legislation must be passed in parliament by a two-third majority, coupled with inconclusive evidence of effectiveness from countries which experimented first with comprehensive schooling (Bauer 2009; Budzinski 1986).

The private school sector is slightly smaller than in Germany, and is predominantly religious schools. Around two-thirds of private schools are Catholic, and as religious schools they receive higher subsidies than in Germany; 90% of their personnel costs are met. Most of the remainder of private

<sup>183</sup> 45% have 50 students or fewer and the average size outside Vienna is around 100 students. Outside of urban areas, when students move into lower secondary school this typically means moving to their local town, to an HS between 1.5 and 3.5 times the size, or an AHS between 4 and 9 times larger (depending on the Land).



schools, around 15%, are those run by associations, including Waldorf and Montessori schools. Secondary private school enrolment has been almost stable since the mid 1970s at 12-16% in AHS and 5-6% in HS. In 1976, 12% of students in academic secondary schools were in private schools; this rose to 15% by 1998 and then only to 16% in 2010 and has remained stable since then, accounted for by growth in separate upper cycle private gymnasia (or 17% if one includes the international schools). Amongst Hauptschule/NMS, the proportion of students in private schools rose slightly from 5% to 6%. This implies that private schools have always been a way for some to overcome constraints and choose an academic pathway, but not increasingly so. As in Germany, private schools are primarily small, with smaller teacher-student ratios, and are attended by children of higher socioeconomic status (Dronkers and Avram 2015, 122).

### *Tertiary Education*

Austria developed a sector of *Fachhochschulen* later than the other contexts and they still represent a relatively small sector. There are 23 public and 11 private universities, including various that specialise in technology or the arts. Public universities are still free for the normal duration of a program; after an additional year Austrians have to pay about 350 euros a term. Private universities and universities of applied science can charge more.

### *Stakeholders*

Austria has traditionally been a highly corporatist nation, in that unions are closely involved as partners in politics, and this is particularly the case in teaching. The overarching confederation, the Austria Trade Union Federation (*Österreichischer Gewerkschaftsbund*, ÖGB), is divided into unions representing sectors of employment and also into factions, the FSG (aligned with the SPÖ) and FCG (aligned with the ÖVP).

The public services union, GÖD, leans towards the Christian democratic FCG (also evident from the composition of its leadership committees). This is somewhat counter-intuitive from the perspective of English-speaking countries now used to the alignment of center-left parties with public sector professionals (Gingrich & Häusermann 2015), but one root of it is in the higher proportion of upper-middle class women amongst public sector workers, who were from more conservative families.

Within the major public services union GÖD, there are associations representing different sectors. While health is one unified sector, teacher unions are divided according to type: compulsory school teachers, teachers at vocational schools in the dual system, AHS teachers, and “BMHS” teachers, representing both the middle and higher vocational schools. Representatives of the FSG and FCG factions are elected to represent their members within the union, with FCG (ÖVP) representatives dominating the BHS and AHS factions.

## Appendix E: Data sources

### E1: National statistical sources on vocational enrolment

#### *Germany*

The Federal Statistical Office (*Statistisches Bundesamt*, [destatis.de](http://destatis.de)) is the main source of census data, school enrolment and qualifications data.

The Bundesinstitut für Berufsbildung (Federal Institute for Vocational Education and Training, BIBB) is a collection and dissemination point for sector data as well as its own surveys and research efforts. In particular, it collates relevant information from, among others, the Federal Statistical Office ([destatis.de](http://destatis.de)), the Standing Conference of the Minister of Education and Culture (representing Education across the Lander) and the Federal Employment Agency.

Using these data it constructs several key indicators on enrolment, attainment, employer participation, etc. and provides information (on individual indicator pages) on issues related to their interpretation. In particular, in recent years it has created the *integrierte Ausbildungsberichterstattung* (integrated Training database, iABE) which brings together data on where young people are learning following lower secondary education, and covers upper secondary, training and university sectors.

From 2009, these indicators have been published in an annual “VET Data Report” (*Berufsbildungsbericht*). These reports include some trend reports dating back to the early 1990s.

#### *Austria*

Statistics Austria gather and disseminate national statistics including those on demographics, education and many aspects of the economy. Most data are accessible directly online by agreeing to a terms of use agreement.

Collections include

- Enrolment by school type, 1990 to 2002. This provides an indicator of the proportions of students in different school types, reported by region, gender and type of school (public/private). The available datasets run annually from 1990-2002, and then with a slightly different format from 2006 to 2016. Longitudinal datasets that cover these years note that the years 2003 to 2005 are “estimated”.
- Passed matriculation examinations, 1960 to 2016 according to school type – this provides an indicator of the proportions of students in different school types taking the various matriculation (diploma) examinations, reported by region. The available dataset includes raw numbers for every 10 years from 1960 to 2000, and then annually until 2016.

The City of Vienna also has its own statistics function, with enrolment by school for each district.

This is of limited use as it stands, however, as several different program types can be offered in one school type (e.g. Berufsbildende Schulen). Some assumptions may be checked with this information, however. SA also provide an interactive map on the numbers and locations of different kinds of schools: <http://www.statistik.at/atlas/schulen/>

*Wirtschaftskammer Österreichisch* (Chamber of Commerce, WKO) provides comparative data on employment and industry performance by sector.

The *Institut für Bildungsforschung der Wirtschaft* (Institute for Educational Research for the Economy, ibw). ibw partners with a wide range of national and international organisations, including both government bodies and research institutions. It has produced hundreds of research briefs and reports dating back to 1976, including annual overviews of the apprenticeship system.

The *Österreichisches Institut für Berufsbildungsforschung* (Austrian Institute for Research on Vocational Training, öibf) is a non-profit, independent research institute founded in 1970. Their publication records go back to 1999 and many are available directly from the site, while others are in books and journals.

The *Bundesministerium für Bildung* (BMB, Ministry of Education) part of the Bundesministerium für Bildung Wissenschaft und Forschung (Federal Ministry of Education, Science and Research, BMBWF) publishes an annual collection of statistics available via its library, going back to 2007.

In 2008, Austria established the *Bundesinstitut für Bildungsforschung, Innovation & Entwicklung des österreichischen Schulwesens* (Federal Institute for Educational Research, Innovation and Development of the Austrian School System, BIFIE). In 2009, 2012 and 2015 the BIFIE produced a two-volume national education report on initiatives, reform implementation and indicators.

<https://www.bifie.at/system-schule/nbb/>

### *Australia*

The National Council for Vocational Education Research (NCVER) is the main body which collects and administers education data, via the Vocstats portal (<http://vocstats.ncver.edu.au/> )

Most time series date back to 1994 and the creation of the Australian Qualification Framework (AQF) and the Australian Vocational Education and Training Management Information Statistical Standard (AVETNISS) for data collection. There are several different relevant collections, corresponding to the different bodies which submit vocational education data. Key databases include:

- National VET Provider collection, dating back to 1994. Collects information on enrolments and completions of VET activity delivered “to a nationally agreed standard” (i.e. in certificates or programs) by Australian training providers (predominantly Tertiary and Further Education colleges, TAFEs).
- VET in Schools Collection, dating back to 2006. It provides information on students enrolling in and/or completing VET courses as part of their senior secondary certificate of education (SSCE), where the training is nationally recognised or delivered by schools or other training providers.
- National Apprentice and Trainee Collection, dating back to 1994. Provides data on: all apprentices and trainees employed under a training contract; details of training transactions;

details on employers providing training; programs undertaken as part of training; registered training organisations (RTOs) associated with a contract.

- In addition to this collection, NCVET has created a historical time series on apprenticeships and traineeships from 1963-2017. The time series is annotated with contextual labor market statistics and NCVET reasoning for the rises and falls over time.

Longitudinal Survey of Australian Youth (LSAY) is a cohort-based survey administered by researchers at the Australia National University (ANU).

- Each cohort starts with a nationally representative sample of c. 10,000 young people, aged around 15 (in 9<sup>th</sup> grade). Participants are contacted one a year until they are 25.
- 5 waves so far: 1995 (Y85), 1998 (Y98), 2003 (Y03), 2006 (Y06), 2009 (Y09), 2015 (Y15).
- From Y03, participants have been recruited from schools that take part in PISA and their data is linked to school-level PISA results.

Australia carried out a census every five years (2011 and 2016).

At the state level:

- New South Wales Department of Education Annual Reports go back to 1996; data extracted from hard copies; includes VET in Schools enrolments, HSC attainment, TAFE enrolment
- Victoria “On Track” survey tracks the destinations of school leaver since 2003, and also records information about their courses
- Queensland Next Steps Longitudinal tracks destinations from 2005

### *New Zealand*

Education Counts is a collaboration between the Ministry of Education and New Zealand government to collect and publish education statistics. It includes information on the numbers of schools, students and teachers, education funding, and attainment of school leavers.

The biggest limitation of Education Counts collections is that they only start in 2008/9, when the “Education Sector Indicators” were introduced. Some earlier information is available from the “State of Education” reports, 2006-2008, which include annual percentages of attainment of NCEA

Level 2 or equivalent dating back to 1995. References in these reports refer to an older version of the Education Counts website.

In addition, current Education Counts collections include:

- Senior School attainment collection, starting from 2009, the school leaver collections provides annual information on the number of students with NCEA Level 1, 2 and 3, as well as the highest attainment of each school leaver.
- Starting from 2011, the 18 year-olds collection provides annual information on the attainment, gender, ethnicity, final school type and decile (a school-level SES indicator) and region of New Zealand domestic students who turned 18 in that year. This collection is related to the “Better Public Services” (BPS) target that 85% of 18 year-olds should achieve Level 2 or equivalent qualification by 2017.
- From 2014, Education Counts has also released an indicator of the percentage of school leavers receiving a Vocational Pathway award.
- Tertiary Education collections, provides enrolment statistics 2008-2016 by program and/or institution, including industry training (apprenticeships and traineeships), year, age range, gender, ethnicity, provider and qualification level (Certificate level 1-7, bachelor degrees and higher).
- Provider-based collections (i.e. separated by type of institution/industry provider) breakdown by sector/occupation/field and year, 2008-16.

The Tertiary Education Commission hosts the Industry Training Register

- Captures detailed information about participation and achievement in the industry training sector, which provides apprenticeships and traineeships.
- Not directly accessible to researchers, but its information feeds into the Tertiary collections at Education Counts.

Statistics New Zealand (“Stats NZ”) collects and publishes data for New Zealand. They do not host Education collections, however, presumably because annual education reporting is the remit of Education Counts. They hold a few historical education statistics (see below) and indicators related to the Better Public Services targets.

Stats NZ provides time series data on a wide range of demographic, social and productivity indicators via their tool NZ.stat.

NZ.stat does not cover Education as a theme, but does include census data from 1996, 2001, 2006 and 2013. Another census will be held in 2018. The census includes information on outcomes including labor force status and income related to highest qualification and post-school qualifications, by gender, and region.

In addition, there are specific document sources:

- “School Leavers with no qualifications” is a 2001 report from Stats NZ detailing the numbers of school leavers with no qualifications, 1993-2000. Includes information on enrollees in skills programs provided by Skill New Zealand, 1993-2000.

The “Historical Hansard” is a searchable scanned collection of the official record of debates in the New Zealand parliament, kept continuously from 1867.

## **E2 Interviewees**

### *Australia*

AU1 head of Pathways, government school, NSW

AU2 Victoria Department of Education and Training (DET)

AU11 VET specialist, University of Victoria

AU4 Principal, alternative school, Brisbane, QLD

AU5 Academic, University of Melbourne

AU6 Victoria DET

AU7 Skills Market, Skills and Training division, Federal DET

AU8 Teacher, independent school, Sydney

AU9 Principal, government school, ACT

AU10 VET section, Victorian Curriculum and Assessment Authority



AU11 Victoria DET

AU12 New South Wales Education Standards Authority

AU13 Schools and Youth division, Federal DET

AU14 Head of the Careers team, government school, NSW

AU15 Education Queensland

AU16 Australian Council for Educational Research (ACER)

AU17 Academic, University of Western Australia

AU18 Principal, government school, ACT

AU19 Queensland Curriculum and Assessment Authority

AU20 Principal, NSW government school

AU21 Teacher, government school, Victoria

AU22 Academic, Melbourne University

AU23 Principal, government school, NSW

AU24 Researcher, Grattan Institute

AU25 Researcher, Mitchell Institute

AU26 Australian Institute for Teaching and School Leadership

AU27 VET section, Victorian Curriculum and Assessment Authority

AU28 Social Ventures Australia/Evidence for Learning

AU29 Researcher, Mitchell Institute

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## Appendix F: Supporting evidence and analysis

### Chapter 4

#### 1. *Integrated academic and apprenticeship models in Germany*

What evaluation there has been of hybridization in Germany focuses on the relatively new “dual study programs” (*duale Studium*) which combine an apprenticeship with a Bachelor’s degree (Graf 2013) or on the model of combining study for the Abitur with an apprenticeship (“*Lehre mit Abitur*”) (Hauße 2019). These are developments of great interest but they remain small in number: although *duale Studium* numbers doubled from 40,892 in 2004 to 100,739 in 2016 (BIBB 2018, 196), this still represents only 3.6% of the total student population, or less than 6% of those at universities (as opposed to Fachhochschulen).<sup>184</sup>

*Lehre mit Abitur* numbers, in contrast to those doing an apprenticeship *after* the Abitur, likewise remain small and it has never broken out of “pilot program” status. A dissertation focused on cases in the state of Brandenburg reviews a range of these models and their fate (Hölterhoff 2013). Some still very much exist but have had only limited expansion. He focuses on the fact that smaller companies were always hesitant about adopting this model because of the worry that young people would then go onto study rather than staying with the company.

One of my informants who had been through a dual-study a program and was now studying others doing so, suggested that their growth may be limited as students realize how much more work they represent than a regular degree [SE].

<sup>184</sup> Statistisches Bundesamt: “Students by types of institution of higher education”, 2016/17, records 2,807,010 students in all institutional types, and 1,747,515 at universities (not including the Fachhochschulen or other specialised colleges).

## 2. Discussion of the BHS in the Austrian parliament

In a long speech to the Nationalrat on 5th November 1971, shortly after the SPÖ had won their full majority, Kreisky set out the next stage of his reform agenda. The section on education begins with a focus on educational opportunity:

*“Hier ist in den letzten Jahren der Begriff der Chancengleichheit eingeführt worden. Viele sehen darin eine Demokratisierung unseres Schulwesens.”* (I would now like to turn to the question of education policy. Here the concept of equal opportunities has been introduced in recent years. Many see this as a democratization of our school system.) (NR/2 1971, 20).

An early battle was over the question of removing the admissions tests to the AHS on the grounds that they were unfair. The ÖVP agreed to only a five year trial (NR/44 1971, 3338–39). The central reform proposal was for a ten-year building program of new schools. The ÖVP was concerned that this should not alter the structure of the school system, in particular, that the “long-form” of the AHS (starting at age 10) should be preserved and grown where necessary along with Kreisky’s new additional upper levels (NR/44 1971, 3348). Meeting resistance in their attempt to open up the AHS, the BHS were also targeted for expansion. When Kreisky’s government was re-elected with a majority in late 1971, the expansion program moved forward with one third of investment allocated to the AHS, one third to the BHS and one third to the BMS. (NR/2 1971, 20).

There is repeated evidence from the debates of this period that the SPÖ saw the vocational schools, and the BHS in particular, as a means to fulfil growing educational aspirations. In response to concerns about pressure on the AHS, SPÖ MP Stephan Radinger, talking explicitly of the BHS, stated that “parents and pupils will also have to be made more aware than before that the AHS is

not the only way to pass the matriculation examination and go to the university”<sup>185</sup> (NR/44 1971, 3340). At the end of the same debate the presiding Minister of Education, Leopold Gratz, defended the choice to focus on expansion of vocational schools as they, not the AHS, represented “the last chance of higher or further education in normal education”<sup>186</sup> (ibid, 3349). Four years later, during a debate on a fifth amendment to the school bill, Herman Schnell, SPÖ MP (and also President of Vienna’s School Council and Chairman of the Austrian Socialist Teachers’ Association; an example of the not-unusual phenomena of Austrian politicians simultaneously holding leadership positions in unions), summarised what the party had already achieved since 1970: asserting that

<sup>185</sup> Radinger’s full words read: “Wir sind jedoch der Auffassung, daß gerade den berufsbildenden höheren Schulen im Interesse unserer Wirtschaft eine wachsende Bedeutung zukommt, daß die Ausbildung an diesen Schulen aber auch dem einzelnen für seine weitere Laufbahn, sei es im Beruf **oder als Voraussetzung für gewisse Hochschulstudienrichtungen**, günstige Startbedingungen vermittelt. Es wird aber auch Eltern und Schülern stärker als bisher ins Bewußtsein gerufen werden müssen, daß die AHS **nicht der einzige Weg ist**, über den man zur Reifeprüfung und an die Hochschule gelangen kann.” *We believe that secondary vocational colleges are becoming increasingly important in the interests of our economy, but that training at these schools also provides favorable starting conditions for individuals to pursue their careers, whether at work or as a condition of certain higher education programs. However, parents and pupils will also have to be made more aware than before that the AHS is **not the only way** to pass the matriculation examination and go to the university.*

<sup>186</sup> Gratz’s full words are a nice illustration of the perceived imbalance in public concern academic and vocational schools: “Es scheint in der Öffentlichkeit oft so, als ob das einzige Raumproblem des Schulwesens die unfäßbare Tatsache wäre, daß **ein einziger Zehnjähriger** von einer 1. Klasse der AHS abgewiesen werden müßte. Das ist zwar sicherlich nicht gut, aber ich möchte darauf aufmerksam machen, daß er, selbst wenn das geschieht, noch lange nicht die letzte Chance verloren hat, zu einer höheren Bildung zu kommen. Ich wäre sehr froh darüber, wenn es die öffentliche Meinung genauso irritieren würde, daß wir im heurigen Jahr **3330 Vierzehn- und Fünfzehnjährige von berufsbildenden Schulen abweisen müssen**, für die diese Abweisung den Verlust **der letzten Chance einer höheren oder weiterführenden Bildung** im normalen Bildungsweg darstellt. Im bitte daher auch um Verständnis dafür, daß wir jetzt **forciert jene Schulen ausbauen**, wo die Nichtaufnahme den endgültigen Verlust der Möglichkeit, eine weitere Bildung zu erhalten, bedeutet.” *It often seems in public that the only problem of space in the school system is the unfathomable fact that **a single ten-year-old** must be rejected by a first class of the AHS. That is surely not good, but I would like to point out that he, even if that happens, has far from lost his last chance of going to higher education. I would be very happy if it irritated public opinion in the same way that this year we have to **turn down 3330 fourteen and fifteen-year-olds** from vocational schools, for whom this rejection represents the loss of **the last chance of higher or further education in normal education**. We therefore ask for your understanding that we are now **forcing the expansion of those schools** where non-admission means the final loss of the opportunity to receive further education.*

We have got to grips with the educational explosion [*Bildungsexplosion*] that has taken hold in this period, with the structural change in the general and vocational higher schools, so that the school system is different in 1975.<sup>187</sup> (NR/144 1975, 13917).

The fifth amendment under debate in 1975 was intended to take this project further, not only absorbing higher educational aspirations but actively promoting them by lifting more students towards the possibility of further education. SPÖ MP Josef Maderner describes several ongoing pilot projects which were linking the vocational schools<sup>188</sup> to higher education pathways:

in these school experiments, there are a number of innovations in vocational schools that are intended to limit the famous inequality of opportunities [*Chancenungleichheit*] that has been so much complained about, firstly the possibility of division into performance groups, so that

<sup>187</sup> Schnell's words detail a conceptual link between expansion of AHS and BHS and increase in educational opportunities: "Wir können die Lehrerbildung erweitern, wir haben Zehntausende neue Arbeitsplätze an allgemeinbildenden höheren und berufsbildenden höheren Schulen geschaffen, es sind mehr Arbeiterkinder, mehr Bauernkinder und vor allem mehr Mädchen als je zuvor in unseren Schulen. **Wir haben die Bildungsexplosion**, die in dieser Zeit Platz gegriffen hat, mit dem Strukturwandel in den allgemeinbildenden und berufsbildenden höheren Schulen **gleichzeitig so in den Griff bekommen**, daß das Schulwesen im Jahre 1975 anders aussieht. Die Vorschulklassen, die fremdsprachige Vorschulung, die Schulversuche an der Oberstufe der allgemeinbildenden höheren Schule, die Integration des behinderten Kindes in die Gesellschaft und all die Neuerungen, die wir jetzt durchführen, mit den Neuerungen des Schulunterrichtsgesetzes haben die schulpolitische Landschaft und das Schulgeschehen weitgehend verändert. *We can expand teacher education, we have created tens of thousands of new jobs in AHS and BHS, there are more working-class children, more peasant children and, above all, more girls than ever before in our schools. We have simultaneously got to grips with the educational explosion, that has taken hold in this period, through the structural change in the general and vocational higher schools, so that the education system is different in 1975. Pre-school classes, foreign language pre-school education, the school experiments in the upper level of the AHS, the integration of the disabled child into society, and all the innovations we are now implementing, with the changes in the School Teaching Act, have greatly changed the school policy landscape and school life.*

<sup>188</sup> In discussing the "Berufsschülern" he is not referring to the BHS, which he seems to group with "higher schools". He opens by lamenting the "forgotten" nature of vocational students, contrasting this pathway with that of the "higher school" - which could include the BHS:

, weil in allen Gesprächen über die Reform der Schule doch sehr viel mehr über die höhere Schule gesprochen wurde als über die offenbar als niedriger empfundenen. Das kommt wahrscheinlich daher, daß alle jene Damen und Herren, die mit der Schulreform ernsthaft beschäftigt waren, selbst durch eine höhere Schule in der Regel auch durch eine Universität gegangen sind und keine persönliche Bindung an diesen sehr breiten Kreis (NR/144 1975, 13924). Of the vocational students one has often

, because in all conversations about the reform of the school much more was spoken about the higher school than about the apparently as lower. This is probably due to the fact that all those ladies and gentlemen who were seriously concerned with the school reform went themselves through higher school usually also through a university, and had no personal attachment to this very wide circle of the Austrian population. Maderner had himself been through a Gymnasium and held a doctorate from the University of Vienna, but had also been Director of Handelsakademie Klagenfurt, a BHS founded as a commercial school in 1895 to serve the state of Carinthia.



one can differentiate between more gifted and slightly slower pupils, and the transfer via connecting courses to the third grade of the BHS<sup>189</sup> (ibid, 13924).

Again, the BHS is seen as a route to greater equality of opportunity. Madener's speech reinforces the notion that aspirational attainment lies not in moving from the vocational to the academic but from other schools to the higher schools. This was not a perspective limited to the SPÖ; ÖVP politicians also expressed a view that the BHS represented an aspirational route equivalent to the AHS. In a debate over rigidity in the school system, ÖVP MP Josef Gruber highlights that "every student with a good overall grade" in the upper track of the Hauptschule can transition to the upper level of the AHS or BHMS<sup>190</sup> (ibid, 13907). From both major political perspectives, therefore, the BHS represented educational opportunity for higher performers.

<sup>189</sup> The full list includes both adaptations within the vocational schools to facilitate moving into the higher education track, as well as possibilities of combining the Matura with apprenticeship: "...bei diesen Schulversuchen gibt es in berufsbildenden Schulen eine Reihe von Neuerungen, die dazu dienen sollen, **die berühmte Chancenungleichheit**, über die so viel geklagt wurde, doch einzuschränken, und zwar erstens die mögliche **Einteilung in Leistungsgruppen**, sodaß man zwischen begabteren und etwas langsameren Schülern differenzieren kann, ferner die Einführung von **Überleitungslehrgängen** zum III. Jahrgang einer berufsbildenden höheren Schule gleicher Fachrichtung, schließlich in den mittleren berufsbildenden Lehranstalten die **Einteilung in zwei Lehrplangruppen**, wobei eine der Gruppen dafür bestimmt ist, den **Übergang zur höheren Schule** zu erleichtern. Außerdem verweise ich auf die Einrichtung von **Aufbaulehrgängen**, die es Absolventen der Berufsschule, die ihre Lehre voll abgeschlossen haben, ermöglichen, nach einem vier- bis sechssemestrigen Lehrgang überzutreten, beziehungsweise Aufbaulehrgänge, die Abgängern mittlerer berufsbildender Schulen **die Möglichkeit geben, in vier bis sechs Semestern zur Matura zu kommen.**" ... *in these school experiments, there are a number of innovations in vocational schools that are intended to limit **the famous inequality of opportunities** that has been so much complained about, firstly the possibility of **division into performance groups**, so that one can differentiate between more gifted and slightly slower pupils, and the transfer **via connecting courses** to the third grade of the BHS of a similar subject, and, finally, in mid-level VET schools, the **division into two curriculum groups**, one of which is intended to facilitate **the transition to the higher school**. In addition, I refer to the establishment of **postsecondary courses**, which allow graduates of the vocational school who have completed their apprenticeship, to complete a four- to six-semester course, or postsecondary courses that give graduates of intermediate VET schools **the opportunity in four to six semesters to come to the Matura**.* {NR/144, 1975, 13924-5}

<sup>190</sup> Gruber does not single out the BHS but refers collectively to further vocational schools: "...jeder Schüler mit gutem Gesamterfolg aus dem Ersten Klassenzug die Möglichkeit, in **eine Oberstufe der AHS oder auch in eine weiterführende berufsbildende Schule** einzutreten. Wo es aber kaum ein Überwechseln gibt, das ist vom Zweiten Klassenzug einer Hauptschule in den Ersten Klassenzug oder vielleicht später in eine weiterführende Schule." {NR/1444, 1975, 13907}. (...*every student with a good overall grade in the first track has the opportunity to enter **the upper level of the AHS or a further vocational school**. But where there is hardly any change, that is from the second track of a Hauptschule into the first track, or maybe later in a further school.*).

### 3. Hybrid models across Germany

Chapter four describes the development of hybrid models in the states of North Rhine-Westphalia (NRW) and Bavaria. Figure 32 illustrate the development of hybrid models in next largest state, Baden Württemberg. While the FOS/BOS have no role, the *Fachgymnasium* has seen steady growth. These school types, known within Baden Württemberg as *berufliches Gymnasien* and including some specialist types of *Oberschule*<sup>191</sup>, now account for over one third (33.6%) of the state's *Abitur* qualifications, not including the Fachhochschulreife (Statistisches Landesamt BW, 2018).

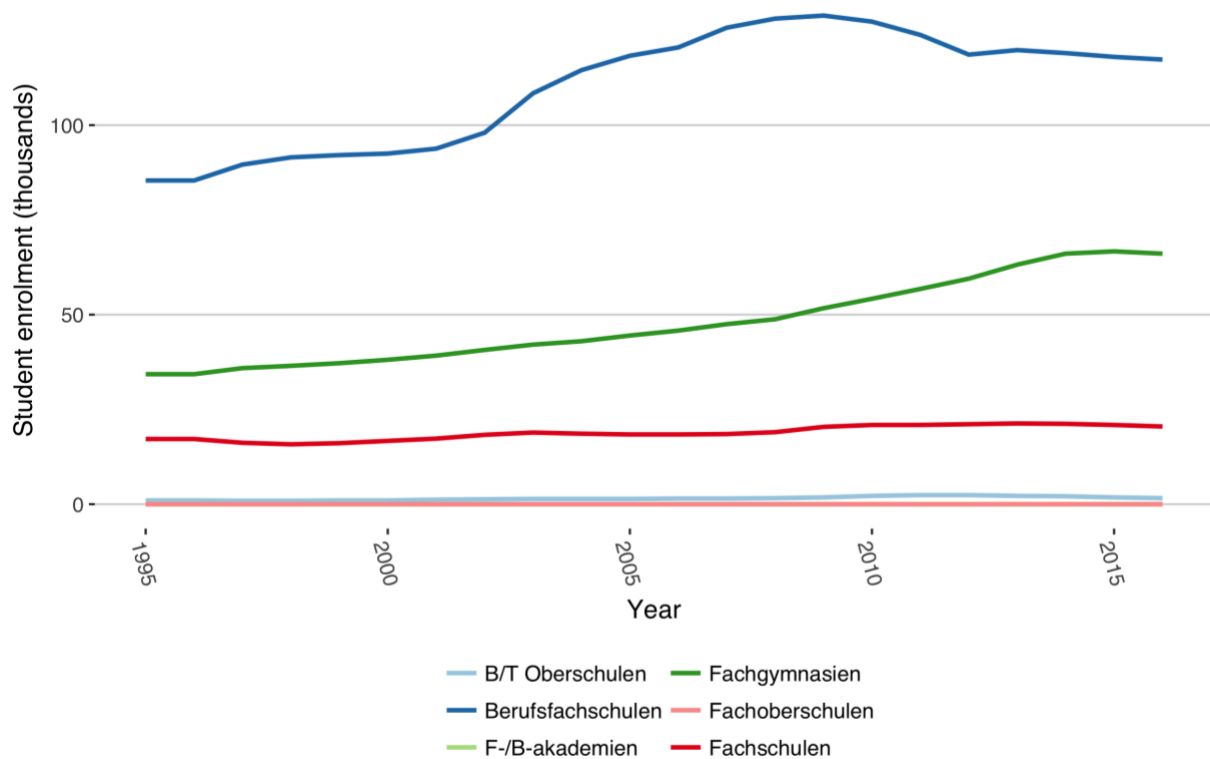


Figure 32. Vocational enrolment by school type in Baden-Württemberg, 1995-2016

Other states with significant growth in Fachgymnasium enrolment since 1995 include Berlin, Bremen, Hesse, Lower Saxony, Rheinland-Palatinate, Saarland and Schleswig-Holstein. The ones

<sup>191</sup> The Technische Oberschulen, Wirtschaftsoberschulen (economic upper school) and Oberschulen für Sozialwesen (upper school for social sectors)

that have not are predominantly the states of former East Germany: Brandenburg, Mecklenburg-Western Pomerania, Saxony-Anhalt, Saxony and Thuringia. Of these, all but Brandenburg have been experiencing a declining youth population in general, relieving the pressure on the Gymnasium of rising educational aspirations.

In Brandenburg, as in Berlin, after reunification upper secondary vocational school types were instituted in a combined form with standalone upper level Gymnasias, to create *Oberstufenzentrum* (OSZ, upper level centers). As in NRW, for most of the 1990s and 2000s the OSZ in Brandenburg was registered as “Berufsfachschulen”, and have been growing. They also compete the growth of comprehensive schools, discussed in the next chapter. Only Hamburg therefore bucks the trends as a state with a growing youth population but no growth in vocational gymnasium. Instead, the general-academic pathways have grown more so than in other states, first through growth in the Gymnasium and then, after their establishment in Hamburg in 2008-9, through rapid growth in the comprehensive school sector. As a city state with large business sectors but less industry, as well as 17 universities (and just one FH), this orientation towards academic pathways is not surprising.

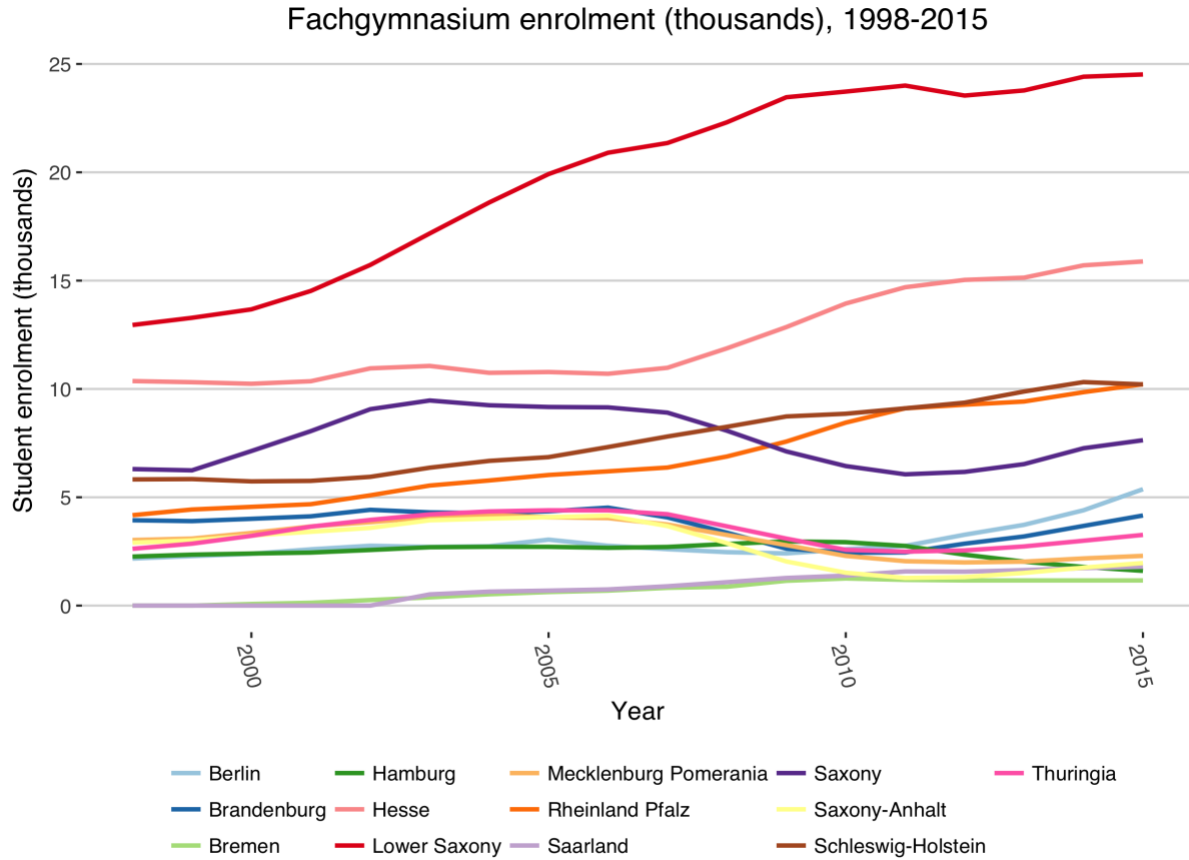


Figure 33. Fachgymnasium enrolment across the Länder, 1998-2015

#### 4. Hybrid SSCs across Australia

The new Queensland Board of Secondary School Studies, established in 1971, allowed for schools to create “Board-registered” courses, one of which could count towards each student’s Senior Certificate. The Victorian Institute of Secondary Education (VISE), created in 1976 to replace the Board of Studies, moved in a similar direction, introducing new school-assessed courses from 1981. By 1985 students could study courses including Secretarial Practice, Business Law, Introductory Accounting or Data Processing in their senior secondary years (Teese and Polesel 2003, 33). These courses did not, however, provide for university entry, and they offered a vocational range limited to distinctly “white-collar” occupations. Stronger hybridization came in Queensland in 1985, when

Senior Certificates could for the first time include subjects that students had studied at a college of Tertiary and Further Education (TAFE), as “Board-recorded” courses. The opportunity was not widely adopted, however; three years after the introduction (1988), fewer than 800 of the more than 30,000 students completing year 12 had recorded a TAFE course (E. Clarke 1990, 30).

A larger state-sponsored initiative launched in the same year, when New South Wales piloted the Joint Secondary Schools TAFE Program (JSSTAFE). Under this program, students could take courses at colleges of TAFE that were accredited as “Board-endorsed Courses” by the NSW Board of Studies, so could contribute to a senior certificate. First piloted in 1985, in 1991 the program launched three “Content-endorsed Courses”, Child Studies, Automotive Studies and Office Studies, which were specifically designed for study in schools (and therefore did not require TAFE fees), while still being jointly accredited by TAFE and the Board of Studies. 11,000 students took JSSTAFE courses that year. This model of joint accreditation is essentially what would form the basis of VETiS, and the New South Wales approach of designing VETiS courses specifically for delivery in schools.

The only deviation from the model of hybridization based in senior secondary certificates came in Victoria, which had traditionally had the most distinct vocational and academic upper secondary sector through its unique system of secondary technical schools, which provided education in years 7 to 11. As school retention rates and tertiary entrance rates rose, the initial instinct was to preserve these schools through the creation in 1971 of the Tertiary Orientation Program (TOP). This created a “T12” foundation year, equivalent to year 12, to allow students from the secondary technical schools to transition to tertiary education. While it became institutionalized, TOP was never used on a large scale. These experiments in cross-organizational forms of hybridity were then overridden by a new qualification structure. Following a long review period, in 1987 the newly named Victorian

Curriculum and Assessment Board (replacing VISE) piloted a comprehensive senior certificate. The state Labor government had resolved to abolish the technical schools, which were seen as socially divisive. In 1991-2, the new “Victorian Certificate of Education” (VCE) replaced the Higher Secondary Certificate (HSC); the technical schools were closed; and all senior secondary courses, including vocational studies subjects, could now be used as part of a university-qualifying certificate.

5. *Further detail of outcomes from VETiS*

Where in Austria and Germany hybridization offers the possibility of general or academic qualifications to students otherwise on a vocational school, in Australia where all formal vocational tracks have disappeared, hybridization results in the possibility of vocational qualifications for students otherwise getting only a general or academic qualification. Table 4 illustrates the extent to which upper secondary students in Australia are participating in vocational learning as part of hybrid programs and attaining vocational qualifications. The significance of qualifications at Level 3 or above is that this is the level traditionally recognized as entry-level industry-standard qualifications; levels 1 and 2 are seen as pre-vocational.

Table 4: Participation and qualifications from VETiS and SBAs.

2017 figures	VET in Schools courses	School-based apprenticeships or traineeships
Participation	242,144	32,832
as a share of senior secondary students	47%	6%
Completion of a course/apprenticeship/traineeship	120,679	10,971
compared to year 12 certificate attainment	52%	5%
Attainment at Level III/VI	23,617	7,941
compared to year 12 certificate attainment	10%	3%

Sources: NCVER: 'ViS students' and 'Apprentices and trainees: School-based status'; ABS: 'Schools: Number of Full-time and part-time students'; ACARA: Year 12 certification rates

Another way to understand the extent to which VETiS is contributing to vocational attainment is examining the subject areas young people are enrolled in. Chart 6 compares enrolment in VET courses by 17 year olds who have left school with those who are pursuing a VETiS course as part of a hybrid pathway. In the subject area of "Office Studies" and more recently "Sport and Recreation", there is a considerable gap between VETiS and VET enrolment, whereby many more young people are taking these courses as part of hybrid pathways. In contrast, while "Food and Hospitality", "Building" and "Human welfare and services" have traditionally been domains pursued outside of hybrid pathways, they have more recently grown as VETiS options. The chart overall suggests a slight maturing of VETiS enrolment, with a decline of the generic "Office Studies" replaced by domains that potentially have stronger linkages to the labor market.

#### *6. Hawke's proposals for post-compulsory education*

Set up under the auspices of the Cabinet Social Equity Committee, the report was motivated, according to Hawke himself, by the need to put children and students at the center of services. Hawke has critiqued the tendency that has arisen to see the activities as dominated by the perspective of the Treasury and a quest for cost-saving. The working groups were set up under the auspices of the Cabinet Social Equity Committee, and were, in his mind, motivated by a wholehearted commitment to putting children and students at the center of services (Hawke 2002, 2008). In the report itself he writes of the desire to "[remain] consistent with the thrust for efficiency and equity in all public sector activities" (Hawke 1988, 5).

Hawke envisioned a post-compulsory education system constructed of modularized, competency-based assessment as a means to allow easier movement of students between institutions and greater adaptability to the needs of industry. The report summarized this as an "across the portfolio approach to qualifications" (Hawke 1988, 6). Specifically, he recommends that the government:

Agree that it wants the upper levels of secondary schools to offer a variety of paths for young people, and approves in principle in this report the proposals in this report for facilitating that, including the removal of barriers to simultaneous study in schools and other publicly funded bodies and of the present congestion of upper school qualifications (Hawke 1988, 12).

The proposal to open up post-compulsory education and allow “simultaneous study in schools and other publicly funded bodies” was portrayed by some stakeholders as part of a push for increased competition, driven more by management thinking of the time than by educationalists (Alison 2007, 69; Lacey Gordon and Snook 1992). The notion of “simultaneous study”, however, applies as much to bringing outside education into the field of schools as to increasing competition for school provision.

On the basis of removing the “stigma” of separate courses, Hawke proposed moving access-to-employment courses and apprenticeships into the Ministry of Education (Hawke 1988, 50).

Reflecting on the acceptance of this decision, and having reviewed Cabinet committee papers, Hawke believes the Department of Labor’s assessment of the existing certification arrangements, based on their experience attempting to support unemployed school-leavers, was most important in getting Cabinet to embrace the more fluid vision proposed (Hawke 2002, 4). As others recall it, the proposals themselves and their reception were motivated by a desire to increase participation and retention rates in tertiary, which at that point were low by comparative standards.

### *7. Additional indicators of outcomes from NCEA*

One of the challenges of the integrated form of hybridization is that academic and vocational learning can become merged to a point where the extent or outcomes of hybridization are no longer



visible. Given the general limitations of New Zealand data<sup>192</sup>, the census is the best source for comparing the education and qualifications of groups over time. Table 44 provides one indicator of success for NCEA: the age group who went through upper secondary education in New Zealand after the introduction of NCEA have higher rates of attainment.

Table 44. Qualification levels amongst population age groups, New Zealand 2013.

Highest secondary school qualification	20-24 year olds (aged 15 in 2004-2008)	25-29 year olds (Aged 15 in 1999-2003)	30-34 year olds (aged 15 in 1994-1998)
No qualification	14%	19%	19%
Level 1 certificate	13%	15%	15%
Level 2 certificate	20%	17%	17%
Level 3 or 4 certificate	41%	35%	36%
Total, excluding those with overseas qualifications	266082	215190	203565

Note: NCEA Level 2 is considered attainment of school completion. NCEA Level 3 is the requirement for university entrance.

Source: Highest secondary school qualification by age group and sex, for the census of usually resident population count aged 15 years and over, 2013 census.

It is more difficult to gain a picture of the extent to which NCEA has enabled more young people to gain vocational qualifications. Young people who are registered as completing units that contribute to a certificate on the qualification framework are recorded in tertiary enrolment figures (even if their certificate is below tertiary level).

192. Unfortunately the period of introduction of NCEA was also one in which Ministry data collection was very poor, such that even those working within government could not get requested statistics on vocational certificates [Smyth interview]. The years 2002 to 2007 also represent those in which New Zealand did not submit data to the joint UNESCO-OECD data collection efforts.

## Chapter 5

### 8. *Understanding school choice*

High-quality studies of how parents actually choose schools are scarce because of the data requirements to reveal parental preference: analyses are only possible in areas where parents *have* a feasible “choice” and have to take into account how they respond strategically to choice constraints, for example, by choosing a ‘safe’ option as opposed to the most competitive school. A small number of studies have sufficient data – including on initial choices, likelihood of admission, and final choice – to fulfil this requirements and reveal preferences about secondary schools (Abdulkadiroglu et al. 2017; Burgess et al. 2015; Jackson et al. 2019).

These studies use data on secondary school choice in England, high school choice in New York City, and high school choice in Trinidad and Tobago. As these are comprehensive school systems in socioeconomically diverse contexts, these are all cases with a relatively higher degree of peer heterogeneity than curricular heterogeneity. Unsurprisingly, therefore, these studies conclude that the key factor determining parental preferences is high-attaining peers. Studies disagree as to whether parents only choose according to peer quality (and thus average performance), or are sensitive to value-add. Abdulkadiroglu et al. (2019b) find value-add has no effect after controlling for students’ prior attainment (peer quality), while Jackson et al. find it does, but only for the parents of the highest-attainers. Burgess et al. (2015) and Jackson et al. (2019) incorporate spatial measures into their models, and conclude that parents are willing to trade off distance to get access to peers, but there is heterogeneity in willingness to do this. Jackson and colleagues focus on differences in the academic attainment of; parents of children at the 40<sup>th</sup> percentile and above are willing to trade-off distance; parents of children at the 90<sup>th</sup> percentile and above are willing to go to a school three times further away. Burgess and colleagues look at heterogeneity by socioeconomic status (p. 1280-81). They find that parents in the highest SES quintile are significantly more sensitive to average

school test scores than other parents, and that parents in the lowest SES quintile display a negative responsiveness to test scores. Similarly, parents in the middle and high quintiles have less preference for schools with higher proportions of free school meal students, whereas the lowest quintile parents are more likely to prefer these schools. There is therefore an element of matching.

These findings suggest perhaps that most parents are sensitive to “peer quality” over distance, but that they try to match on peers rather than seek the highest-attaining peers.

*9. Long-term development of non-government schools*

New South Wales has the longest un-interrupted time series of full-time equivalent enrolments by school type, which illustrates the longer-term trend towards non-government schools in particular from the mid-1980s onwards (Figure 34). Some of the conditions for this increase came from increases in Commonwealth funding; in New South Wales, Commonwealth funding for non-government schools increased from almost nothing in 1969 to AU\$1200 million in 1984/5 (NSW DOE 1989, p. 76).

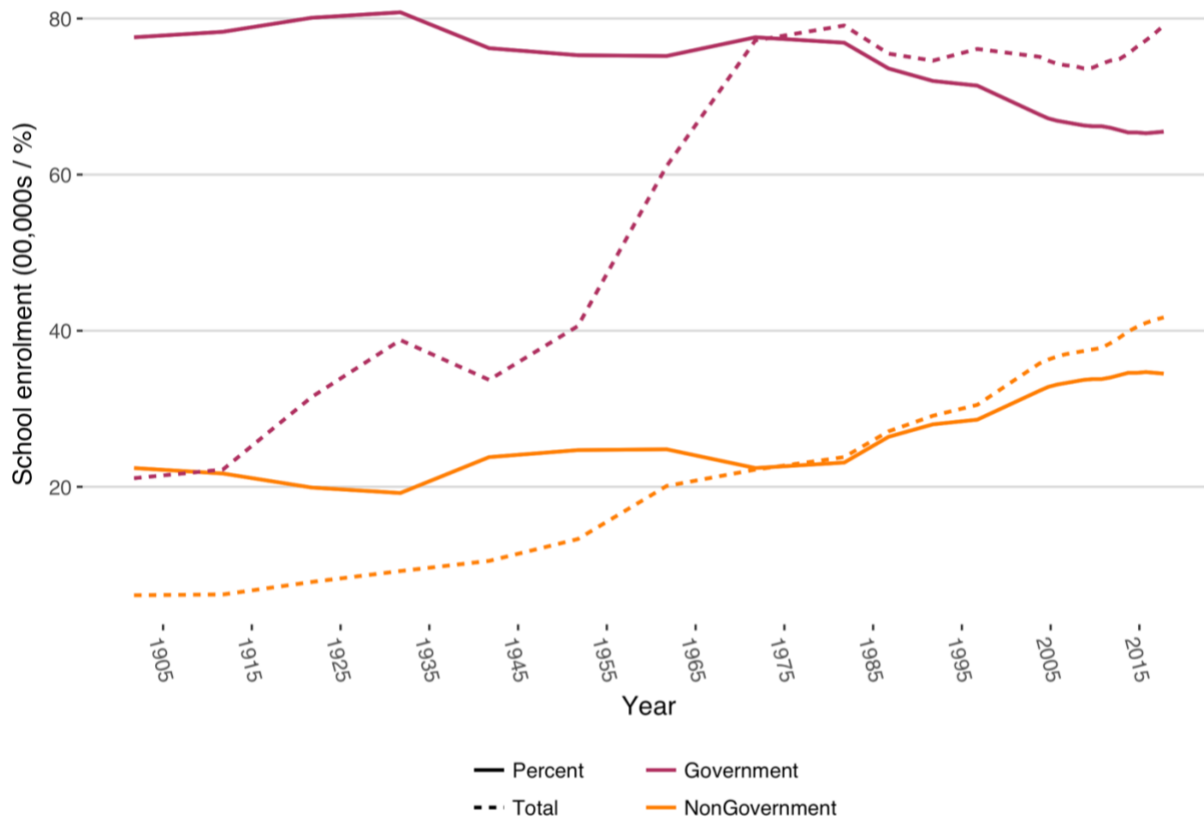


Figure 34. New South Wales: Enrolment and enrolment shares by school type, 1901-2017

*10. 8<sup>th</sup> grade enrolment in Austria*

For comparison to the chart of 5<sup>th</sup> grade enrolment included in chapter five. A slightly lower share are in the AHS by 8<sup>th</sup> grade, due to ‘dropping down’.

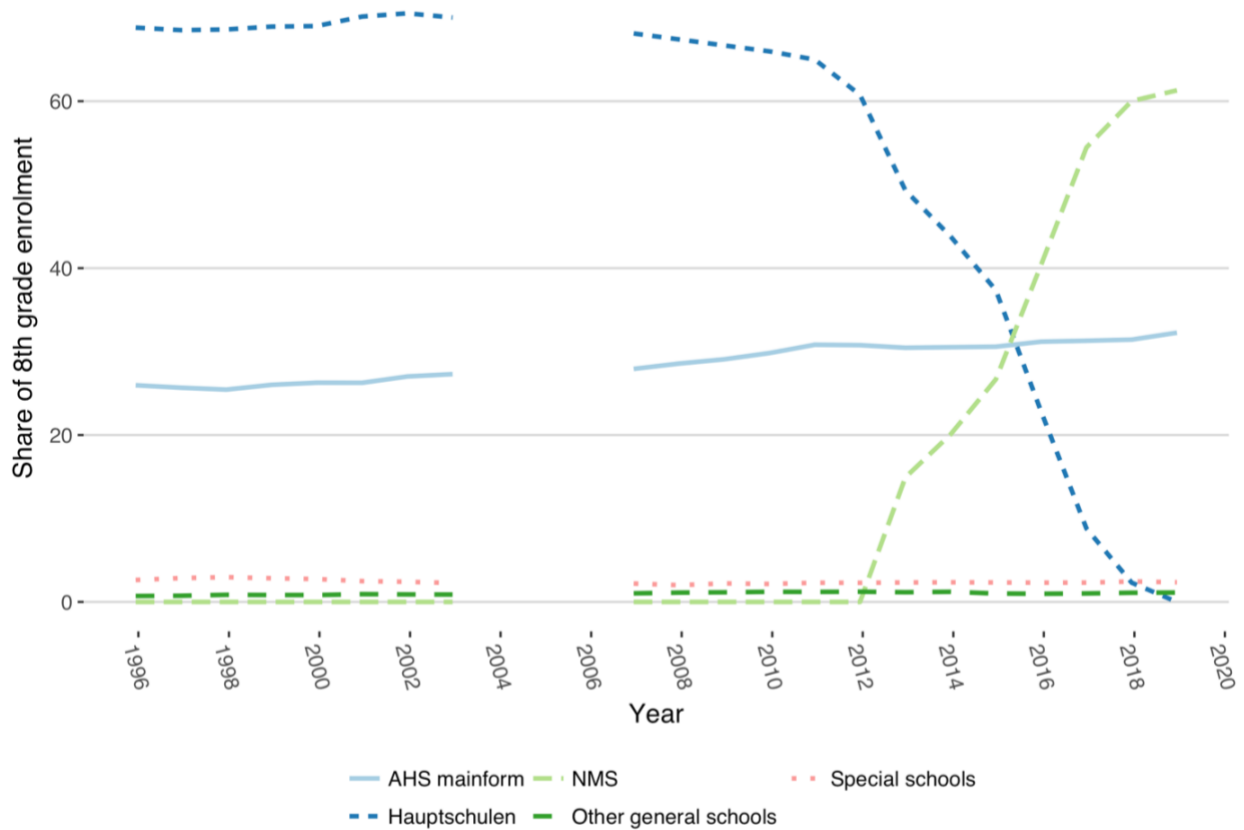


Figure 35. Austria: 8th grade enrolment by school type, 1995-2018

*11. Outcomes from the three school sectors in Australia, more recent cohorts*

Chapter five provides details from the first cohort of Longitudinal Survey of Australian Youth (LSAY). Equivalent outcomes from the more recent cohort are shown below, to indicate change over time. Note, there was a change in the operation of LSAY in 2009 such that entering participants were aged 15, as opposed to in year 9. This change was made to better align with PISA, but impacts the interpretation of trends across time because the cohort is no longer all in the same school year. The 2009 cohort had an average age of 15.7 at the start of the survey, and 71% of the cohort were in year 10. Consequently, the year spans in this table are adjusted to reflect this.

Table 45. LSAY 2009 cohort outcomes by school type

	Government	Catholic	Independent
Studying for a certificate III in 2012 (modal year)	10.9% (11.2 – 8.2)	8.3% (8.5* – 5.2)	5.0% (11.9* – 2.9*)
Studying for a Bachelors' degree in 2013 ["year 14"]	38.1% (25.0 – 58.0)	55.8% (40.9 – 71.3)	63.2% (36.5 – 77.1)
Undertaking an apprenticeship in 2012	14.1% (13.5 – 9.2)	12.3% (12.3 – 7.3)	6.4% (12.2* – 3.5*)
Undertaking an apprenticeship in 2014	9.7% (9.8 – 4.8)	11.3% (7.9* – 6.3)	4.4% (19.4* – 2.0*)

### 12. Outcomes from high-decline and low-decline schools in New Zealand

Table 46 provides the best available figures to compare changes in attainment over time from schools designated as high-, medium- and low-decile. Statistics are the only figures available across the time period reflecting attainment in an academic pathway.

Table 46. Attainment by school decile, New Zealand.

	Decile 1-3	Decile 4-7	Decile 8-10
1997 school leavers starting at a tertiary education institution in 1998	26%	40%	54%
2018 participating year 13 students gaining NCEA with University Entrance	27.6%	47.6%	65.3%

## Chapter 6

### *13. The emphasis on university in Germany and Australia*

The university pathway was encouraged both in policy terms and rhetorically and this was particularly strong in Australia and Germany. In Australia, there is evidence of a “college for all” mentality.

for young people, the academic pathway is pushed from very, very early from in their secondary schooling, that’s the focus teachers have, that’s how they’re measured, the focus is on university education and ranks [BC]

This “focus” is backed by political will. From 2009, the Labor-led Australian government instituted a push to expand higher education through removing the cap on university places, to create a “demand-driven system”. A key advisor from the time recalls that there was a concern that expanding higher education would impact negatively on VET [TB]. They hoped to avoid this by creating a new loan system for VET (VET-FEE-HELP for Level 4 and Diploma courses). As it was, it appears to have backfired, after the revelation of considerable “roorting” of this funding system, in which providers were taking advantage of freer loan arrangements to make money from fake or very time-limited courses.<sup>193</sup> [Is this totally relevant here?]

There is also evidence of this dynamic in Germany. In the early 2000s, as part of the response to PISA but also in response to an OECD demand for all countries to reach 40% university graduates,

<sup>193</sup> The scandal was still very present in the minds of all those in the vocational sector during interviews in 2016 and was repeatedly offered as a primary reason for the decline of the reputation and consequently enrolment in VET. The only non-anecdotal evidence that may point to this is the relative scales of the declines in Victoria compared to other states. Victoria was seen to be one of the worst offenders of roorting, not only by private providers but also in TAFE (who had been under pressure through a policy which created greater competition between TAFE and private providers). Overall VET course enrolments expanded in Victoria by 260,000 in the space of three years following the introduction of VET-FEE-HELP, followed by a contraction of 230,000 in the years to 2016. The contrasting situation in New South Wales was a 40,000 expansion followed by a 20,000 contraction. Other states saw larger overall declines but nothing on the scale of Victoria. Part of the decline may therefore be explained by reputational damage related to the scale of the increase.

German political leaders were calling for an increase in university growing. German millennials recall this and interpret it as a change driven by norms of attainment:

P: This is a change – that that politicians are saying to go to university. 20 years ago, it was completely okay doing an apprenticeship, nowadays it's like if you do not go to university you are not good. ...

I: Why do you think [they said that]

P: That everyone should have the same chances. People with ethnic backgrounds should have the same chances as German people, and the same for education, they think it is unfair that if one guy decides to go to Hauptschule he does not have the chance to go to university for the rest of his life... *Chancengleichheit* (equal opportunities)...It's easy to say it but I think they do not think about the consequences. [SE]

As in Australia, there is now recognition that this push had unintended consequences, and focus has switched back to vocational education.

#### 14. Resistance to PISA in Austria

Compared to its widely acknowledged influence in Germany, PISA had less impact in Austria and has received more pushback. Austria had a delayed and muted PISA shock as their results in 2000 were artificially inflated by the exclusion of students from the polytechnic schools (BMBWF n.d.). (There is no national Austria report on PISA 2000, only a table of results). Yet, in Austria, as in Germany, PISA made it possible to conceive of centralized measurement,<sup>194</sup> described this as “unthinkable” before this point [LL]. And Austria too, pursued educational standards (Lassnigg 2009).

But the potential consequences for vocational education of a push for higher attainment did not go unnoticed in Austria. Nor did the relationship between this push and PISA. In 2009 the BMHS

<sup>194</sup> In a 2010 interview with Werner Specht, senior research at BIFIE Graz, who was previously a member of the Future Commission, Lisa Nimmervoll (an award-winning education journalist for *Der Standard*) asked: “If the educational standards are established in the future, the distinction in HS, NMS and AHS is actually obsolete, because they determine the universal standards, regardless of whether the standards in a secondary school or an AHS are provided.” Specht’s response focuses on the pedagogical utility of standards and glides over the implication of her question.



union released a white paper criticizing the movement towards empirical education as based by PISA. The paper is no longer available, but according to reports at the time it included the results of a survey of teachers, representatives from politics, social partners, science and the church, and 14 strategic goals formulated for the year 2020. Among other things, the paper was:

“against egalitarianism in secondary education” and the central Matura, according to Helmut Skala, who works for the FCG in the European Education Trade Union Committee. What Schmied calls “fact-based” education policy was also not good for Skala: “Continuing to measure performance” in international OECD educational studies such as PISA was “pointless”. The education politicians should “do politics for Austria, not for the sake of the OECD”. (APA 2009)

This opposition is also an example of how large groups of educators in Austria, unusually, fall on the conservative side of politics. Minister of Education Claudia Schmied was of the social democratic SPÖ, while the BHMS union, like the AHS union, typically has Christian democrat leaders, and was at that point led by Jürgen Rainer of the Christian democrat FCG.

*15. The change in conceptions of comparability brought about by international assessments*

For reference, the full quote describing a shift in thinking in Germany brought about by making comparison across schools for the purposes of international assessments:

that was one reason why people in Germany were so sceptical about national comparisons, what is an IEA test, does it speak to H, R, G [Hauptschule, Realschule, Gymnasium]. People had a lot of problems imagining a test that can speak to all tracks. I think that was the challenge and – I never thought about this clearly, I think that was one of the major revolutions driven by TIMMS and PISA. All of a sudden people needed to understand that yes you can compare these. And ah – there had been in the 70s there had been these studies by [x] and others, and they were using the same tests, but there was a lot of debate, and especially about the English test, and it was said to be unfair to Gesamtschule. Measurement experts publicly said this is not appropriate to apply the same test in different tracks. That was one of the obstacles of these studies. I think it was at least considered a huge problem, and nowadays nobody question that there is a test that can be applied to all tracks.

The quote recalls an earlier period when Germany did not engage in international testing (forerunners to PISA carried out by the IEA, the International Education Association).

## Bibliography

- Abdulkadiroglu, Atila, Parag A Pathak, Jonathan Schellenberg, and Christopher R Walters. 2017. *Do Parents Value School Effectiveness?* National Bureau of Economic Research. Working Paper. <http://www.nber.org/papers/w23912> (October 25, 2019).
- ABS. 2001. "Participation in Education: Trends in Completing School." In *Australian Social Trends, 2001*, Australian Bureau of Statistics. <https://www.abs.gov.au/AUSSTATS/abs@.nsf/2f762f95845417aeca25706c00834efa/3487ff0af8b51db7ca2570ec000c6b0c!OpenDocument> (January 23, 2020).
- . 2019. "Schools, Australia, 2018." *Australian Bureau of Statistics*. <https://www.abs.gov.au/AUSSTATS/abs@.nsf/second+level+view?ReadForm&prodno=4221.0&viewtitle=Schools,%20Australia~2018~Latest~08/03/2019&&tabname=Past%20Future%20Issues&prodno=4221.0&issue=2018&num=&view=&> (January 23, 2020).
- Aff, Josef, Elisabeth Paschinger, and Johanna Rechberger. 2013. "The Realisation of Hybrid Qualifications in Austria - Structures, Analysis and Empirical Findings." In *Hybrid Qualifications: Structures and Problems in the Context of European VET Policy*, Studies in Vocational and Continuing Education, eds. Thomas Dessinger, Josef Aff, Alison Fuller, and Christian Helms Jørgensen. Bern: Peter Lang, 13–52. <http://www.peterlang.com/index.cfm?event=cmp.ccc.seitenstruktur.detailseiten&seitentyp=produkt&pk=62896&concordeid=431059> (February 6, 2016).
- Agarwala, Anant. 2017. "Schulabschluss: Abi für alle!" *Die Zeit*. <https://www.zeit.de/2017/14/schulabschluss-abitur-angestiegen-verfall> (June 1, 2018).
- Ainsworth, James W, and Vincent J Roscigno. 2005. "Stratification, School-Work Linkages and Vocational Education." *Social Forces* 84(1): 257–84.
- Alison, Judie. 2007. "Mind the Gap! : Policy Change in Practice : School Qualifications Reform in New Zealand, 1980-2002." Massey University. <https://mro.massey.ac.nz/handle/10179/1441> (September 24, 2017).
- Allais, Stephanie. 2011. "The Impact and Implementation of National Qualifications Frameworks: A Comparison of 16 Countries." *Journal of Education and Work* 24(3–4): 233–58.
- Allen, Peter, Terry Crooks, Shona Hearn, and Kath Irwin. 1997. *Te Tiro Hou - Report of the Qualifications Framework Inquiry*. Post Primary Teachers' Association.
- Anagnostopoulos, Dorothea, Stacey A. Rutledge, and Rebecca Jacobsen, eds. 2013. *The Infrastructure of Accountability: Data Use and the Transformation of American Education*. Cambridge, Mass: Harvard Education Press.
- Anderson, Karen M., and Anke Hassel. 2013. "Pathways of Change in CMEs: Training Regimes in Germany and the Netherlands." In *The Political Economy of the Service Transition*, ed. Anne Wren. Oxford University Press, 171–94.

- <http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199657285.001.0001/acprof-9780199657285-chapter-5> (March 13, 2016).
- Ansell, Ben W. 2010. *From the Ballot to the Blackboard: The Redistributive Political Economy of Education*. Reprint edition. Cambridge University Press.
- APA. 2009. "Bildungsprogramm als Abrechnung mit Politik." *DER STANDARD*. <https://www.derstandard.at/story/1256744221128/lehrengewerkschaft-bildungsprogramm-als-abrechnung-mit-politik> (January 17, 2020).
- . 2013. "Studie: Geringer Zusammenhang Zwischen Schulnoten Und Leistung." *DER STANDARD*. <https://www.derstandard.at/story/1373513681683/studie-geringer-zusammenhang-zwischen-schulnoten-und-leistung> (January 17, 2020).
- Atkinson, Anthony B. 2015. *Inequality: What Can Be Done?* 1st Edition edition. Cambridge, Massachusetts: Harvard University Press.
- Audit Office of New South Wales. 2012. *The Impact of the Raised School Leaving Age: Department of Education and Communities*. Sydney: Audit Office of New South Wales.
- Australian Education Council, Review Committee, and Brian Finn. 1991a. *Young People's Participation in Post-Compulsory Education and Training*. Canberra: Australian Govt. Pub. Service.
- . 1991b. *Young People's Participation in Post-Compulsory Education and Training: Appendix 1*. Canberra: Australian Govt. Pub. Service.
- . 1991c. *Young People's Participation in Post-Compulsory Education and Training: Appendix 2*. Canberra: Australian Govt. Pub. Service.
- Australian Parliament. 2018. *Unique Individuals, Broad Skills: Inquiry into School to Work Transition*. House of Representatives Standing Committee on Employment, Education and Training.
- Autorengruppe Bildungsberichterstattung. 2018. *Bildung in Deutschland 2018: ein indikatorengestützter Bericht mit einer Analyse zu Wirkungen und Erträgen von Bildung*. 1. Auflage. Bielefeld: wbv Media.
- Baccaro, Lucio, and Jonas Pontusson. 2016. "Rethinking Comparative Political Economy: The Growth Model Perspective." *Politics & Society* 44(2): 175–207.
- Bachmann, Helmut et al. 1996. *Auf dem Weg zu einer besseren Schule: Evaluation der Schulautonomie in Österreich; Auswirkungen der 14. SchOG-Novelle*. Studien-Verlag.
- Backes-Gellner, Uschi, and Stephan Veen. 2008. "The Consequences of Central Examinations on Educational Quality Standards and Labour Market Outcomes." *Oxford Review of Education* 34(5): 569–88.
- Baroutsis, Aspa, and Bob Lingard. 2018. "PISA-Shock: How We Are Sold the Idea Our PISA Rankings Are Shocking and the Damage It Is Doing to Schooling in Australia." *EduResearch Matters*. <https://www.aare.edu.au/blog/?p=2714> (January 20, 2020).

- Bauer, Sonja. 2009. "Die Gesamtschuldebatte im historischen Kontext am Beispiel von Condorcet und Oestreich." Magistra der Philosophie. University of Vienna.
- Bayerischer Landtag. 1968. *40. Sitzung*.  
[https://www.bayern.landtag.de/www/ElanTextAblage\\_WP06/Protokolle/06%20Wahlperiode%20Kopie/06%20WP%20Plenum%20LT%20Kopie/040%20PL%20030468%20ges%20endg%20Kopie.pdf](https://www.bayern.landtag.de/www/ElanTextAblage_WP06/Protokolle/06%20Wahlperiode%20Kopie/06%20WP%20Plenum%20LT%20Kopie/040%20PL%20030468%20ges%20endg%20Kopie.pdf) (July 23, 2019).
- . 1972. *Stenographischer Bericht 7/41*.
- . 1973. *Schriftliche Anfrage*.
- . 1987. (Bayerische Landtag) *Plenarprotokoll 11/16*. München.  
[http://www.bayern.landtag.de/www/ElanTextAblage\\_WP11/Protokolle/11%20Wahlperiode%20Kopie/11%20WP%20Plenum%20LT%20Kopie/016%20PL%20180387%20ges%20endg%20Kopie.pdf](http://www.bayern.landtag.de/www/ElanTextAblage_WP11/Protokolle/11%20Wahlperiode%20Kopie/11%20WP%20Plenum%20LT%20Kopie/016%20PL%20180387%20ges%20endg%20Kopie.pdf) (July 19, 2019).
- . 2005. *Antrag: Zusammenlegung von Fach- Und Berufsoberschulen (FOS, BOS)*.
- Bayerischer Landtag 15/33. 2004. (Bayerische Landtag) *Plenarprotokoll 15/33*. München.  
[http://www.bayern.landtag.de/www/ElanTextAblage\\_WP11/Protokolle/11%20Wahlperiode%20Kopie/11%20WP%20Plenum%20LT%20Kopie/016%20PL%20180387%20ges%20endg%20Kopie.pdf](http://www.bayern.landtag.de/www/ElanTextAblage_WP11/Protokolle/11%20Wahlperiode%20Kopie/11%20WP%20Plenum%20LT%20Kopie/016%20PL%20180387%20ges%20endg%20Kopie.pdf) (July 19, 2019).
- Bayerisches Staatsministerium. 2018. *Die FOSBOS Bayern - Berufliche Oberschule - Mein Weg Zum Abitur*. München: Bayerisches Staatsministerium für Unterricht und Kultus. Druckschrift.
- Becker, Gary Stanley. 1964. *Human Capital; a Theoretical and Empirical Analysis, with Special Reference to Education*. New York: National Bureau of Economic Research; distributed by Columbia University Press.
- Becker, Michael, Marko Neumann, and Hanna Dumont. 2017. "Recent Developments in School Tracking Practices in Germany: An Overview and Outlook on Future Trends."
- Becker, Rolf. 2003. "Educational Expansion and Persistent Inequalities of Education: Utilizing Subjective Expected Utility Theory to Explain Increasing Participation Rates in Upper Secondary School in the Federal Republic of Germany." *European Sociological Review* 19(1): 1–24.
- Bénabou, Roland. 1996. "Heterogeneity, Stratification, and Growth: Macroeconomic Implications of Community Structure and School Finance." *The American Economic Review* 86(3): 584–609.
- Bennett, Andrew, and Jeffrey T. Checkel, eds. 2014. *Process Tracing: From Metaphor to Analytic Tool*. Cambridge: Cambridge University Press.  
<http://ebooks.cambridge.org/ref/id/CBO9781139858472> (August 15, 2016).
- Bentley, Tom, Glenn Clifton Savage, and John Hattie. 2017. *Educating Australia: Challenges for the Decade Ahead*. Main ed. edition. Carlton, Victoria: Academic Monographs.

- Bernardi, Fabrizio, and Gabriele Ballarino. 2014. "Participation, Equality of Opportunity and Returns to Tertiary Education in Contemporary Europe." *European Societies* 16(3): 422–42.
- BGBI/242. 1962. 61 *Bundesgesetzblatt Für Die Republik Österreich*.
- BGBI/356. 1975. *Bundesgesetzblatt Für Die Republik Österreich / 356. Verordnung: Hochschulberechtigungsverordnung 1975*.
- BGBI/472. § 18 SchUG (*Schulunterrichtsgesetz*), *Leistungsbeurteilung*.  
<https://www.jusline.at/gesetz/schug/paragraf/18> (February 3, 2020).
- BIBB. 2011. *BIBB Datenreport 2011*. BIBB (Federal Institute for Vocational Education and Training).  
[https://datenreport.bibb.de/media2011/Datenreport\\_2011.pdf](https://datenreport.bibb.de/media2011/Datenreport_2011.pdf) (June 12, 2019).
- . 2016. *VET Data Report Germany 2015*. Bonn: BIBB (Federal Institute for Vocational Education and Training).
- . 2018. *Datenreport Zum Berufsbildungsbericht 2018: Informationen Und Analysen Zur Entwicklung Der Beruflichen Bildung*. Bonn: Bundesinstitut für Berufsbildung (BIBB).  
[https://www.bibb.de/dokumente/pdf/Datenreport\\_2019\\_Vorabversion\\_final.pdf](https://www.bibb.de/dokumente/pdf/Datenreport_2019_Vorabversion_final.pdf) (June 12, 2019).
- . 2019. *Datenreport Zum Berufsbildungsbericht 2019*. Bonn.  
[https://www.bibb.de/dokumente/pdf/Datenreport\\_2019\\_Vorabversion\\_final.pdf](https://www.bibb.de/dokumente/pdf/Datenreport_2019_Vorabversion_final.pdf) (June 12, 2019).
- Biffi, Gudrun. 2002. "Der Bildungswandel in Österreich in den neunziger Jahren." *WIFO-Monatsberichte* 75(6): 377–84.
- Bildungsklick. 2008. "Kultusminister Siegfried Schneider Begrüßt 'Bündnis Beste Bildung in Bayern' - Bildungsklick.de – Macht Bildung Zum Thema."  
<https://bildungsklick.de/schule/detail/kultusminister-siegfried-schneider-begruesst-buendnis-beste-bildung-in-bayern> (August 5, 2019).
- Bills, David B., and David K. Brown. 2011. "New Directions in Educational Credentialism." *Research in Social Stratification and Mobility* 29(1): 1–4.
- Blossfeld, Hans-Peter, Sandra Buchholz, Jan Skopek, and Moris Triventi. 2016. *Models of Secondary Education and Social Inequality: An International Comparison*. Edward Elgar Publishing.
- BMBWF. "Corrections to the PISA Data for Austria."  
[https://www.bmbwf.gv.at/Themen/schule/bef/sb/pisa\\_corrections.html](https://www.bmbwf.gv.at/Themen/schule/bef/sb/pisa_corrections.html) (February 3, 2020).
- Boesel, David, and Eric Fredland. 1999. "College for All? Is There Too Much Emphasis on Getting a 4-Year College Degree? Research Synthesis." <http://eric.ed.gov/?id=ED431986> (September 18, 2016).

- Bol, Thijs. 2015. "Has Education Become More Positional? Educational Expansion and Labour Market Outcomes, 1985–2007." *Acta Sociologica* 58(2): 105–20.
- Bol, Thijs, Christina Ciocca Eller, Herman G. van de Werfhorst, and Thomas A. DiPrete. 2019. "School-to-Work Linkages, Educational Mismatches, and Labor Market Outcomes." *American Sociological Review* 84(2): 275–307.
- Bol, Thijs, and Herman G. van de Werfhorst. 2011. "Signals and Closure by Degrees: The Education Effect across 15 European Countries." *Research in Social Stratification and Mobility* 29(1): 119–32.
- . 2013a. "Educational Systems and the Trade-Off between Labor Market Allocation and Equality of Educational Opportunity." *Comparative Education Review* 57(2): 285–308.
- Bol, Thijs, and Herman van de Werfhorst. 2013b. *GINI DP 81: The Measurement of Tracking, Vocational Orientation, and Standardization of Educational Systems: A Comparative Approach*. AIAS, Amsterdam Institute for Advanced Labour Studies. GINI Discussion Paper. <http://econpapers.repec.org/paper/aiaginidp/81.htm> (February 7, 2016).
- Bol, Thijs, Jacqueline Witschge, Herman G. Van de Werfhorst, and Jaap Dronkers. 2014. "Curricular Tracking and Central Examinations: Counterbalancing the Impact of Social Background on Student Achievement in 36 Countries." *Social Forces* 92(4): 1545–72.
- Bond, Linda A. 1996. "Norm- and Criterion-Referenced Testing. ERIC/AE Digest." <http://ericae.net/edo/ed410316.htm> (November 6, 2015).
- Bonoli, Guiliano, Bea Cantillon, and Wim Van Lancker. 2017. "Social Investment and the Matthew Effect: Limits to a Strategy." In *The Uses of Social Investment*, ed. Anton Hemerijck. Oxford, New York: Oxford University Press.
- Bourdieu, Professor Pierre, and Jean Claude Passeron. 1990. *Reproduction in Education, Society and Culture*. Sage Publications (CA).
- Braun, Henry, ed. 2016. *Meeting the Challenges to Measurement in an Era of Accountability*. Routledge.
- Breen, Richard, Herman Van De Werfhorst, and Mads Meier Jæger. 2014. "Deciding under Doubt: A Theory of Risk Aversion, Time Discounting Preferences, and Educational Decision-Making." *European Sociological Review* 30(2): 258–70.
- Brockmann, Michaela, Linda Clarke, and Christopher Winch. 2011. *Knowledge, Skills and Competence in the European Labour Market: What's in a Vocational Qualification?* Routledge.
- Brown, Philip, Hugh Lauder, and David Ashton. 2011. *The Global Auction: The Broken Promises of Education, Jobs and Incomes*. New York, U. S. A.: Oxford University Press. <http://www.oxfordscholarship.com.ezp-prod1.hul.harvard.edu/view/10.1093/acprof:oso/9780199731688.001.0001/acprof-9780199731688> (December 17, 2015).

- Brown, Phillip, Andy Green, and Hugh Lauder. 2001. *High Skills: Globalization, Competitiveness, and Skill Formation*. 1 edition. Oxford ; New York: Oxford University Press.  
<http://www.oxfordscholarship.com.ezp-prod1.hul.harvard.edu/view/10.1093/acprof:oso/9780199244188.001.0001/acprof-9780199244188>.
- Brügelmann, Hans. 2015. *Vermessene Schulen - standardisierte Schüler: Zu Risiken und Nebenwirkungen von PISA, Hattie, VerA & Co*. Weinheim Basel: Beltz.
- Bruneforth, Michael, Bernhard Chabera, Stefan Vogtenhuber, and Lorenz Lassnigg. 2016. *Background Report for OECD Reviews of School Resources: Austria 2016*. OECD Publishing.  
[http://www.oecd-ilibrary.org/education/oecd-reviews-of-school-resources-austria-2016\\_9789264256729-en](http://www.oecd-ilibrary.org/education/oecd-reviews-of-school-resources-austria-2016_9789264256729-en) (February 12, 2018).
- Brunello, Giorgio, and Lorenzo Rocco. 2017. “The Labor Market Effects of Academic and Vocational Education over the Life Cycle: Evidence Based on a British Cohort.” *Journal of Human Capital* 11(1): 106–66.
- Budzinski, Elisabeth. 1986. “Whatever Happened to the Comprehensive School Movement in Austria?” *Comparative Education* 22(3): 283–95.
- Bukodi, Erzsébet et al. 2017. “Linking the Macro to the Micro: A Multidimensional Approach to Educational Inequalities in Four European Countries.” *European Societies*: 1–39.
- Bundesgesetz Über Vorbereitungslehrgänge Für Die Hochschulreifeprüfung*. 1975. 1591 Regierungsvorlage.
- Burgess, Simon, Ellen Greaves, Anna Vignoles, and Deborah Wilson. 2015. “What Parents Want: School Preferences and School Choice.” *The Economic Journal* 125(587): 1262–89.
- Burke, Gerald, and Andrew Spauill. 2001. “Australian Schools: Participation and Funding 1901 to 2000.” In *Year Book Australia 2001*, Canberra: Australian Bureau of Statistics, 433–46.  
[https://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/7B268DE64F791420CA2569DF00012F05/\\$File/13010\\_2001.pdf](https://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/7B268DE64F791420CA2569DF00012F05/$File/13010_2001.pdf) (November 15, 2019).
- Busemeyer, Marius R. 2009. “Asset Specificity, Institutional Complementarities and the Variety of Skill Regimes in Coordinated Market Economies.” *Socio-Economic Review* 7(3): 375–406.
- . 2014. *Skills and Inequality: Partisan Politics and the Political Economy of Education Reforms in Western Welfare States*. Cambridge, United Kingdom ; New York: Cambridge University Press.
- Busemeyer, Marius R., and Torben Iversen. 2011. “Collective Skill Systems, Wage Bargaining, and Labor Market Stratification.” In *The Political Economy of Collective Skill Formation*, eds. Marius R. Busemeyer and Christine Trampusch. Oxford University Press, 205–33.  
<http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199599431.001.0001/acprof-9780199599431-chapter-8> (October 1, 2016).
- Busemeyer, Marius R., and Carsten Jensen. 2012. “The Impact of Economic Coordination and Educational Institutions on Individual-Level Preferences for Academic and Vocational Education.” *Socio-Economic Review* 10(3): 525–47.

- Busemeyer, Marius R., and Christine Trampusch. 2011a. "The Comparative Political Economy of Collective Skill Formation." In *The Political Economy of Collective Skill Formation*, eds. Marius R. Busemeyer and Christine Trampusch. Oxford University Press, 3–38.  
<http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199599431.001.0001/acprof-9780199599431-chapter-1> (October 1, 2016).
- . 2011b. *The Political Economy of Collective Skill Formation*. OUP Oxford.
- BusinessNZ. 2011. *BusinessNZ Welcomes Vocational Pathways*. BusinessNZ. Media Release.  
<https://www.businessnz.org.nz/news-and-media/media-releases/2011/businessnz-welcomes-vocational-pathways> (February 2, 2020).
- . 2012. *Vocational Pathways Fill Educational Need*. BusinessNZ. Media Release.  
<https://www.businessnz.org.nz/news-and-media/media-releases/2012/vocational-pathways-fill-educational-need> (February 2, 2020).
- Butterworth, Graham Victor, and Susan Butterworth. 1998. *Reforming Education: The New Zealand Experience, 1984-1996*. Dunmore Press.
- Cahill, Rosemary, and Jan Gray. 2010. "Funding and Secondary School Choice in Australia: A Historical Consideration." *Australian Journal of Teacher Education* 35: 19.
- Campbell, Andrea Louise. 2012. "Policy Makes Mass Politics." *Annual Review of Political Science* 15(1): 333–51.
- Campbell, John L. 2004. *Institutional Change and Globalization*. Princeton University Press.
- Casper, Steven, and Hannah Kettler. 2001. "National Institutional Frameworks and the Hybridization of Entrepreneurial Business Models: The German and Uk Biotechnology Sectors." *Industry and Innovation* 8(1): 5–30.
- Chmielewski, Anna K. 2014. "An International Comparison of Achievement Inequality in Within- and Between-School Tracking Systems." *American Journal of Education* 120(3): 293–324.
- Chubb, John E., and Terry M. Moe. 1990. *Politics, Markets, and America's Schools*. Washington, D.C.: Brookings Institution Press.
- CIRCABC. 2018. "ISCED Mappings 2017." *European Commission: Communication and Information Resource Centre for Administrations, Businesses and Citizens*.  
[https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp?FormPrincipal:\\_idcl=FormPrincipal:\\_id1&FormPrincipal\\_SUBMIT=1&id=23da17e9-66c7-4f81-96d8-efe9f0fe408b&javax.faces.ViewState=vPoe77T3jpVsrCyaeGOJxljLlhMibrMyGMJujbELaP9EwqvU%2BbLwhWD6%2Fyl1vaW0cu45uT6xKqGPctwtWYv94u0s1vs%2F%2BJ7ne1ckyX%2BJe5dyJFQFnr4O1TYspwxqwym%2Bwhx9sW8Umb1fNaybQ8Kd7tiBu34%3D](https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp?FormPrincipal:_idcl=FormPrincipal:_id1&FormPrincipal_SUBMIT=1&id=23da17e9-66c7-4f81-96d8-efe9f0fe408b&javax.faces.ViewState=vPoe77T3jpVsrCyaeGOJxljLlhMibrMyGMJujbELaP9EwqvU%2BbLwhWD6%2Fyl1vaW0cu45uT6xKqGPctwtWYv94u0s1vs%2F%2BJ7ne1ckyX%2BJe5dyJFQFnr4O1TYspwxqwym%2Bwhx9sW8Umb1fNaybQ8Kd7tiBu34%3D)  
 (January 22, 2020).
- Clarke, E. 1987. *Assessment in Queensland Secondary Schools: Two Decades of Change 1964-1983*. Policy and Information Services Branch Division of Planning and Special Programs Department of Education, Queensland.



- . 1990. *Assessment in Queensland Secondary Schools 1983-1990*. Queensland Department of Education.
- Clarke, Linda, and Christopher Winch, eds. 2007. *Vocational Education: International Approaches, Developments and Systems*. 1 edition. London ; New York: Routledge.
- Collins, Randall. 1979. *The Credential Society: An Historical Sociology of Education and Stratification*. Academic Press.
- Crampton, Eric. 2019. *Seeing the Problem, but Missing the Point: Decile Dilemmas*. New Zealand Initiative.
- Culpepper, Pepper D. 2002. *Creating Cooperation: How States Develop Human Capital in Europe*. Ithaca: Cornell University Press.
- Culpepper, Pepper D., and David Finegold. 1999. *The German Skills Machine: Sustaining Comparative Advantage in a Global Economy*. Berghahn Books.
- Curriculum Corporation. 2001. *New Framework for Vocational Education in Schools: A Comprehensive Guide about Pathways for Young Australians in Transition*. Curriculum Corporation on behalf of the Ministerial Council on Education, Employment, Training and Youth Affairs. Policy Directions.
- Cusack, T., T. Iversen, and P. Rehm. 2006. "Risks at Work: The Demand and Supply Sides of Government Redistribution." *Oxford Review of Economic Policy* 22(3): 365–89.
- De Paola, Maria, and Vincenzo Scoppa. 2010. "A Signalling Model of School Grades under Different Evaluation Systems." *Journal of Economics* 101(3): 199–212.
- Deissinger, Thomas. 2012. "Reforming the VET System via National Qualification Frameworks? A Comparison of Germany and Austria." In *The Future of Vocational Education and Training in a Changing World*, ed. Matthias Pilz. VS Verlag für Sozialwissenschaften, Wiesbaden, 305–20. <http://www.springer.com.ezp-prod1.hul.harvard.edu/gb/book/9783531185279> (July 19, 2017).
- . 2015. "International Education Policy: Its Influence on the Conception of VET and the VET System in Germany." *Research in Comparative and International Education* 10.
- Deissinger, Thomas, Josef Aff, Alison Fuller, and Christian Helms Jørgensen, eds. 2013. 10 *Hybrid Qualifications: Structures and Problems in the Context of European VET Policy*. Bern: Peter Lang. <http://www.peterlang.com/index.cfm?event=cmp.ccc.seitenstruktur.detailseiten&seitentyp=produkt&pk=62896&concordeid=431059> (February 6, 2016).
- Deissinger, Thomas, Erica Smith, and Richard Pickersgill. 2006. "Models of Full-Time and Part-Time Vocational Training for School-Leavers: A Comparison between Germany and Australia." *International Journal of Training Research* 4(1): 30–50.
- Der Standard. 2004. "Stichwort: Fachhochschulen." *derStandard.at*. <https://derstandard.at/1719629/Stichwort-Fachhochschulen> (November 29, 2018).

- . 2008. “Kopfnoten sind für’n Arsch.” *DER STANDARD*.  
<https://www.derstandard.at/story/3190635/kopfnoten-sind-fuern-arsch> (February 3, 2020).
- DEST. 2002. “DEPARTMENT OF EDUCATION, SCIENCE AND TRAINING SUBMISSION TO THE HOUSE OF REPRESENTATIVES STANDING COMMITTEE ON EDUCATION AND TRAINING INQUIRY INTO VOCATIONAL EDUCATION IN AUSTRALIAN SCHOOLS.”
- Di Stasio, Valentina, Thijs Bol, and Herman G. van de Werfhorst. 2015. “What Makes Education Positional? Institutions, Overeducation and the Competition for Jobs.” *Research in Social Stratification and Mobility*.  
<http://www.sciencedirect.com/science/article/pii/S0276562415000712> (February 7, 2016).
- Die Presse. 2014. “Betragensnote: Aufwertung oder Aus?” *Die Presse*.  
<https://www.diepresse.com/3871898/betragensnote-aufwertung-oder-aus> (February 3, 2020).
- DIHK. 2012. *Ausbildung 2012: Ergebnisse Einer DIHK-Online-Unternehmensbefragung*. Berlin: Deutscher Industrie- und Handelskammertag (DIHK).  
[https://heilbronn.ihk.de/ximages/1429848\\_ergebnisse.pdf](https://heilbronn.ihk.de/ximages/1429848_ergebnisse.pdf) (February 3, 2020).
- DiMaggio, Paul J., and Walter W. Powell. 1983. “The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields.” *American Sociological Review* 48(2): 147–60.
- DiPrete, Thomas A., Thijs Bol, Christina Ciocca Eller, and Herman G. van de Werfhorst. 2017. “School-to-Work Linkages in the United States, Germany, and France.” *American Journal of Sociology* 122(6): 1869–1938.
- Dornmayr, Helmut, and Sabine Nowak. 2017. *Lebriingsausbildung Im Überblick: Strukturdaten, Trends Und Perspektiven*. Wien: Institut für Bildungsforschung der Wirtschaft (ibw). ibw-Forschungsbericht.
- Dougherty, Shaun M., and Allison R. Lombardi. 2016. “From Vocational Education to Career Readiness: The Ongoing Work of Linking Education and the Labor Market.” *Review of Research in Education* 40(1): 326–55.
- dpa. 2010. “Ausbildung: Vielen Schulabgängern Fehlt Die Reife.” *Die Zeit*.  
<https://www.zeit.de/gesellschaft/schule/2010-03/ausbildung-schule-qualifikation> (February 3, 2020).
- . 2012. “Schulzeugnisse: Wirtschaft fordert Rückkehr der Kopfnoten.” *Die Zeit*.  
<https://www.zeit.de/gesellschaft/schule/2012-05/schule-kopfnoten-wirtschaft> (January 20, 2020).
- Dronkers, Jaap, and Silvia Avram. 2015. “What Can International Comparisons Teach Us about School Choice and Non-Governmental Schools in Europe?” *Comparative Education* 51(1): 118–32.

- ECEF. 2002. "Submission to the House of Representatives Standing Committee on Education and Training Inquiry into Vocational Education in Schools."
- Echazarra, Alfonso, and Thomas Radinger. 2019. *Learning in Rural Schools: Insights from PISA, TALIS, and the Literature*. . OECD Working Paper.
- Education Council. 2014. "National Report on Schooling in Australia."  
<http://www.educationcouncil.edu.au/archive/Publications/Publications-archive/National-Report-on-Schooling-in-Australia.aspx>.
- Education Counts. 2018a. "Participation in Industry Training." *Ministry of Education, New Zealand Government*. <https://www.educationcounts.govt.nz/statistics/indicators/data/student-engagement-participation/3756> (January 24, 2020).
- . 2018b. "Tertiary Education: Participation." *Ministry of Education, New Zealand Government*. <https://www.educationcounts.govt.nz/statistics/tertiary-education/participation> (January 23, 2020).
- Education Forum. 2000. *What Teachers and Parents Should Know about the National Certificate of Educational Achievement (NCEA)*. Auckland, N.Z.: Education Forum.
- Elken, Mari. 2016. "Standardizing Education? The Development of the European Qualifications Framework and National Qualifications Frameworks."  
<https://www.duo.uio.no/handle/10852/50529> (November 14, 2018).
- Elley, Warwick B., and Ian D. Livingstone. 1972. *External Examinations and Internal Assessments: Alternative Plans for Reform*. Wellington: New Zealand Council for Educational Research.
- Elster, Jon. 2007. *Explaining Social Behavior: More Nuts and Bolts for the Social Sciences*. 1 edition. Cambridge ; New York: Cambridge University Press.
- Endres, Gerhard. 2017. "Die Berufsschulen Könnten Mehr Leisten, Wenn Sie Dürften." *DENK-doch-MAL*: 5.
- ERO. 2016. *Vocational Pathways: Authentic and Relevant Learning*. Wellington: Education Review Office.
- Ertl, Hubert. 2002. "The Concept of Modularisation in Vocational Education and Training: The Debate in Germany and Its Implications." *Oxford Review of Education* 28(1): 53–73.
- . 2006. "Educational Standards and the Changing Discourse on Education: The Reception and Consequences of the PISA Study in Germany." *Oxford Review of Education* 32(5): 619–34.
- ESFC. 1992. *The Australian Vocational Certificate Training System*. Canberra: Employment and Skills Formation Council, National Board of Employment, Education and Training.
- Espeland, Wendy Nelson, and Michael Sauder. 2007. "Rankings and Reactivity : How Public Measures Recreate Social Worlds." *American journal of sociology* 113(1): 1–40.

- . 2016. *Engines of Anxiety: Academic Rankings, Reputation, and Accountability*. Russell Sage Foundation. <http://www.jstor.org/stable/10.7758/9781610448567> (April 5, 2019).
- Espeland, Wendy Nelson, and Mitchell L. Stevens. 1998. “Commensuration as a Social Process.” *Annual Review of Sociology* 24(1): 313–43.
- . 2008. “A Sociology of Quantification.” *European Journal of Sociology* 49(3): 401–36.
- Espeland, Wendy, and Vincent Yung. 2019. “Ethical Dimensions of Quantification.” *Social Science Information* 58(2): 238–60.
- Esping-Andersen, Gosta. 1989. *The Three Worlds of Welfare Capitalism*. 1 edition. Cambridge, UK: Polity Press.
- Estevez-Abe, Margarita, Torben Iversen, and David Soskice. 2001. “Social Protection and the Formation of Skills: A Reinterpretation of the Welfare State.” In *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*, eds. Peter A. Hall and David Soskice. Oxford : New York: Oxford University Press. <http://www.oxfordscholarship.com/view/10.1093/0199247757.001.0001/acprof-9780199247752-chapter-4> (November 21, 2016).
- Fligstein, Neil, and Doug McAdam. 2015. *A Theory of Fields*. 1 edition. Oxford: Oxford University Press.
- Forrest, Ray, and Alan Murie. 1983. “Residualization and Council Housing: Aspects of the Changing Social Relations of Housing Tenure\*.” *Journal of Social Policy* 12(4): 453–68.
- Fries, Meike. 2008. “Zentralabitur: ‘Wir haben ein Gerechtigkeitsproblem.’” *Die Zeit*. <https://www.zeit.de/online/2008/15/interview-zentralabitur/komplettansicht> (January 17, 2020).
- Fullarton, Sue. 2001. *VET in Schools: Participation and Pathways*. Camberwell, Victoria, Australia: Australian Council for Educational Research. <https://www.lsay.edu.au/publications/search-for-lsay-publications/1870> (January 27, 2018).
- Gamoran, Adam. 1987. “The Stratification of High School Learning Opportunities.” *Sociology of Education* 60(3): 135–55.
- Garrizmann, Julian L. 2016. *The Political Economy of Higher Education Finance: The Politics of Tuition Fees and Subsidies in OECD Countries, 1945–2015*. Springer.
- Geddes, Barbara. 1990. “How the Cases You Choose Affect the Answers You Get: Selection Bias in Comparative Politics.” *Political Analysis* 2: 131–50.
- Gerdin, Jonas, and Hans Englund. 2019. “Contesting Commensuration.” *Accounting, Auditing & Accountability Journal*. <https://www.emerald.com/insight/content/doi/10.1108/AAAJ-09-2016-2717/full/html> (September 16, 2019).

- GEW. 1986. *Welche Bildung Für Beruf Und Studium? Integration von Beruflicher Und Allgemeiner Bildung in Der Sekundarstufe II*. Frankfurt: Gewerkschaft Erziehung und Wissenschaft (GEW) im DGB. GEW Script.
- Ginsburg, Alan L., Jay Noell, and Valena White Plisko. 1988. "Lessons From the Wall Chart." *Educational Evaluation and Policy Analysis* 10(1): 1–12.
- Glaser, Robert. 1963. "Instructional Technology and the Measurement of Learning Outcomes: Some Questions." *American Psychologist* 18(8): 519–21.
- . 1994. "Criterion-Referenced Tests: Part I. Origins." *Educational Measurement: Issues and Practice* 13(4): 9–11.
- Goertz, Gary. 2017. *Multimethod Research, Causal Mechanisms, and Case Studies: An Integrated Approach*. Princeton, New Jersey: Princeton University Press.
- Goertz, Gary, and James Mahoney. 2012. *A Tale of Two Cultures: Qualitative and Quantitative Research in the Social Sciences*. Princeton University Press.
- Goffman, Erving. 1963. *Stigma: Notes on the Management of Spoiled Identity*. New Jersey: Prentice-Hall: Englewood Cliffs.
- Goldin, Claudia, and Lawrence F. Katz. 2008. *The Race between Education and Technology*. Cambridge, Mass.: Belknap Press.
- Gordon, Howard R. D. 2014. *The History and Growth of Career and Technical Education in America: Fourth Edition*. 4th Edition. Waveland Press.
- Gordon, Lacey, and Ivan Snook. 1992. "Education, Skills and Technological Change: The Politics of the New Economy." *New Zealand Journal of Industrial Relations* 17: 85–94.
- Gordon, Liz. 1994. "Is School Choice a Sustainable Policy for New Zealand? A Review of Recent Research Findings and a Look to the Future." *The New Zealand Annual Review of Education* (4). <https://ojs.victoria.ac.nz/nzaroe/article/view/1085> (August 7, 2018).
- Gordon, Robert J. 2016. *The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War*. Princeton University Press.
- Graf, Lukas. 2013. *The Hybridization of Vocational Training and Higher Education in Austria, Germany, and Switzerland*. Budrich UniPress.
- Graf, Lukas, Lorenz Lassnigg, and Justin J. W. Powell. 2012. "Austrian Corporatism and Gradual Institutional Change in the Relationship between Apprenticeship Training and School-Based VET." In *The Political Economy of Collective Skill Systems*, eds. Marius Busemeyer and Christine Trampusch. Oxford University Press. <http://orbilu.uni.lu/handle/10993/5446> (December 6, 2017).

- Granato, Mona, Bettina Milde, and Joachim Gerd Ulrich. 2018. *Passungsprobleme auf dem Ausbildungsmarkt*. Düsseldorf: Ministerium für Kultur und Wissenschaft des Landes Nordrhein-Westfalen.
- Green, Andy, Moses Oketch, and John Preston. 2004. *Global Report on Technical and Vocational Education and Training*. London: Institute of Education. Report to UNESCO Institute of Statistics.
- Greenwood, Royston et al. 2011. "Institutional Complexity and Organizational Responses." *Academy of Management Annals* 5(1): 317–71.
- Griffin, Patrick, and Esther Care. 2015. *142 Assessment and Teaching of 21st Century Skills: Methods and Approach*. Dordrecht: Springer Netherlands.
- Grubb, W. Norton. 1996a. *Learning to Work: The Case for Reintegrating Job Training and Education*. Russell Sage Foundation. <http://muse.jhu.edu.ezp-prod1.hul.harvard.edu/book/38927> (October 10, 2017).
- . 1996b. "The New Vocationalism: What It Is, What It Could Be." *Phi Delta Kappan; Bloomington* 77(8): 535–46.
- Gruber, Karl Heinz. 1992. "Unlearned European Lesson: Why Austria Abandoned the Comprehensive Schools Experiments and Restored the Gymnasium." In *Lessons of Cross-National Comparison in Education*, ed. David Phillips. Symposium Books Ltd, 147–54.
- . 2016. "Zentralmatura: Die Unreifepfprüfung." *Die Zeit*. <https://www.zeit.de/2016/07/zentralmatura-oesterreich-abitur> (February 4, 2020).
- Guckloch. 1987. "Seminarprotokoll: AK Kollegstufe." *Guckloch: Zeitung des Schülerladen - Schülertreffpunkt e.V. Würzburg* 15: 7–9.
- Haberstroh, Charlotte M. 2016. "The Politics of Equal Opportunities in Education : Partisan Governments and School Choice Reform in Sweden, England, and France, 1980-2010." Thesis. <http://cadmus.eui.eu//handle/1814/41914> (October 12, 2017).
- Hall, Cedric. 1997. "The National Qualifications Framework Green Paper: What Future for the Framework?" *The New Zealand Annual Review of Education* (7). <https://ojs.victoria.ac.nz/nzaroe/article/view/1155> (August 7, 2018).
- Hall, Peter A. 2006. "Systematic Process Analysis: When and How to Use It." *European Management Review* 3(1): 24–31.
- . 2009. "Historical Institutionalism in Rationalist and Sociological Perspective." In *Explaining Institutional Change: Ambiguity, Agency, and Power*, eds. James Mahoney and Kathleen Thelen. Cambridge: Cambridge University Press, 204–23.
- Hall, Peter A. 2015. "Varieties of Capitalism." In *Emerging Trends in the Social and Behavioral Sciences*, John Wiley & Sons, Inc. <http://onlinelibrary.wiley.com.ezp-prod1.hul.harvard.edu/doi/10.1002/9781118900772.etrds0377/abstract>.

- Hall, Peter A., and David Soskice, eds. 2001. *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. 1 edition. Oxford England ; New York: Oxford University Press. <http://www.oxfordscholarship.com.ezp-prod1.hul.harvard.edu/view/10.1093/0199247757.001.0001/acprof-9780199247752>.
- Halpern, Samuel. 1998. *The Forgotten Half Revisited: American Youth and Young Families, 1988-2008*. Washington: American Youth Policy Forum. <http://www.aypf.org/resources/the-forgotten-half-revisited-american-youth-and-young-families-1988-2008/>.
- Hanisch, Frederike. 2012. "Ist das Berufskolleg eine Alternative zum Gymnasium?" <https://www.waz.de/mediacampus/fuer-schueler/zeus-regional/duesseldorf/ist-das-berufskolleg-eine-alternative-zum-gymnasium-id7248450.html> (July 19, 2019).
- Harrington, Sandra. 2007. "The Australian Journal of Vocational Education and Training in Schools Volume 6, 2006–2007." 6: 120.
- Harrity, Eileen P. 2013. *Vocational Pathways: Using Industry Partnerships and Personalised Learning to Improve Student Outcomes*. Fulbright New Zealand.
- Harsch, Claudia, Hans Anand Pant, and Olaf Köller. 2010. *Calibrating Standards-Based Assessment Tasks for English as a First Foreign Language. Standard-Setting Procedures in Germany*. Waxmann Verlag.
- Hartong, Sigrid. 2012. *Basiskompetenzen statt Bildung?: Wie PISA die deutschen Schulen verändert hat*. 1st ed. Frankfurt am Main ; New York: Campus Verlag.
- Harvey, Andrew, Andrew Norton, Gabrielle Matters, and Tim Pitman. "Should We Scrap the ATAR? What Are the Alternative Options? Experts Comment." *The Conversation*. <http://theconversation.com/should-we-scrap-the-atar-what-are-the-alternative-options-experts-comment-55501> (September 5, 2017).
- Hauße, Judith. 2019. "Im Osten Nichts Neues: HWK Entdeckt Lehre Mit Abitur Wieder." *WochenENDspiegel*. <https://www.wochenendspiegel.de/im-osten-nichts-neues-hwk-entdeckt-lehre-mit-abitur-wieder/> (July 16, 2019).
- Hawke, Gary. 1988. *Report of the Working Group on Postcompulsory Education and Training in New Zealand*. Cabinet Social Equity Committee. <https://www.voced.edu.au/content/ngv:11290> (December 20, 2018).
- . 2002. *Education Reform: The New Zealand Experience*. Wellington, New Zealand: New Zealand Institute of Economic Research. NZ Trade Consortium working paper.
- . 2008. "New Zealand Future Maker or Future Taker: Aligning Education with Our Contemporary Society and Economy." Presented at the IPS Lecture Series, Wellington, New Zealand.
- Heckman, James J., and Alan B. Krueger. 2005. *Inequality in America: What Role for Human Capital Policies?* Revised ed. edition. ed. Benjamin M. Friedman. Cambridge, Mass.; London: The MIT Press.

- Heger, Hans. 1978. *Bericht Der Bundesregierung Über Die Strukturellen Probleme Des Föderativen Bildungssystems*. Bonn. Unterrichtung durch die Bundesregierung.
- Helbig, Marcel, and Rita Nikolai. 2015. *Die Unvergleichbaren. Der Wandel der Schulsysteme in den deutschen Bundesländern seit 1949*. Bad Heilbrunn: Klinkhardt.
- . 2017. “Ansturm auf „gute“ Schulen? Die Auswirkungen der Veröffentlichung von Abiturnoten auf die Zusammensetzung von Schülerinnen und Schülern an Berliner Schulen.” *Zeitschrift für Bildungsforschung* 7(2): 115–30.
- Hentig, Hartmut von. 1983. “Zum Tod von Herwig Blankertz: Unabhängig und engagiert.” *Die Zeit*. <https://www.zeit.de/1983/37/unabhaengig-und-engagiert/komplettansicht> (July 19, 2019).
- Hernandez, Joel. 2019. *Tomorrow's Schools: Data and Evidence*. New Zealand Initiative.
- Herndler, Daniel. 2019. “Lehrer Gehalt - Volksschule, Hauptschule & AHS | Österreich.” *Finanz.at*. <https://www.finanz.at/gehalt/lehrer/> (December 13, 2019).
- Heute. 2018. “Schüler klagt gegen Noten – und bekommt recht - News.” *Heute.at*. <https://www.heute.at/s/schuler-klagt-gegen-noten-und-bekommt-recht-44252976> (February 3, 2020).
- Himmelrath, Armin. 2018. “Grundschule Oder Gymnasium? Hauptsache Lehrer [Primary School or High School? Most Important Thing: Teacher].” *Spiegel Online*. <https://www.spiegel.de/lebenundlernen/schule/lehrermangel-einheitslehrer-vorschlag-sorgt-fuer-debatten-a-1222592.html> (December 13, 2019).
- Hipkins, Rosemary, Michael Johnston, and Mark Sheehan. 2016. *NCEA in Context*. NZCER Press.
- Hipkins, Rosemary, and Karen Vaughan. 2002. *Learning Curves: Meeting Student Needs in an Evolving Qualifications Regime: From Cabbages to Kings: A First Report | New Zealand Council for Educational Research*. Wellington, New Zealand: NZCER. <http://www.nzcer.org.nz/research/publications/learning-curves-meeting-student-needs-evolving-qualifications-regime-cabbages-> (December 12, 2017).
- Hirschman, Albert O. 1970. *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States*. Cambridge, Mass: Harvard University Press.
- Hofman, R. H., W. H. A. Hofman, and J. M. Gray. 2008. “Comparing Key Dimensions of Schooling: Towards a Typology of European School Systems.” *Comparative Education* 44(1): 93–110.
- Holcombe, Rebecca, Jennifer L. Jennings, and Daniel Koretz. 2013. “The Roots of Score Inflation: An Examination of Opportunities in Two States’ Tests.” <https://dash.harvard.edu/handle/1/10880587> (November 9, 2016).
- Höllinger, Sigurd. 2013. “Vernunft Allein Genügt Nicht. Die Durchsetzung Des Innovativen Konzepts Der Fachhochschule.” In *20 Jahre Fachhochschul-Recht*, NWV Verlag, 45–50.



[http://www.nwv.at/recht/verwaltungsrecht/1036\\_20\\_jahre\\_fachhochschul-recht/](http://www.nwv.at/recht/verwaltungsrecht/1036_20_jahre_fachhochschul-recht/)  
(December 14, 2018).

Hölterhoff, Dieter. 2013. “Berufsbildende Schulen in den ostdeutschen Ländern am Neuanfang : eine Untersuchung zum Transformationsprozess am Beispiel der Oberstufenzentren im Land Brandenburg in den 1990er Jahren.” Universität Potsdam.

Horn, Klaus-Peter, Heidemarie Kemnitz, Winfried Marotzki, and Uwe Sandfuchs. 2011. *Klinkhardt Lexikon Erziehungswissenschaft (KLE)*. UTB.

HTL Mödling. 2019. “HTL Mödling: Die Schule Mit Dem Umfassenden Bildungsangebot.”  
<https://htl.moedling.at/home/>.

Hundt, Dr Dieter, Mechthild Löhr, and Unternehmensberatung Löhr. 2002. *Standortfaktor Schule: Begabung fördern, Lernen differenzieren*. Berlin: Bundesvereinigung der Deutschen Arbeitgeberverbände. Stimmen aus der Wirtschaft.

Iannelli, Cristina, and David Raffae. 2007. “Vocational Upper-Secondary Education and the Transition from School.” *European Sociological Review* 23(1): 49–63.

INSM. 2018. *INSM-Bildungsmonitor 2018: NRW Liegt Auf Rang 15 Und Erreicht Durchschnittliche Bewertung Im Bereich Digitalisierung*. Köln: Initiative Neue Soziale Marktwirtschaft. Pressemitteilung.

ISCA. 2017. *Independent Review into Regional, Rural and Remote Education Submission by the Independent Schools Council of Australia (ISCA)*.

IT.NRW. 2019. “Schulabgänge von Allgemeinbildenden Und Beruflichen Schulen 2018 Nach Abgangsarten.” *LANDESBETRIEB IT.NRW STATISTIK UND IT-DIENSTLEISTUNGEN*. <https://www.it.nrw/statistik/eckdaten/schulabgaenge-von-allgemeinbildenden-und-beruflichen-schulen-2018-nach>.

Iversen, Torben, and David Soskice. 2001. “An Asset Theory of Social Policy Preferences.” *The American Political Science Review* 95(4): 875–93.

———. 2019. *Democracy and Prosperity: The Reinvention of Capitalism in a Turbulent Century*. Princeton, NJ: Princeton University Press.

Jackson, C. Kirabo, Diether W. Beuermann, Laia Navarro-Sola, and Francisco Pardo. 2019. “What Is a Good School, and Can Parents Tell? Evidence on the Multidimensionality of School Output.” *Working Paper*. [https://works.bepress.com/c\\_kirabo\\_jackson/39/](https://works.bepress.com/c_kirabo_jackson/39/) (October 24, 2019).

Jacob, Brian A. 2017. “What We Know about Career and Technical Education in High School.” *Brookings*. <https://www.brookings.edu/research/what-we-know-about-career-and-technical-education-in-high-school/> (January 16, 2018).

- Jacob, Marita, and Heike Solga. 2015. "Germany's Vocational Education and Training System in Transformation: Changes in the Participation of Low- and High-Achieving Youth Over Time." *European Sociological Review* 31(2): 161–71.
- Jæger, Mads Meier, and Richard Breen. 2016. "A Dynamic Model of Cultural Reproduction." *American Journal of Sociology* 121(4): 1079–1115.
- Jennings, Jennifer, and Jonathan Marc Bearak. 2014. "'Teaching to the Test' in the NCLB Era How Test Predictability Affects Our Understanding of Student Performance." *Educational Researcher* 43(8): 381–89.
- Kahl, Reinhard. 2003. "bildung: 'Den Schulen Freiheit geben.'" *Die Zeit*. <https://www.zeit.de/2003/41/C-Handwerk/komplettansicht> (January 16, 2020).
- . 2007. "Schule: Sieg des taktischen Lernens." *Die Zeit*. <https://www.zeit.de/online/2007/43/zentralabitur-bildungskolumne> (January 17, 2020).
- Karpik, Lucien. 2010. *Valuing the Unique: The Economics of Singularities*. Princeton: Princeton University Press.
- Keating, Jack. 2003. "Qualifications Frameworks in Australia." *Journal of Education and Work* 16(3): 271–88.
- Kelly, David. 2014. "An Analysis of Earlier Reports into Senior Assessment and Tertiary Entrance Procedures in Queensland." *Queensland Review of Senior Assessment and Tertiary Entrance*. [https://research.acer.edu.au/qld\\_review/4](https://research.acer.edu.au/qld_review/4).
- Kelly, Sean, and Heather Price. 2011. "The Correlates of Tracking Policy Opportunity Hoarding, Status Competition, or a Technical-Functional Explanation?" *American Educational Research Journal* 48(3): 560–85.
- Kerckhoff, Alan C., and Elizabeth Glennie. 1999. 12 *The Matthew Effect in American Education*. [https://www.researchgate.net/publication/257936416\\_The\\_Matthew\\_Effect\\_in\\_American\\_Education](https://www.researchgate.net/publication/257936416_The_Matthew_Effect_in_American_Education) (December 21, 2016).
- Kerstan. 2005. "pisa-ländervergleich: 'Zu viele steigen ab.'" *Die Zeit*. <https://www.zeit.de/2005/29/C-Schneider/komplettansicht> (July 12, 2019).
- Kerstan, Thomas. 2011. "Bildung 2011: Sturm auf die Unis." *Die Zeit*. <https://www.zeit.de/2011/02/C-Ausblick-2011> (January 17, 2020).
- Kerstan, Thomas, and Martin Spiewak. 2010. "Zehn Jahre Pisa: Der Reformcheck." *Die Zeit*. <https://www.zeit.de/2010/49/C-Pisa-Bewertungen> (January 17, 2020).
- Kerstan, Von Thomas. 2008. "Bildungstests: Kultusminister geben Hauptschüler auf." *Die Zeit*. <https://www.zeit.de/online/2008/47/bildungstests-hauptschueler> (January 16, 2020).
- . 2010. "Bildungsstandards: Zweieinhalb Busse." *Die Zeit*. <https://www.zeit.de/2010/26/C-Bildungsstandards> (January 16, 2020).

- Klemm, Klaus, Lars Hoffmann, Kai Maaz, and Petra Stanat. 2018. *Privatschulen in Deutschland: Trends und Leistungsvergleiche*. 1. Auflage. Berlin: Friedrich Ebert Stiftung.
- KMK. 1975. *Bezeichnungen Zur Gliederung Des Beruflichen Schulwesens*.  
[https://www.kmk.org/fileadmin/veroeffentlichungen\\_beschluesse/1975/1975\\_12\\_08-Bezeichnungen-Gliederung-berufl-Schulwesens.pdf](https://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/1975/1975_12_08-Bezeichnungen-Gliederung-berufl-Schulwesens.pdf) (July 11, 2019).
- Knight, Brian. 2012. *Evolution of Apprenticeships and Traineeships in Australia: An Unfinished History. Occasional Paper*. National Centre for Vocational Education Research Ltd.  
<https://eric.ed.gov/?id=ED529636> (August 14, 2018).
- Knüpfner, Uwe. 1986. "NRW-Kollegschule: Tauziehen ohne Ende." *Die Zeit*.  
<https://www.zeit.de/1986/02/tauziehen-ohne-ende/komplettansicht> (July 19, 2019).
- Kohlrausch, Bettina, and Heike Solga. 2012. "Übergänge in die Ausbildung: Welche Rolle spielt die Ausbildungsreife?" *Zeitschrift für Erziehungswissenschaft* 15(4): 753–73.
- Köppe, Julia. 2017. "Ungleiche Bezahlung: Aufstand Der Grundschullehrer." *Spiegel Online*.  
<https://www.spiegel.de/lebenundlernen/schule/gehalt-fuer-lehrer-grundschullehrer-fordern-besoldungsstufe-a13-a-1180960.html> (December 13, 2019).
- Koretz, Daniel. 2008. *Measuring Up: What Educational Testing Really Tells Us*. Cambridge, MA: Harvard University Press.
- . 2015. "Adapting Educational Measurement to the Demands of Test-Based Accountability." *Measurement: Interdisciplinary Research and Perspectives* 13(1): 1–25.
- . 2017. *The Testing Charade: Pretending to Make Schools Better*. Chicago ; London: University of Chicago Press.
- Kremmel, Michael. 2010. "Arbeiten an der Qualität." *DER STANDARD*.  
<https://www.derstandard.at/story/1267743774387/arbeiten-an-der-qualitaet> (January 16, 2020).
- Kummetz, Daniel. 2010. "Schulsystem: Die Angst vor 'Restschulen' geht um." *Die Tageszeitung: taz*.  
<http://www.taz.de/!5133399/> (April 13, 2018).
- Lamb, Stephen. 2011. "Pathways to School Completion: An International Comparison." In *School Dropout and Completion*, Springer, Dordrecht, 21–73.  
[https://link.springer.com/chapter/10.1007/978-90-481-9763-7\\_2](https://link.springer.com/chapter/10.1007/978-90-481-9763-7_2) (October 9, 2017).
- , eds. 2011. *School Dropout and Completion*. Dordrecht: Springer Netherlands.  
<http://link.springer.com/10.1007/978-90-481-9763-7>.
- Lamb, Stephen, and Katrina Ball. 1999. *Curriculum and Careers: The Education and Labour Market Consequences of Year 12 Subject Choice*. Camberwell, Vic.: ACER, Australian Council for Educational Research.

- Lamont, Michèle, Stefan Beljean, and Matthew Clair. 2014. "What Is Missing? Cultural Processes and Causal Pathways to Inequality." *Socio-Economic Review* 12(3): 573–608.
- Lamont, Michèle, and Paul Pierson. 2019. "Inequality Generation & Persistence as Multidimensional Processes: An Interdisciplinary Agenda." *Daedalus* 148(3): 5–18.
- Landri, Paolo. 2016. "Standards and Standardisation in European Politics of Education." In *A European Politics of Education: Perspectives from Sociology, Policy Studies and Politics*, eds. Romuald Normand and Jean-Louis Derouet. Routledge, 13–30.
- Landtag Nordrhein-Westfalen. 1997. *Plenarprotokoll 12/72*.
- Lassnigg, Lorenz. 2009. "Evidencell about Outcome Orientation - Austria in a Comparative Perspective." Presented at the Lecture at VETNET-Forum: —Outcome orientation – where is the evidence?ll, Vienna. <http://www.equi.at/dateien/ECER09-VIE-proceedings2.pdf> (February 13, 2018).
- Lassnigg, Lorenz, Julia Bock-Schappelwein, and Eduard Stöger. 2018. "Berufsbildung in Österreich. Strukturanalysen, Formalqualifikationen Und Grundkompetenzen." <http://www.equi.at/dateien/PoschFS-BB.pdf> (August 1, 2018).
- Lehky, Andrea. 2018. "Nicht Was Man Sagt – Wie Man Es Sagt." *Die Presse*. <https://diepresse.com/home/karriere/karrierenews/5523089/Nicht-was-man-sagt-wie-man-es-sagt> (July 30, 2019).
- Lennox, Bill. 1995. "School Assessment For the National Qualifications Framework."
- Levels, Mark, Rolf van der Velden, and Valentina Di Stasio. 2014. "From School to Fitting Work How Education-to-Job Matching of European School Leavers Is Related to Educational System Characteristics." *Acta Sociologica* 57(4): 341–61.
- Lindberg, Matti, and Heikki Silvennoinen. 2018. "Assessing the Basic Skills of the Highly Educated in 21 OECD Countries: An International Benchmark Study of Graduates' Proficiency in Literacy and Numeracy Using the PIAAC 2012 Data." *Comparative Education* 54(3): 325–51.
- Lingard, Bob, Wayne Martino, and Goli Rezai-Rashti. 2013. "Testing Regimes, Accountabilities and Education Policy: Commensurate Global and National Developments." *Journal of Education Policy* 28(5): 539–56.
- Lingard, Bob, Wayne Martino, Goli Rezai-Rashti, and Sam Sellar. 2016. *Globalizing Educational Accountabilities*. Reprint edition. New York ; London: Routledge.
- Lingard, Bob, and Sam Sellar. 2013. "'Catalyst Data': Perverse Systemic Effects of Audit and Accountability in Australian Schooling." *Journal of Education Policy* 28(5): 634–56.
- Linn, Robert L. 2009. "Considerations for College Admissions Testing." *Educational Researcher* 38(9): 677–79.

- Locke, Terry. 1997. "An Essay on Assessment: The English Casebook." *Waikato Journal of Education* 3.
- Locke, Terry, and Cedric Hall. 1998. "The 1998 Year 12 English Study Design Trial: A Standards-Based Alternative to Unit Standards." *The New Zealand Annual Review of Education* (8). <https://ojs.victoria.ac.nz/nzaroe/article/view/1374> (August 7, 2018).
- LSAY. 2016. "Data." <https://www.lsay.edu.au/data> (January 27, 2020).
- Lubienski, Christopher. 2003. "Innovation in Education Markets: Theory and Evidence on the Impact of Competition and Choice in Charter Schools." *American Educational Research Journal* 40(2): 395–443.
- Lucas, Bill, Guy Claxton, and Ellen Spencer. 2013. *Progression in Student Creativity in School*. Paris: Organisation for Economic Co-operation and Development. OECD Education Working Papers. <http://www.oecd-ilibrary.org/content/workingpaper/5k4dp59msdwk-en> (February 1, 2015).
- Lucas, Samuel R. 2017. "An Archaeology of Effectively Maintained Inequality Theory." *American Behavioral Scientist* 61(1): 8–29.
- Lucas, Samuel R. 2001. "Effectively Maintained Inequality: Education Transitions, Track Mobility, and Social Background Effects." *American Journal of Sociology* 106(6): 1642–90.
- Mahoney, James. 2003. "Strategies of Causal Assessment in Comparative Historical Analysis." In *Comparative Historical Analysis in the Social Sciences*, eds. James Mahoney and Dietrich Rueschemeyer. Cambridge University Press, 337–72. [https://www.cambridge.org/core/product/identifier/CBO9780511803963A021/type/book\\_part](https://www.cambridge.org/core/product/identifier/CBO9780511803963A021/type/book_part) (January 25, 2020).
- Mahoney, James, and Kathleen Thelen, eds. 2009. *Explaining Institutional Change: Ambiguity, Agency, and Power*. Cambridge: Cambridge University Press.
- , eds. 2015. *Advances in Comparative-Historical Analysis*. Cambridge University Press.
- Marginson, Simon. 2016. "The Worldwide Trend to High Participation Higher Education: Dynamics of Social Stratification in Inclusive Systems." *Higher Education* 72(4): 413–34.
- Marsden, David. 1990. "Institutions and Labour Mobility: Occupational and Internal Labour Markets in Britain, France, Italy and West Germany." In *Labour Relations and Economic Performance*, International Economic Association Series, Palgrave Macmillan, London, 414–38. [https://link.springer.com/chapter/10.1007/978-1-349-11562-4\\_17](https://link.springer.com/chapter/10.1007/978-1-349-11562-4_17) (January 16, 2018).
- . 2007. "Labour Market Segmentation in Britain: The Decline of Occupational Labour Markets and the Spread of 'entry Tournaments'." *Économies et Sociétés* 28: 965–98.
- . 2015. "The Future of the German Industrial Relations Model." *Journal for Labour Market Research* 48(2): 169–87.

- Masters, Geoff, ed. 2015. "Learning Assessments Designing the Future: ACER Research Conference Proceedings." In Melbourne. <https://www.acer.org/files/Research-Conference-Proceedings-2015.pdf> (July 31, 2017).
- Mayer, Susan E., and Paul E. Peterson. 2010. *Earning and Learning: How Schools Matter*. Brookings Institution Press.
- McQueen, Edited by Harvey. 1994. *Education Is Change: Twenty Viewpoints*. Wellington, N.Z: Bridget Williams.
- MDR. 2019. "Nach Kopfnote-Urteil: Kultusministerium Will Berufung Einlegen | MDR.DE." <https://www.mdr.de/sachsen/kopfnote-zeugnisse-sachsen-rechtswidrig-100.html> (January 20, 2020).
- Mehta, Jal. 2013. *The Allure of Order: High Hopes, Dashed Expectations, and the Troubled Quest to Remake American Schooling*. 1 edition. New York: Oxford University Press.
- Mehta, Jal, and Amelia Peterson. 2019. "International Learning Communities: What Happens When Leaders Seek to Learn across National Boundaries?" *Journal of Educational Change* 20(3): 327–50.
- Mennicken, Andrea, and Wendy Nelson Espeland. 2019. "What's New with Numbers? Sociological Approaches to the Study of Quantification." *Annual Review of Sociology* 45(1): 223–45.
- Miller, M. David, and Anne E. Seraphine. 1993. "Can Test Scores Remain Authentic When Teaching to the Test?" *Educational Assessment* 1(2): 119–29.
- Milligan, Dr Sandra. *Beyond ATAR: A Proposal for Change*. Australian Learning Lecture.
- Misko, Josie, Patrick Korbel, and Davinia Blomberg. 2017. *VET in Schools Students: Characteristics and Post-School Employment and Training Experiences*. Adelaide: National Centre for Vocational Education Research. NCVET Research Report.
- Moe, Terry M., and Susanne Wiborg. 2016. *The Comparative Politics of Education: Teacher Unions and Education Systems around the World*. Cambridge ; New York: Cambridge University Press. <http://www.cambridge.org/us/academic/subjects/politics-international-relations/comparative-politics/comparative-politics-education-teachers-unions-and-education-systems-around-world?format=PB> (July 22, 2016).
- Morse, Robert, and Eric Brooks. 2019. "How U.S. News Calculated the 2019 Best High Schools Rankings." *US News & World Report*. <https://www.usnews.com/education/best-high-schools/articles/how-us-news-calculated-the-rankings> (January 24, 2020).
- New Zealand Initiative. 2013. *NZ's 'PISA Shock' a Signal for Change*. Scoop Education. Press Release. <https://www.scoop.co.nz/stories/ED1312/S00026/nz-s-pisa-shock-a-signal-for-change.htm> (January 20, 2020).

- Nimmervoll, Lisa. 2010. "Ich bleibe unverrückbar auf meinem Kurs." *Der Standard*.  
<https://www.derstandard.at/story/1282979122709/schmied-interview-ich-bleibe-unverrueckbar-auf-meinem-kurs> (January 17, 2020).
- . 2016. "Reifeprüfung eines unreifen Systems." *DER STANDARD*.  
<https://www.derstandard.at/story/2000030195554/reifepruefung-eines-unreifen-systems>  
 (January 29, 2020).
- Noreisch, Kathleen. 2007. "School Catchment Area Evasion: The Case of Berlin, Germany." *Journal of Education Policy* 22(1): 69–90.
- NR/2. 1971. (Nationalrates der Republik Österreich) *Stenographisches Protokoll: Nationalrat XIII. 2.*
- NR/44. 1971. (Nationalrates der Republik Österreich) *Stenographisches Protokoll: Nationalrat XII. 44.*
- NR/109. 1962. (Nationalrates der Republik Österreich) *Stenographisches Protokoll: Nationalrat IX. 109.*
- NR/117. 1993. (Nationalrates der Republik Österreich) *Stenographisches Protokoll: Nationalrat XVIII. 117.*
- NR/144. 1975. (Nationalrates der Republik Österreich) *Stenographisches Protokoll: Nationalrat XIII. 144.*
- NSW DSE. 1997. *Department of School Education Annual Report 1996*. Sydney: NSW Executive Services Directorate. <https://www.opengov.nsw.gov.au/publications/10710> (August 13, 2018).
- Oakes, Jeannie. 2005. *Keeping Track: How Schools Structure Inequality, Second Edition*. 2nd Revised ed. edition. New Haven, Conn.; London: Yale University Press.
- OECD. 2000. *Education at a Glance 2000 OECD Indicators: OECD Indicators*. OECD Publishing.
- . 2006. "Between- and within-School Variation in the Mathematics Performance of 15-Year-Olds." In *Education at a Glance 2006*, OECD, 74–80. [https://www.oecd-ilibrary.org/education/education-at-a-glance-2006/between-and-within-school-variation-in-the-mathematics-performance-of-15-year-olds\\_eag-2006-6-en](https://www.oecd-ilibrary.org/education/education-at-a-glance-2006/between-and-within-school-variation-in-the-mathematics-performance-of-15-year-olds_eag-2006-6-en) (February 1, 2020).
- . 2017. *Education at a Glance 2017*. OECD Publishing. [http://www.oecd-ilibrary.org/education/education-at-a-glance-2017\\_eag-2017-en](http://www.oecd-ilibrary.org/education/education-at-a-glance-2017_eag-2017-en) (October 3, 2017).
- . 2019a. *PISA 2018 Results Volume I: What Students Know and Can Do*. Paris: OECD Publishing. <https://www.oecd-ilibrary.org/docserver/5f07c754-en.pdf?expires=1576159668&id=id&accname=guest&checksum=4A15E7AD16E1E19B353CA8665AE93C97> (December 12, 2019).
- . 2019b. *PISA 2018 Results Volume II: Where All Students Can Succeed*. OECD. <https://www.oecd-ilibrary.org/docserver/b5fd1b8f-en.pdf?expires=1576158959&id=id&accname=guest&checksum=F023723B8808EB9D4D68F3D4B4C4BB66> (December 12, 2019).

- Ohrnberger, Elfriede, and Thomas Schäfer. 2005. *Qualitätssicherung an Bayerns Schulen: Dokumentation Zum Fachkongress Am 25. / 26. November 2005 in Eichstätt*. München: Bayerisches Staatsministerium für Unterricht und Kultus.
- Olson, Lynn. 2019. *The New Testing Landscape*. Georgetown University: FutureEd.
- Openshaw, Roger. 2009. *Reforming New Zealand Secondary Education the Picot Report and the Road to Radical Reform*. 1st ed. New York: Palgrave Macmillan.
- Pahl, Jörg-Peter. 2014. *Berufsbildende Schule: Bestandsaufnahme und Perspektiven*. wbv.
- Parliament, Forty-seventh, and Hon Brian Donnelly. 2003. *Inquiry into Decile Funding in New Zealand State and Integrated Schools*.
- Parliament, New Zealand. 1986. *Parliamentary Debates. House of Representatives*.
- . 2000. (House of Representatives) *Parliamentary Debates*.
- Pausits, Attila. 2017. “Reform of the Fachhochschulen in Austria.” In *Policy Analysis of Structural Reforms in Higher Education: Processes and Outcomes*, Palgrave Studies in Global Higher Education, eds. Harry de Boer et al. Cham: Springer International Publishing, 31–51. [https://doi.org/10.1007/978-3-319-42237-4\\_2](https://doi.org/10.1007/978-3-319-42237-4_2) (December 10, 2018).
- Pechar, Hans. 2004. “Should Austria Establish a Non-University Sector? 1969–1990.” In *The “Accreditation Model”: Policy Transfer in Higher Education in Austria and Britain*, Oxford: Symposium Books, 37–51.
- Perry, Laura, and Stephen Lamb. 2017. “Curricular Differentiation and Stratification in Australia.” *ORBIS SCHOLAE* 2016: 1–21.
- Pierson, Paul. 1993. “When Effect Becomes Cause: Policy Feedback and Political Change.” *World Politics* 45(4): 595–628.
- . 2004. *Politics in Time: History, Institutions, and Social Analysis*. First Edition edition. Princeton: Princeton University Press.
- Pilcher, Sarah, and Kate Torii. 2018. *Crunching the Number Exploring the Use and Usefulness of the Australian Tertiary Admission Rank (ATAR)*. Mitchell Institute. Mitchell Paper. [http://www.mitchellinstitute.org.au/wp-content/uploads/2018/03/Crunching-the-number\\_Exploring-the-use-and-usefulness-of-the-ATAR.pdf](http://www.mitchellinstitute.org.au/wp-content/uploads/2018/03/Crunching-the-number_Exploring-the-use-and-usefulness-of-the-ATAR.pdf) (March 21, 2018).
- Pilz, Matthias. 2012. *The Future of Vocational Education and Training in a Changing*. VS Verlag für Sozialwissenschaften, Wiesbaden. <http://www.springer.com.ezp-prod1.hul.harvard.edu/gb/book/9783531185279> (July 19, 2017).
- Piopiunik, Marc, Guido Schwerdt, Lisa Simon, and Ludger Woessmann. 2018. *Skills, Signals, and Employability: An Experimental Investigation*. CRC TRR 190 Rationality and Competition.



- Piopiunik, Marc, Guido Schwerdt, and Ludger Woessmann. 2013. "Central School Exit Exams and Labor-Market Outcomes." *European Journal of Political Economy* 31: 93–108.
- Polesel, John. 2008. "Democratising the Curriculum or Training the Children of the Poor: School-based Vocational Training in Australia." *Journal of Education Policy* 23(6): 615–32.
- . 2017. "Pre-Employment Skill Formation in Australia and Germany." In *The Oxford Handbook of Skills and Training*, eds. John Buchanan, David Finegold, Ken Mayhew, and Chris Warhurst. Oxford University Press, 161–79. <http://ezproxy-prd.bodleian.ox.ac.uk:2067/view/10.1093/oxfordhb/9780199655366.001.0001/oxfordhb-9780199655366-e-8> (January 16, 2018).
- PPTA Waikato Region. 2013. "A Hierarchy of Inequality – The Decile Divide." In Wellington, New Zealand: NZPPTA, 17.
- Preston, Barbara. 2013. *The Social Make-up of Schools*. Canberra: Barbara Preston Research. Report prepared for the Australian Education Union.
- . 2018. *The Social Make-up of Schools: Family Income, Indigenous Status, Family Type, Religion, Languages Spoken, Disability, Home Internet Access, Housing Tenure, and Geographic Mobility of Students in Public, Catholic and Independent Schools*. O'Connor ACT: Barbara Preston Research. A report prepared for the Australian Education Union.
- Protsch, Paula, and Heike Solga. 2016. "The Social Stratification of the German VET System." *Journal of Education and Work* 29(6): 637–61.
- Rabe, Ties. 2016. "Abiturienten: Es werden immer mehr!" *Die Zeit*. <https://www.zeit.de/2016/51/abiturienten-anzahl-anstieg-studenten-bedeutung-bildungspolitik-hamburg> (January 17, 2020).
- Radford, William Cropley. 1970. *Public Examinations for Queensland Secondary School Students: Report (Radford Report)*. Committee Appointed to Review the System of Public Examinations for Queensland Secondary School Students and to Make Recommendations for the Assessment of Students' Achievements. Report. <http://minerva-access.unimelb.edu.au/handle/11343/191171> (July 29, 2019).
- Raffe, David. 2003. "Pathways Linking Education and Work: A Review of Concepts, Research, and Policy Debates." *Journal of Youth Studies* 6(1): 3–19.
- . 2008. "The Concept of Transition System." *Journal of Education and Work* 21(4): 277–96.
- . 2014. "Explaining National Differences in Education-Work Transitions." *European Societies* 16(2): 175–93.
- Ray, John. 2001. *Apprenticeship in Australia: An Historical Snapshot*. Leabrook, S. Aust.: NCVET.
- Rechnungshof. 2013. *Modellversuche Neue Mittelschule*. Vienna: Court of Audit Austria. Bericht des Rechnungshofes.

- Reeves, Richard V. 2017. *Dream Hoarders: How the American Upper Middle Class Is Leaving Everyone Else in the Dust, Why That Is a Problem, and What to Do about It*. Brookings Institution Press. <https://muse-jhu-edu.ezp-prod1.hul.harvard.edu/book/51694> (June 5, 2017).
- Reiss, Kristina et al. 2019. *PISA 2018 Grundbildung im internationalen Vergleich*.
- Reiter, Anja. 2016. "Abitur: Eins Komma nix." *Die Zeit*. <https://www.zeit.de/2016/19/abitur-bestnoten-pruefungen-schnitt-leistung> (January 16, 2020).
- Ridderbusch, Jens. 2019. *Deutschland auf dem Weg zum zweigliedrigen Schulsystem: Transfer- und Lernprozesse in der Bildungspolitik*. Springer-Verlag.
- Roberts, Peter. 1998. "The Politics of Curriculum Reform in New Zealand." *Curriculum Studies* 6(1): 29–46.
- Rosenbaum, James E. 2001. *Beyond College For All: Career Paths for the Forgotten Half*. Russell Sage Foundation. <http://muse.jhu.edu.ezp-prod1.hul.harvard.edu/book/10897> (February 27, 2017).
- Rosenbaum, James E., Caitlin E. Ahearn, Kelly I. Becker, and Janet E. Rosenbaum. 2015. *The New Forgotten Half and Research Directions to Support Them*. W. T. Grant Foundation. <http://wtgrantfoundation.org/resource/the-new-forgotten-half-and-research-directions-to-support-them> (June 7, 2017).
- Ross, J. A. 1985. *First Report of the Committee of Inquiry into Curriculum, Assessment and Qualifications in Forms 5 to 7: Implications of the Removal of the University Entrance Examination from Form 6*. ed. Ministerial Reviews Curriculum and Assessment. Wellington, N.Z.: Dept. of Education.
- . 1986. *Learning and Achieving: Second Report of the Committee of Inquiry into Curriculum, Assessment, and Qualifications in Forms 5 to 7*. Wellington [N.Z.]: Dept of Education.
- Ryan, Paul. 2001. "The School-to-Work Transition: A Cross-National Perspective." *Journal of Economic Literature* 39(1): 34–92.
- Sadigh, Parvin. 2007. "Schule: Einheitspauken." *Die Zeit*. <https://www.zeit.de/online/2007/33/zentralabitur/komplettansicht> (January 16, 2020).
- Sauder, Michael, Freda Lynn, and Joel M. Podolny. 2012. "Status: Insights from Organizational Sociology." *Annual Review of Sociology* 38(1): 267–83.
- Savage, Glenn C. 2012. "Being Different and the Same? The Paradoxes of 'Tailoring' in Education Quasi - Markets." *Journal of Pedagogy / Pedagogický časopis* 3(2): 279–302.
- Savage, Glenn C., and Kate O'Connor. 2015. "National Agendas in Global Times: Curriculum Reforms in Australia and the USA since the 1980s." *Journal of Education Policy* 30(5): 609–30.
- Schröder, Martin. 2013. *Integrating Varieties of Capitalism and Welfare State Research: A Unified Typology of Capitalisms*. Springer.

- Schwartz, Barry. 2009. *The Paradox of Choice: Why More Is Less, Revised Edition*. Harper Collins.
- Schwartz, Robert B., and Nancy Hoffman. 2015. *Gold Standard: The Swiss Vocational Education and Training System*. Washington, D.C.: National Center on Education and the Economy. <http://www.ncee.org/swiss-vet/> (November 21, 2016).
- Seawright, Jason, and John Gerring. 2008. “Case Selection Techniques in Case Study Research: A Menu of Qualitative and Quantitative Options.” *Political Research Quarterly* 61(2): 294–308.
- Sellar, Sam. 2015. “A Feel for Numbers: Affect, Data and Education Policy.” *Critical Studies in Education* 56(1): 131–46.
- Selwood, S. 1991. “Progress or Paradox? NZQA—the Genesis of a Radical Reconstruction of Qualifications Policy in New Zealand.” Massey University.
- Shavit, Yossi, and Walter Müller. 1998. *From School to Work: A Comparative Study of Educational Qualifications and Occupational Destinations*. Clarendon Press.
- Shields, Robin, and Andres Sandoval Hernandez. 2020. “Mixed Signals: Cognitive Skills, Qualifications and Earnings in an International Comparative Perspective.” *Oxford Review of Education* 46(1): 111–28.
- Skala, Helmut F. 2015. “Österreichs berufsbildende Schulen zwischen Wertschätzung und Anerkennung.” In *Facetten der Entrepreneurship Education: Festschrift für Josef Aff anlässlich seiner Emeritierung*, eds. Bettina Greimel-Fuhrmann and Richard Fortmüller. Wien: MANZ Verlag Schulbuch GmbH, 331–40.
- Smyth, Emer, and Selina McCoy. 2011. “The Dynamics of Credentialism: Ireland from Bust to Boom (and Back Again).” *Research in Social Stratification and Mobility* 29(1): 91–106.
- Solga, Heike. 2002. “‘Stigmatization by Negative Selection’: Explaining Less-Educated People’s Decreasing Employment Opportunities.” *European Sociological Review* 18(2): 159–78.
- Solga, Heike, Paula Protsch, Christian Ebner, and Christian Brzinsky-Fay. 2014. *The German Vocational Education and Training System: Its Institutional Configuration, Strengths, and Challenges*. Social Science Research Center Berlin (WZB). <https://ideas.repec.org/p/zbw/wzbslm/spi2014502.html> (July 11, 2017).
- Specht, Werner. 2011. “Restschulen und Restklassen. Ein vernachlässigtes Phänomen im Gefolge neuer Steuerungsformen.” In *Schulentwicklung durch Schulprofilierung?*, VS Verlag für Sozialwissenschaften, 141–63. [https://link-springer-com.ezp-prod1.hul.harvard.edu/chapter/10.1007/978-3-531-92825-8\\_4](https://link-springer-com.ezp-prod1.hul.harvard.edu/chapter/10.1007/978-3-531-92825-8_4) (April 13, 2018).
- St. George, Ross, and Malbert Smith. 1983. “UE and Employment: Some Usage and Assessment Issues.” *Delta* 33: 55–65.
- Staatsinstitut Bayern. 2006. *Bildungsberichterstattung 2006*. München: Staatsinstitut für Schulqualität und Bildungsforschung.

- . 2009. *Bildungsbericht Bayern 2009*. München: Staatsinstitut für Schulqualität und Bildungsforschung.
- Stanley, Gordon. 2017. “Accreditation and Assessment in Vocational Education and Training.” In *The Oxford Handbook of Skills and Training*, eds. Chris Warhurst, Ken Mayhew, David Finegold, and John Buchanan. Oxford, United Kingdom: OUP Oxford, 124–41.
- Stanley, Gordon, and Robert G. MacCann. 2009. “Incorporating Industry Specific Training into School Education: Enrolment and Performance Trends in a Senior Secondary System.” *Journal of Vocational Education & Training* 61(4): 459–66.
- Statistik Austria. 2013. *Bildung in Zahlen 2011/12*. Wien: Statistik Austria.
- . 2019. *Bildung in Zahlen 2017/18*. Wien: Statistik Austria.
- Steinmo, Sven, Kathleen Thelen, and Frank Longstreth. 1992. *Structuring Politics: Historical Institutionalism in Comparative Analysis*. Cambridge University Press.
- Stiglitz, Joseph E. 1975. “The Theory of ‘Screening,’ Education, and the Distribution of Income.” *The American Economic Review* 65(3): 283–300.
- Stobart, Gordon. 2008. *Testing Times: The Uses and Abuses of Assessment*. Routledge.
- Strachan, Jim. 2002. “Assessment in Change: Some Reflections on the Local and International Background to the National Certificate of Educational Achievement (NCEA).” *The New Zealand Annual Review of Education* 0(11). <https://ojs.victoria.ac.nz/nzaroe/article/view/1425> (December 1, 2015).
- Strathdee, Rob. 2003. “The Qualifications Framework in New Zealand: Reproducing Existing Inequalities or Disrupting the Positional Conflict for Credentials.” *Journal of Education and Work* 16(2): 147–64.
- Streeck, Wolfgang. 2011. “Skills and Politics: General and Specific.” In *The Political Economy of Collective Skill Formation*, eds. Marius R. Busemeyer and Christine Trampusch. Oxford University Press, 316–52.  
<http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199599431.001.0001/acprof-9780199599431-chapter-12> (October 1, 2016).
- Symonds, William C., Robert Schwartz, and Ronald F. Ferguson. 2011. “Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21st Century.” <https://dash.harvard.edu/handle/1/4740480> (October 12, 2017).
- Teese, Richard, and John Polesel. 2003. *Undemocratic Schooling: Equity and Quality in Mass Secondary Education in Australia*. Melbourne Univ. Publishing.
- TGM. 2017. *TGM – Die Schule der Technik*. . Presse Fact Sheet.
- Thelen, Kathleen. 2004. *How Institutions Evolve: The Political Economy of Skills in Germany, Britain, the United States, and Japan*. Cambridge ; New York: Cambridge University Press.

- . 2014. *Varieties of Liberalization and the New Politics of Social Solidarity*. Cambridge ; New York, N.Y: Cambridge University Press.
- Thompson, Alasdair. 2005. “Employers Challenge NCEA Assurances.” *EMA BusinessPlus* (13).
- Toner, Phillip. 2014. “Book Review: Michaela Brockmann, Linda Clarke, Christopher Winch, Georg Hanf, Philippe Méhaut and Anneke Westerhuis (Eds), Knowledge, Skills and Competence in the European Labour Market: What’s in a Vocational Qualification?” *The Economic and Labour Relations Review* 25(2): 382–84.
- Triventi, Moris et al. 2016. “Education as a Positional Good: Implications for Social Inequalities in Educational Attainment in Italy.” *Research in Social Stratification and Mobility* 43: 39–52.
- Udahemuka, Martine, and Michael Johnston. 2016. *Signal Loss: What We Know about School Performance*. New Zealand Initiative. <https://nzinitiative.org.nz/insights/reports/signal-loss/>.
- UHS. 2018. “Schülerunion: Geschichte Im Überblick.” <http://schuelerunion.at/geschichte-der-schuelerunion/geschichte-im-ueberblick/>.
- UNESCO. 2016. “ISCED Mappings.” *UNESCO Institute for Statistics*. <http://uis.unesco.org/en/isced-mappings> (January 22, 2020).
- Vaughan, Karen et al. 2003. *A Constellation of Prospects: A Review of STAR (the Secondary-Tertiary Alignment Resource) : Report to the Ministry of Education*. Wellington] N.Z.: Research Division, Ministry of Education.
- Vester, Allan. 2018. *Removing the Decile Label*. Prepared for the Ministry of Education.
- Victoria, ed. *Student Completion Rates*. Melbourne, Vic: Victorian Government Printer, 2012.
- W. T. Grant Foundation. 1988. *The Forgotten Half: Non-College Youth in America*. The William T. Grant Foundation.
- Waslander, Sietske, and Martin Thrupp. 1995. “Choice, Competition and Segregation: An Empirical Analysis of a New Zealand Secondary School Market, 1990-93.” *Journal of Education Policy* 10(1): 1–26.
- Watson, Louise. 2003. *A Critique of the Federal Government’s Recent Changes to Private Schools Funding*. Canberra: Lifelong Learning Network, University of Canberra.
- Watson, Louise, and Chris Ryan. 2010. “Choosers and Losers: The Impact of Government Subsidies on Australian Secondary Schools.” *Australian Journal of Education* 54(1): 86–107.
- Weishaupt, Horst. 2009. “Die Hauptschule – ein Auslaufmodell?” *Die Deutsche Schule* 101(1): 20–32.
- van de Werfhorst, Herman G. 2011a. “Skills, Positional Good or Social Closure? The Role of Education across Structural–Institutional Labour Market Settings.” *Journal of Education and Work* 24(5): 521–48.

- van de Werfhorst, Herman G. 2011b. "Skill and Education Effects on Earnings in 18 Countries: The Role of National Educational Institutions." *Social Science Research* 40(4): 1078–90.
- . 2016. "Vocational and Academic Education and Political Engagement: The Importance of the Educational Institutional Structure." *Comparative Education Review* 61(1): 111–40.
- van de Werfhorst, Herman G., and Jonathan J. B. Mijs. 2010. "Achievement Inequality and the Institutional Structure of Educational Systems: A Comparative Perspective." *Annual Review of Sociology* 36(1): 407–28.
- Whitty, Geoff. 1998. *Devolution And Choice In Education: The School, the State and the Market*. Buckingham England ; Bristol, PA, USA: Open University Press.
- Wiarda, Jan-Martin. 2009. "Bildung: Der Tester." *Die Zeit*. <https://www.zeit.de/2009/24/C-Bildungstester> (January 17, 2020).
- Wiborg, Susanne. 2010. "Why Is There No Comprehensive Education in Germany? A Historical Explanation." *History of Education* 39(4): 539–56.
- Windle, Joel A. 2015. "The Meaning of Choice for Schools: Curriculum and Market Hierarchies." In *Making Sense of School Choice*, New York: Palgrave Macmillan, 97–117. [https://link.springer.com/chapter/10.1057/9781137483539\\_5](https://link.springer.com/chapter/10.1057/9781137483539_5) (November 22, 2017).
- Woessmann, Ludger. 2002. *How Central Exams Affect Educational Achievement: International Evidence from TIMSS and TIMSS-Repeat*. Rochester, NY: Social Science Research Network. SSRN Scholarly Paper. <http://papers.ssrn.com/abstract=387700> (December 18, 2015).
- . 2016. "The Importance of School Systems: Evidence from International Differences in Student Achievement." *Journal of Economic Perspectives* 30(3): 3–32.
- Wolf, Magdalena. 2017. *Die Neue Mittelschule Aus Der Sicht Der Eltern*. University of Vienna. NOESIS Arbeitsbericht.
- Wren, Anne, ed. 2013. *The Political Economy of the Service Transition*. Oxford University Press. <http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199657285.001.0001/acprof-9780199657285> (March 13, 2016).
- Wylie, Cathy. 1994. *Self-Managing Schools in New Zealand: The Fifth Year*. Wellington: NZCER. <https://www.nzcer.org.nz/system/files/866.pdf> (December 18, 2019).
- . 1999. *Ten Years on: How Schools View Educational Reform*. Wellington, N.Z.: New Zealand Council for Educational Research.
- Zeit. 2011. "Bildungspolitik: Rat verlangt gemeinsames Kernabitur aller Länder." *Die Zeit*. <https://www.zeit.de/gesellschaft/schule/2011-10/zentralabitur-pruefung-aktionsrat> (February 5, 2020).

Zilber, Tammar B. 2008. "The Work of Meanings in Institutional Processes and Thinking." In *The SAGE Handbook of Organizational Institutionalism*, eds. Royston Greenwood, Christine Oliver, Roy Suddaby, and Kerstin Sahlin-Andersson. SAGE, 151–69.