Essays in Political Economy

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Essays in Political Economy

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Essays in Political Economy

Abstract

This dissertation comprises three essays in political economy, presented as separate chapters. They share a focus on labor markets, occupational choice, and the political economy of redistribution and immigration attitudes.

Chapter 1 examines the relationship between immigration attitudes and the skills composition of individuals' occupations. Since immigrants face higher barriers to entry into occupations that rely on social skills, they are less likely to pose a labor market threat to native workers who hold social skill-intensive jobs. I find that individuals in social occupations exhibit more favorable attitudes towards immigration, and favor less restrictive immigration policies. Chapter 2 examines the effect of English language proficiency on the occupational choices of childhood immigrants into the United States. Using an instrumental variables approach based on the critical period hypothesis from linguistics, I find that higher proficiency allows immigrants to work in more lucrative occupations. In addition, a better grasp of the English language leads immigrants to choose occupations in which communication skills are more important. Chapter 3 examines the relationship between social capital and redistribution preferences. I find some evidence that individuals with better-quality social networks tend to oppose increasing taxes on the rich and lowering taxes on the poor. At the same time, higher social network quality does not appear to correlate with an individual's belief that the government ought to reduce income differences, or increase spending on unemployment benefits.

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Chapter 1:

Do People with Social Jobs Fear Immigrants Less?

Evidence from the European Social Survey

1.1 Introduction

In this essay, I examine whether Europeans who work in 'social jobs' – i.e., in occupations that require them to use their social skills, rather than technical skills – have a more favorable attitude towards immigration. Since immigrants face higher barriers to entry into occupations that rely on social skills and therefore pose less of a labor market threat to incumbent workers, I hypothesize that individuals who work in social skill-intensive occupations will be more likely to view immigration favorably, to support more permissive immigration policies, and to demand that potential immigrants meet stricter criteria for admission.

I test this hypothesis empirically using data from the 7th round of the European Social Survey (ESS) combined with information from the O*NET occupational database. I find that individuals in social occupations indeed exhibit more favorable attitudes toward immigration, and favor less restrictive immigration policies. The opposite pattern holds for individuals whose occupations rely on technical, rather than social skills, and for individuals whose jobs are protected by credentials-based barriers to entry, such as educational requirements or other forms of occupational licensing. These findings are consistent with political economy explanations of immigration attitudes that focus on the role of competition in the labor market, and provide an alternative to explanations rooted in sociology and social psychology (e.g., Kitschelt, 1994).

The essay is laid out as follows: In *Section 1.2*, I review the relevant research literature, and place my study in the context of existing political economy and labor market research. I then proceed, in *Section 1.3*, to outline a theoretical argument that links the social skills intensity of an occupation to individual-level immigration attitudes. After describing my data set and methods in *Section 1.4*, I proceed to test my hypotheses empirically in *Section 1.5*. I discuss my results in the same section. Finally, in *Section 1.6*, I conclude, and provide suggestions for future research.

1.2 Literature Review

This essay contributes to several well-established strands in labor economics and comparative political economy research. These include research on the determinants of individual immigration attitudes, on the labor market consequences of immigration, and on the role of one's labor market occupation in shaping individual-level political and social attitudes.

The comparative political economy research literature on individual-level attitudes towards immigration is very extensive, and thoroughly reviewed in Hainmueller and Hopkins (2014). Scholars have proposed a variety of potential explanations for immigration preferences. Some of these have focused on non-economic factors, such as cultural, ethnic or religious tensions between the natives and immigrants (e.g., Dustmann and Preston, 2007; Facchini, Mayda and Mendola, 2013), discrimination based on national origin (e.g., Hainmueller and Hangartner, 2013), or perceptions of immigrants' deservingness (Helbling and Kriesi, 2014).

Other explanations have instead highlighted economic factors, and have provided arguments rooted in material self-interest. Some studies focus on concerns about the welfare state and redistribution (Facchini and Mayda, 2009). Others – including the present paper – put the spotlight on competition between natives (or, more generally, incumbent workers) and immigrants in the labor market. Scheve and Slaughter (2001) assume perfect substitutability between native and immigrant workers, and find, using data from the American National Election Study (ANES), that low-skilled workers, who face competition from immigrants, are more likely to oppose immigration. Mayda (2006) analyzes cross-national survey data from the International Social Survey Programme (ISSP), and finds evidence consistent with immigration attitudes being shaped by concerns about labor market competition.

Arguments that emphasize labor market competition as a determinant of immigration attitudes tend to rest on the assumption that immigration affects the employment prospects or wages of native workers. Yet, Hainmueller and Hiscox (2007) point out that existing research in labor economics tends to be somewhat equivocal about the effect of immigration on wages and employment in Europe and the United States.

Using data from the United States, Borjas (2003), for instance, finds that an immigrant inflow that increases the supply of workers in a particular schooling-experience group by 10 percent lowers the wages of native workers in the same group by 3 to 4 percent, as well as reduces the number of weeks worked by 2 to 3 percent. By contrast, Ottaviano and Peri (2012) find a much smaller effect on immigrant wages, and instead argue that – in some circumstances – immigrant flows, especially if high-skilled, could increase natives' wages due to the complementarity of immigrant and native high-skilled workers. Borjas (2013) summarizes the academic research on the impact of immigration on American workers' wages, and finds that the largest negative impacts on native workers' wage tend to be concentrated on the lower end of the income distribution.

Evidence from European countries appears to be similarly equivocal on the effect of immigration on wages. Nickell and Saleheen (2015), for instance, find a small negative impact on average British wages from immigration, while Zorlu and Hartog (2005) only find very small, if any, effects on native wages, and no dominant pattern of native-immigrant substitution or complementarity. A meta-analytic approach to estimating the effect of immigration on native wages yields a range of possible values, and suggests that estimates are highly dependent on the country being examined and on the modelling approach selected by the researcher (Longhi, Nijkamp and Poot, 2005). Note that the theoretical argument presented in this paper depends on

there being at least some negative effect of labor market competition from immigrants on incumbent workers' wages, or at least the perception of there being one.

Finally, this essay contributes to a growing research literature on the role of occupational characteristics in shaping individual-level social and political attitudes. Cusack, Iversen and Rehm (2006) and Rehm (2009) tie individuals' redistribution preferences to the degree of occupational risk they experience, as measured by occupation-specific unemployment rates. They find that a higher degree of labor market risk is associated with a preference for more income redistribution as a form of insurance against unemployment.

Kitschelt (1994), empirically tested in Kitschelt and Rehm (2014), draws on insights from sociology and social psychology to suggest how an individual's occupation can shape her attitudes towards immigration. In particular, he highlights the importance of *generalization* and *transposition* in connecting individuals' work lives and private experiences to their policy attitudes. Kitschelt's argument suggests that "socio-cultural professionals" – whose occupations involve a great deal of social interaction – could be expected to embrace more inclusive conceptions of collective political identity, and therefore be more supportive of immigration.

Note that the argument presented in this paper makes a similar prediction regarding the immigration attitudes of individuals in highly social occupations. However, instead of relying on social psychology and sociology, it presents a straightforward political economy argument that relies primarily on competition in the labor market. As such, this essay's argument provides an important alternative to Kitschelt's theory of how occupational characteristics may affect social and political attitudes.

1.3 Theoretical Framework

1.3.1 The Role of Social and Technical Skills

I adopt a theoretical framework that is similar to the one proposed by Lee and Lee (2015), and which links individuals' relational skills assets to their attitudes towards immigrants. Lee and Lee (2015) use two measures – an occupational relational skill requirement (corresponding, in my essay's use of terminology, to 'social skills') and an instrumental skill requirement (which corresponds to 'technical skills') – to gauge how vulnerable an occupation is to labor market competition from immigrants.

The approach conceptualizes each occupation as a bundle of tasks and skills – an approach that is common in labor economics (e.g., Lazear, 2009). An occupation that relies primarily on technical skills – e.g., programming, equipment maintenance or repair – is likely to be more vulnerable to labor market competition from immigrants, as these skills are relatively transferable across economies. An immigrant who has acquired a great deal of technical skills in her home country will be likely to be able to use these skills, without a significant discount, in another country.[1] As a result, immigration may shift the labor supply of workers in technical skills-intensive occupations significantly outwards, and will therefore put downward pressure on their wages (e.g., Borjas, 2003; Borjas, 2013).

By contrast, workers in occupations that rely predominantly on social skills – e.g., negotiation, persuasion or social perceptiveness – are likely to face less labor market competition from immigrants. Unlike technical skills, social skills do not transfer as easily between the

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[1] There could also, of course, be credentials-related related barriers to entry (e.g., occupational licensing or educational/experience requirements) that might prevent the immigrant from entering a particular occupation in the destination country. These shall be discussed shortly.

immigrants' home and destination countries. Lee and Lee (2015) note that "the convertibility of cultural capital into economic capital is extremely low for immigrants."

Several reasons may account for this phenomenon. Immigrants may, for instance, face language or cultural difficulties in the destination country that may make it more difficult for them to participate most effectively in the labor market. Indeed, research on childhood immigrants into the United States has found that immigrants' lower English language proficiency can lead to poorer labor market outcomes (Bleakley and Chin, 2010), as well as less native-like cultural assimilation outcomes (Bleakley and Chin, 2010). Recent studies in labor economics confirm that non-cognitive skills - such a personality or cultural competency – can have a significant impact on an individual's labor market outcomes (e.g., Heckman, Stixrud and Urzua, 2006; Heckman and Rubinstein, 2001). In addition, immigrants may face more intense discrimination in occupations that rely on social skills. In client-facing occupations, for instance, taste-based discrimination on the part of consumers may play an important role (Becker, 1957; Cain, 1986).

The social skills intensity of a particular occupation thus acts, in effect, as a barrier to immigrants' entry into a particular line of work. As the costs of entering an occupation that relies heavily on social skills are relatively high, an increase in immigration is not likely to lead to as sizeable an outward shift in the labor supply curve, and is likely to put less downward pressure on workers' wages relative to technical occupations.

In summary: Since workers in technical occupations are relatively vulnerable to labor market competition from immigrants, they are consequently likely to be, *ceteris paribus*, less favorably disposed towards further immigration. In particular, they are more likely to exhibit unfavorable attitudes towards immigration, to prefer more restrictive immigration policies, and to require

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potential newcomers to meet a higher standard before they are allowed to immigrate. By contrast, those who work in technical skills-intensive occupations are, all else equal, like to have a more favorable outlook on immigration, to support more permissive immigration policies, or to make fewer demands on the qualifications and characteristics of potential immigrants.

1.3.2 The Role of Credentials-Related Barriers to Entry

The social vs. technical skills intensity, however, may not be the only relevant barrier to entry into some occupations. Some jobs may require workers to possess particular educational qualifications or occupational licenses (Kleiner, 2000; Kleiner and Krueger, 2010). Alternatively, they may require membership in particular professional associations or trade unions (Hancké, 1993). Last but not least, some occupations may be easier to enter if an individual already possesses some previous work experience, perhaps in a related field.

In my analysis, I therefore extend the Lee and Lee (2015) framework to also account for such credentials-related barriers to entry. Immigrants may find it particularly difficult to overcome such obstacles. In the case of an expectation of previous professional experience, for instance, immigrants may simply not have been in the country for a long enough period to establish a sufficient track record. Furthermore, immigrants' foreign educational qualifications may not be recognized in their destination countries, or may require going through a prolonged equivalency certification process, leading them to not be eligible to work in some regulated professions, such as law or medicine (Peixoto, 2001; Bauder 2003).

Credentials-related barriers to entry thus act to protect native workers from labor market competition from immigrants. This is consistent with the view of occupational licensing as a

form of rent-seeking that protects incumbents by restricting entry into the occupation (Stigler, 1971; Maurizi, 1974; Gellhorn, 1976). Individuals who work in occupations that are protected by such credentials-related barriers may therefore be hypothesized to hold, *ceteris paribus*, more favorable views on immigrants, to support more liberal immigration policies, and to express less stringent demands on immigrants' qualifications.

By contrast, individuals whose occupations do not benefit from such protection may well desire to use immigration policy to create a barrier to entry into their occupation – a rent-seeking policy demand (Krueger, 1974). As a result, they are likely to prefer a relatively restrictive immigration policy, to demand that potential immigrants meet strict criteria, as well as to hold relatively unfavorable views of immigration.

1.3.3 Summary of Research Hypotheses

Figure 1.1 provides a simple graphical depiction of the theoretical framework described in this section. The relative social and technical skills intensity of an occupation, along with the existence and stringency of credentials-related barriers to entry, will determine how vulnerable to labor market competition from immigrants incumbent workers perceive themselves to be. Those who face a great deal of labor market threat from immigrants are then, *ceteris paribus*, more likely to express anti-immigrant sentiments. The differences in degree of labor market vulnerability, of course, stem from the immigrants' occupational choices. If immigrants face high barriers to entry into particular occupations, they are less like to enter them, and thus less likely to stiffen the competition that incumbent workers face.

Figure 1.2 summarizes the hypotheses that stem from this research on a two-axis continuum: In the lower left-hand corner are individuals who work in occupations that rely primarily on technical skills and face no credentials-related barriers of entry. I expect these individuals, after controlling for their other characteristics, to have a negative attitude towards immigration, as they face strong labor market competition from immigrants. The individuals in the upper right-hand corner, by contrast, are likely to exhibit relatively pro-immigration attitudes. Since their occupations rely mostly on social skills and they are additionally protected by credentials-related barriers to entry (such as education requirements, or other forms of occupational licensing), they face relatively little competition from immigrants on the labor market.

Figure 1.1: Proposed Causal Mechanism in Lee and Lee (2013) – extended to include credentials-related barriers to entry

Natives' Perceived Vulnerability to Labor Market Competition from Immigrants

Occupation:

Relative Importance of Technical vs. Social Skills

+

Credentials-Related Barriers to Entry

Immigrants' Occupational Choices and Future Skill Investment

Anti-Immigration Sentiment:

- unfavorable attitudes toward immigration
- preference for restrictive immigration policies
- stringent requirements for immigrant admissions

Immigrants' Estimation of Applicability of Their Skills

Figure 1.2: Hypothesized Immigration Attitudes Based on My Theoretical Framework

very significant credentials-related barriers to entry

WEAK LABOR MARKET COMPETITION FROM IMMIGRANTS:
- favorable attitudes toward immigration
- preference for permissive immigration policies
- lenient requirements for immigrant admissions

technical skills

social skills

STRONG LABOR MARKET COMPETITION FROM IMMIGRANTS:
- unfavorable attitudes toward immigration
- preference for restrictive immigration policies
- stringent requirements for immigrant

no credentials-related barriers to entry needed

1.4 Data, Methods and Additional Hypotheses

This paper uses individual-level survey data from the European Social Survey (ESS), a cross-national survey that is conducted every two years across a selection of European countries. Specifically, it draws on the 7th wave of the ESS, which was fielded in 2014, and includes rotating modules on immigration and health inequalities (ESS, 2016). The European Social Survey is a mainstay of research in comparative political economy, and has been used to study a variety of topics, including attitudes towards immigration (Card, Dustman and Preston, 2005), the welfare state (Senik, Stichnoth and Van der Staeten, 2009) and income redistribution (e.g., Rehm, 2009; Rueda and Stegmueller, 2015).

I combine survey data from the ESS with detailed data on occupational skills from O*NET, a comprehensive database of worker attributes and job characteristics developed under the sponsorship of the United States Department of Labor/Employment and Training Administration (USDOL/ETA). The O*NET database contains "information on hundreds of standardized and occupation-specific descriptors," which are continuously updated by consulting occupation experts surveying a broad range of workers from each occupation (O*NET, 2016).

All occupation descriptors in the O*NET database are based on data collected from the United Stated, and on American experts' assessment of the tasks performed and skills needed in the included occupations. This paper's use of O*NET data to assign social and technical skill intensity scores to occupations in European countries thus naturally raises concerns about external validity. The fact that all countries included in my samples are advanced industrial economies, however, should mitigate some of the concerns about potential cross-country differences in occupational skills and tasks. In addition, previous research has found that O*NET data is reasonably consistent across countries (Taylor, Li, Shi and Borman, 2008), and the

database has been used in comparative politics research focused on European countries (Kitschelt and Rehm, 2014).

1.4.1 Dependent Variables

In my analysis, I focus on respondents' answers to questions that relate to three major themes: (1) individuals' *attitudes towards immigration* as such, (2) their *preferences over immigration policy*, and (3) their views on *immigrants' qualifications for admission* into their country.

1.4.1.1 Attitudes towards Immigration

Survey respondents' immigration attitudes are measured by questions B32 ("Would you say it is generally bad or good for [country]'s economy that people come to live here from other countries?", coded as variable *Good for Economy*), B33 ("[W]ould you say that [country]'s cultural life is generally undermined or enriched by people coming to live here from other countries?", *Enrich Culture*) and B34 ("Is [country] made a worse or a better place to live by people coming to live here from other countries?", *Country Better Place*) in the ESS questionnaire. The answers are recorded on a ten-point scale, where higher values indicate a more positive attitude towards immigration. In addition, I use the first principal component of the respondent's answers to these questions to construct *Pro-Immigration Attitude*, an index of individuals' overall attitude toward immigration. Mean values of all dependent variables that measure respondents' attitudes towards immigration are presented in *Table 1.1*.

Table 1.1: Mean Values of Pro-Immigration Attitude Dependent Variables, by Country

Code	Country	Good for Economy (0 – 10)	Enrich Culture (0 – 10)	Country Better Place (0 – 10)	Pro-Immigration Attitude Index (PCA)
AT	Austria	4.761	4.838	4.349	-0.410
BE	Belgium	4.482	5.732	4.763	-0.164
CH	Switzerland	6.126	6.009	5.385	0.451
CZ	Czech Rep.	3.619	3.922	3.887	-1.036
DE	Germany	5.756	6.196	5.335	0.392
DK	Denmark	4.942	5.810	5.679	0.202
EE	Estonia	4.869	5.452	4.848	-0.104
ES	Spain	4.991	6.020	5.070	0.149
FI	Finland	5.291	6.862	5.505	0.493
FR	France	4.680	5.392	4.848	-0.175
GB	United Kingdom	4.800	4.953	4.743	-0.270
HU	Hungary	3.606	4.884	4.033	-0.790
IE	Ireland	4.974	5.383	5.326	0.033
IL	Israel	4.945	5.451	4.970	-0.075
LT	Latvia	5.148	5.026	4.975	-0.102
NL	Netherlands	4.868	6.046	5.258	0.130
NO	Norway	5.673	5.815	5.523	0.329
PL	Poland	4.869	5.985	5.482	0.217
PT	Portugal	4.984	5.589	4.392	-0.143
SE	Sweden	5.783	7.284	6.672	1.009
SI	Slovenia	4.036	5.228	4.544	-0.401

1.4.1.2 Preferences over Immigration Policy

I use responses to questions B29 – B31 to measure respondents' preferences over their countries' immigration policies. Question B29 asks "to what extent do you think [country] should allow people of the *same* race or ethnic group as most [country]'s people" (*Same Group*), while question B30 asks the same about "people of a *different* race or ethnic group" (*Different Group*). By contrast, question B30a asks about "people from the poorer countries *in Europe*" (*European*), while B31 inquires about "people from the poorer countries *outside Europe*" (*Non-European*). Respondents are given four possible ways of answering these questions – "Allow many to come and live here", "Allow some", "Allow a few" and "Allow none."

I re-code the variables as dummies, with a value of 1 when the respondent gave one of the two most permissive answers (i.e., "Allow many to come and live here" or "Allow some") and zero otherwise. The first principal component of the resulting dummy variables is recorded as the *Pro-Immigration Policy* index. The ESS survey, unfortunately, does not include any questions that would gauge an individual's preferences over immigration policy *in general*, rather than based on the (non-)European or racial/ethnic identity of the immigrants. *Table 1.2* presents the mean values of immigration policy-related dependent variables.

Table 1.2: Mean Values of Pro-Immigration Policy Dependent Variables, by Country

Code	Country	European	Non-European	Same Group	Different Group	Pro-Immigration Policy Index (PCA)
AT	Austria	0.474	0.426	0.675	0.497	-0.266
BE	Belgium	0.616	0.524	0.733	0.588	0.144
CH	Switzerland	0.643	0.555	0.844	0.629	0.355
CZ	Czech Rep.	missing	0.268	0.413	0.268	missing
DE	Germany	0.704	0.640	0.893	0.743	0.676
DK	Denmark	0.568	0.448	0.832	0.613	0.145
EE	Estonia	0.447	0.309	0.720	0.463	-0.394
ES	Spain	0.545	0.526	0.624	0.554	-0.042
FI	Finland	0.433	0.352	0.652	0.469	-0.423
FR	France	0.607	0.516	0.749	0.613	0.166
GB	United Kingdom	0.498	0.418	0.628	0.550	-0.233
HU	Hungary	0.172	0.127	0.520	0.193	-1.362
IE	Ireland	0.497	0.411	0.587	0.500	-0.310
IL	Israel	0.305	0.254	0.805	0.366	-0.611
LT	Latvia	0.461	0.380	0.681	0.551	-0.244
NL	Netherlands	0.586	0.536	0.720	0.677	0.205
NO	Norway	0.745	0.680	0.840	0.765	0.737
PL	Poland	0.639	0.524	0.685	0.573	0.129
PT	Portugal	0.576	0.496	0.651	0.549	-0.052
SE	Sweden	0.883	0.874	0.945	0.924	1.352
SI	Slovenia	0.617	0.522	0.751	0.641	0.231

1.4.3 Immigrants' Qualifications for Admission

Respondents' views on the qualifications that should be required of immigrants come from questions D1 to D6 in the ESS questionnaire. Each of the questions asks respondents to rate, on a ten-point scale, how important certain qualifications should be "in deciding whether someone born, brought up and living outside [country] should be able to come and live here." In particular, the survey inquires how important it should be for potential immigrants to "have good educational qualifications" (*Education*), "be able to speak [country's official language(s)]"

(*Language*), "come from a Christian[2] background" (*Christian*), "be white" (*White*), "have work skills that [country] needs" (*Work Skills*), and "be committed to the way of life in [country]" (*Way of Life*). Higher values indicate that respondents believe a specific qualification is more important. Again, I construct an index, *Qualifications Stringency*, based on the first principal component of respondents' answers to these questions. The mean values of these dependent variables for each country are presented in *Table 1.3*.

Table 1.3: Mean Values of Qualifications Stringency Dependent Variables, by Country

Code	Country	Educ. (0 – 10)	Lang. (0 – 10)	Christ. (0 – 10)	White (0 – 10)	Work Skills (0 – 10)	Way of Life (0 – 10)	Qualif. Stringency Index (PCA)
AT	Austria	7.179	8.007	3.295	2.189	7.171	7.243	0.409
BE	Belgium	6.537	7.444	2.423	1.959	6.547	8.177	0.129
CH	Switzerland	6.549	7.014	2.811	1.409	6.496	7.497	-0.070
CZ	Czech Rep.	6.298	6.835	4.893	4.622	7.172	8.310	0.721
DE	Germany	6.770	7.159	1.956	0.819	6.347	7.749	-0.157
DK	Denmark	6.180	5.105	2.631	1.400	5.880	5.962	-0.780
EE	Estonia	6.872	5.894	4.359	4.123	7.688	7.944	0.579
ES	Spain	6.136	5.824	3.092	1.828	6.483	7.270	-0.277
FI	Finland	5.812	5.279	2.824	1.690	6.040	7.846	-0.447
FR	France	6.374	7.466	2.836	1.693	6.213	7.157	-0.097
GB	United Kingdom	6.959	8.080	2.913	1.739	7.556	7.940	0.452
HU	Hungary	5.632	7.161	4.849	4.904	7.314	8.331	0.700
IE	Ireland	6.804	7.331	3.516	2.470	7.117	6.648	0.200
IL	Israel	6.448	5.094	6.800	1.912	6.832	6.865	0.116
LT	Latvia	7.007	7.345	5.774	5.365	7.630	7.345	1.011
NL	Netherlands	5.784	7.117	1.942	1.373	5.920	7.569	-0.373
NO	Norway	5.079	5.547	2.264	1.444	5.349	5.841	-1.033
PL	Poland	5.901	6.534	4.853	2.901	6.332	6.552	-0.007
PT	Portugal	6.319	6.552	3.827	2.395	7.054	6.805	0.028
SE	Sweden	4.136	3.788	1.483	0.782	3.843	6.912	-1.733
SI	Slovenia	5.606	7.332	2.768	2.041	6.990	7.648	0.003

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[2] Jewish in the case of Israel.

1.4.4   Independent Variables of Interest

Given the theoretical discussion of the social vs. technical demands of occupations as potential barriers to entry that immigrants wishing to compete in the labor market would face, two independent variables are of particular interest: one that measures the importance of social skills in an occupation, and another one that does the same for technical skills.

A third independent variable of interest is a measure of the degree of preparation that an occupation requires – a proxy for non-social skills-related barriers to entry (e.g., occupational licensing, professional association membership or educational credentials). This is measured by a dummy variable that indicates whether O*NET's Job Zone for a given occupation is at least 4. At Job Zone four, according to O*NET, "considerable preparation" is needed – usually in the form of a four-year bachelor's degree (in North America), considerable amount of work-related skill, several years of experience, etc.

Both of the skills-related variables – named *Social Skills* and *Technical Skills* – are calculated based on data from O*NET.[3] O*NET defines skills as "developed capacities that facilitate learning or the more rapid acquisition of knowledge," and provides subcategories of skills which include social skills (i.e., "developed capacities used to work with people to achieve goals") and technical skills ("developed capacities used to design, set up, operate, and correct malfunctions

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[3] The European Social Survey (ESS) data set codes respondents' occupations using ISCO08 codes. O*NET occupations and ISCO08 occupations were connected using a crosswalk constructed by the author, based on the official crosswalks provided by the United States Bureau of Labor Statistics (BLS).

involving application of machines and technological systems"). [4] Each of these two subcategories

contains a set of particular skills, listed and described in *Table 1.4*.

Table 1.4: Social and Technical Skill, O*NET Classification and Description

Social Skill	Description
Coordination	Adjusting actions in relation to others' actions.
Instructing	Teaching others how to do something.
Negotiation	Bringing others together and trying to reconcile differences.
Persuasion	Persuading others to change their minds or behavior.
Service Orientation	Actively looking for ways to help people.
Social Perceptiveness	Being aware of others' reactions and understanding why they react as they do.

Technical Skill	Description
Equipment Maintenance	Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
Equipment Selection	Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
Installation	Installing equipment, machines, wiring, or programs to meet specifications.
Operation and Control	Controlling operations of equipment or systems.
Operation Monitoring	Watching gauges, dials, or other indicators to make sure a machine is working properly.
Operations Analysis	Analyzing needs and product requirements to create a design.
Programming	Writing computer programs for various purposes.
Quality Control Analysis	Conducting tests and inspections of products, services, or processes to evaluate quality or performance.
Repairing	Repairing machines or systems using the needed tools.
Technology Design	Generating or adapting equipment and technology to serve user needs.
Troubleshooting	Determining causes of operating errors and deciding what to do about it.

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[4] See: *https://www.onetonline.org/find/descriptor/browse/Skills/*

O*NET includes ratings of the importance of each of these particular skills for each occupation in the database. The *Social Skills* variable is calculated separately for each O*NET occupation, simply by taking the arithmetic unweighted average of the importance ratings of each of the social skills. The *Technical Skills* variable is constructed analogously. I have opted to weight each of the particular skills equally in order to avoid arbitrary judgments about the relative importance of, say, negotiation vs. persuasion.

This approach has yielded values and occupation rankings that appear to be intuitively plausible. *Table 1.5* ranks the occupations based on their reliance on social and technical skills, and lists the top and bottom ten in each category. Unsurprisingly, the most social occupations include various kinds of managers, with hotel managers being the most social occupation in the O*NET database, followed by office supervisors, health service managers, religious and legal professionals. By contrast, the least social occupations are hand launderers and pressers, followed by tanners, proof-readers, and woodworking-machine tool setters and operators.

Table 1.5: Occupations Ranked by their Social and Technical Skill Content – Top and Bottom Ten

Rank	Most Social Occupation	Social Skills	Least Social Occupation	Social Skills
1.	Hotel managers	3.822	Hand launderers and pressers	1.776
2.	Office supervisors	3.722	Pelt dressers, tanners and fellmongers	1.826
3.	Health services managers	3.698	Coding, proof-reading and related clerks	1.924
4.	Religious professionals	3.663	Woodworking-machine tool setters and operators	1.928
5.	Legal professionals not elsewhere classified	3.624	Shoemaking and related machine operators	1.928
6.	Education managers	3.618	Vehicle cleaners	1.976
7.	Dieticians and nutritionists	3.602	Fashion and other models	1.998
8.	Restaurant managers	3.602	Weaving and knitting machine operators	2.050
9.	Social welfare managers	3.602	Metal moulders and coremakers	2.051
10.	Sales and marketing managers	3.599	Wood processing plant operators	2.052

Rank	Most Technical Occupation	Tech Skills	Least Technical Occupation	Tech Skills
1.	Systems administrators	3.069	Client information workers not elsewhere classified	1.079
2.	Air conditioning and refrigeration mechanics	2.966	Pelt dressers, tanners and fellmongers	1.079
3.	Electrical engineering technicians	2.951	Contact centre salespersons	1.101
4.	Aircraft engine mechanics and repairers	2.943	Payroll clerks	1.114
5.	Agricultural and industrial machinery mechanics and repairers	2.869	Actors	1.124
6.	Electronics mechanics and servicers	2.839	Fashion and other models	1.135
7.	Electrical mechanics and fitters	2.839	Coding, proof-reading and related clerks	1.169
8.	Mechanical engineering technicians	2.780	Dancers and choreographers	1.193
9.	Underwater divers	2.774	Door to door salespersons	1.204
10.	Process control technicians not elsewhere classified	2.762	Street vendors (excluding food)	1.204

Table 1.6: Mean Values of Key Independent Variables, by Country

Code	Country	Social Skills	Technical Skills	Job Zone >= 4
AT	Austria	2.868	1.779	0.159
BE	Belgium	2.918	1.750	0.263
CH	Switzerland	2.982	1.736	0.286
CZ	Czech Rep.	2.853	1.801	0.167
DE	Germany	2.936	1.782	0.237
DK	Denmark	2.952	1.721	0.308
EE	Estonia	2.897	1.808	0.251
ES	Spain	2.833	1.809	0.179
FI	Finland	2.902	1.826	0.236
FR	France	2.889	1.795	0.208
GB	United Kingdom	2.958	1.697	0.262
HU	Hungary	2.790	1.882	0.152
IE	Ireland	2.976	1.755	0.249
IL	Israel	2.999	1.697	0.298
LT	Latvia	2.790	1.814	0.170
NL	Netherlands	2.980	1.681	0.274
NO	Norway	3.012	1.765	0.302
PL	Poland	2.839	1.882	0.191
PT	Portugal	2.779	1.786	0.168
SE	Sweden	2.973	1.730	0.264
SI	Slovenia	2.902	1.791	0.134

Table 1.6 presents the mean values of the key independent variables – *Social Skills*, *Technical Skills*, and the *Job Zone* >= 4 dummy – for each of the 21 countries included in the ESS sample.[5] *Figure 1.3* provides some of the same information graphically.[6] Interestingly, it appears that there are some clear patterns. Countries whose workers, on average, rely on social skills in their jobs tend to rely less on technical skills, and vice versa. In addition, it appears that countries whose workers have more social jobs tend to have workers in occupations that, on average, require greater preparation.

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[5] Note that my econometric analysis omits Estonia from the sample, as data on some of the independent variables. In addition, I exclude the Czech Republic from regressions that involve the respondents' attitudes towards European immigration or the Pro-Immigration Policy Index – also due to missing data in the ESS data set.

[6] The graphs present the mean value of *Job Zone* in the country, rather than of the *Job Zone >= 4* dummy variable.

Figure 1.3: Mean Values of Key Independent Variables, by Country
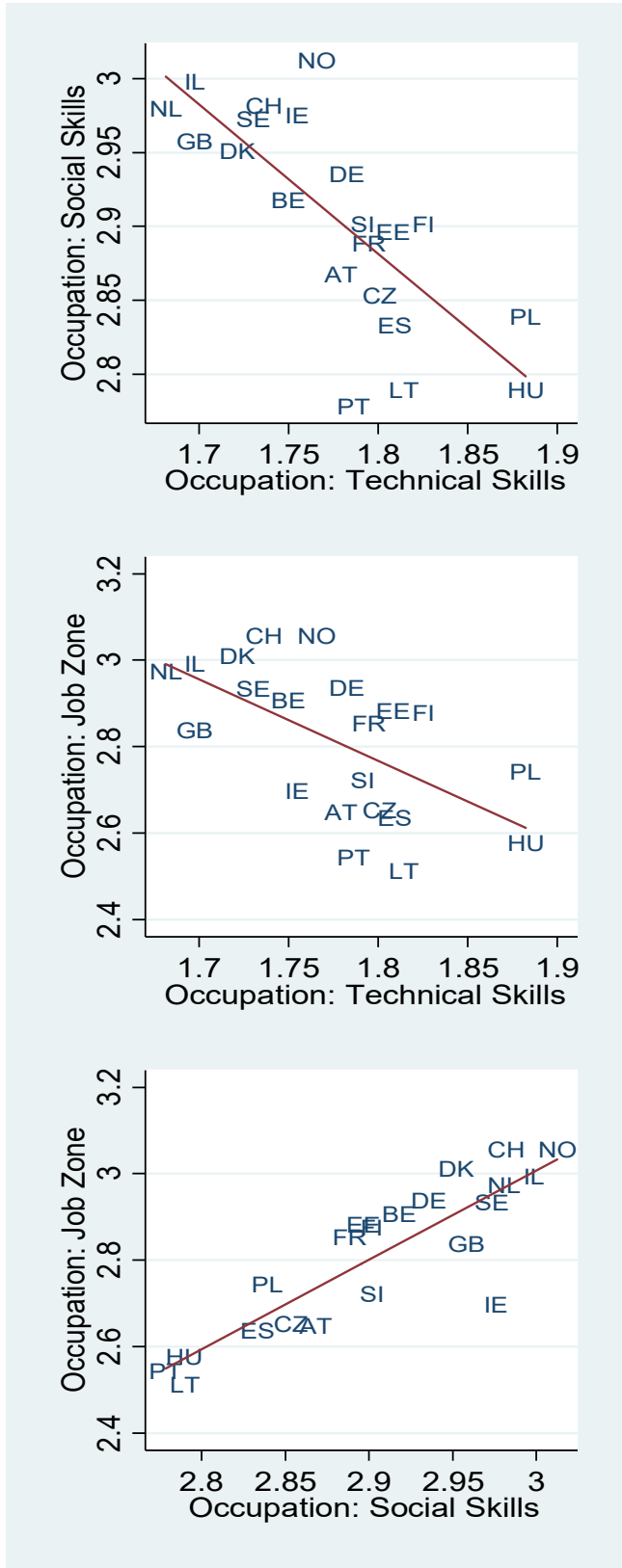
1.4.5 Additional Explanatory Variables

I include a set of additional explanatory variables. These include a battery of standard demographic (i.e., age, gender, foreign-born and minority status) and socio-economic variables (i.e., education and income), as well as a measure of patriotism. *Table 1.7* summarizes the means of these additional explanatory variables for each country included in this essay's analysis, as well as provides the number of observations in the sample by country.

Years of Education records the number of completed years of full-time education. Previous studies have consistently found higher levels of education to be associated with a more favorable view of immigration (e.g., Mayda 2006). Hainmueller and Hiscox (2007) find that, across Europe, people with higher levels of education are more likely to favor immigration, regardless of the immigrants' skill attributes. They find a large component of this consistent association to be driven by more educated individuals' less racist attitudes and greater emphasis on cultural diversity. As a result, I anticipate that more completed years of full-time education will be, across the board, associated with a more permissive attitude towards immigrants and immigration policies. *Income Decile* corresponds to the household income decile to which the respondent belongs. Previous studies have generally found a positive correlation between income and pro-immigration attitudes, and I anticipate a similar result in my analysis (e.g., Mayda 2006; Facchini and Mayda, 2009).

I include a measure of patriotism based on respondents' answer to question D22 ("How close do you feel to [country]?"). The binary variable *Very Close to Country* assumes a value of 1 when the respondent answers "Very Close" and 0 otherwise (i.e., "Close", "Not very close" or "Not close at all"). I expect more patriotic individuals to be less supportive of immigration. *Foreign-Born Respondent* is a binary variable that takes on a value of 1 when the respondent was

born abroad (based on question C20). I anticipate that respondents' foreign-born or minority origin would be associated with a more favorable attitudes towards immigration, consistent with findings from previous research based on ESS data (Just and Anderson, 2015).

Table 1.7: Mean Values of Additional Explanatory Variables, by Country

Code	Country	N	Age	Female	Years of Education	Very Close to Country	Foreign -Born
AT	Austria	1,795	49.2	0.525	12.4	0.525	0.118
BE	Belgium	1,769	46.9	0.493	13.3	0.314	0.128
CH	Switzerland	1,532	47.4	0.500	11.1	0.562	0.257
CZ	Czech Rep.	2,148	46.8	0.531	12.8	0.642	0.021
DE	Germany	3,045	49.9	0.493	14.2	0.348	0.098
DK	Denmark	1,502	48.1	0.481	13.1	0.680	0.079
EE	Estonia	2,051	50.3	0.593	13.2	0.425	0.195
ES	Spain	1,925	48.5	0.487	12.7	0.550	0.088
FI	Finland	2,087	51.3	0.508	13.4	0.658	0.048
FR	France	1,917	49.9	0.524	12.8	0.522	0.116
GB	United Kingdom	2,264	52.2	0.548	13.6	0.379	0.139
HU	Hungary	1,698	49.9	0.575	12.2	0.538	0.016
IE	Ireland	2,390	49.4	0.539	13.8	0.538	0.131
IL	Israel	2,562	47.6	0.546	13.1	0.656	0.322
LT	Latvia	2,250	49.7	0.614	12.5	0.353	0.033
NL	Netherlands	1,919	50.7	0.552	13.7	0.400	0.095
NO	Norway	1,436	46.8	0.468	13.9	0.709	0.118
PL	Poland	1,615	47.3	0.542	12.3	0.568	0.010
PT	Portugal	1,265	52.9	0.549	8.8	0.508	0.075
SE	Sweden	1,791	49.7	0.501	13.2	0.607	0.132
SI	Slovenia	1,224	49.6	0.540	12.2	0.331	0.080

1.5 Estimation Results and Discussion

My empirical approach involves running a set of linear regressions[7] of the following form:

$$Y = \beta X + \gamma Z + \delta C + \varepsilon,$$

where Y is the dependent variable (in most specifications, a survey-based measure of immigration attitudes), X is a vector of key independent variables of interest (typically, measures of occupational social and technical task composition and *Job Zone*), Z is a vector of control variables, and ε is a stochastic error term. Since the ESS data pools survey results from multiple European countries, I also include country-fixed effects, modelled by including a set of country dummies C in the regression model, in order to account for possible differences in baseline immigration attitudes across countries due to time-invariant country characteristics. The unit of analysis is, in each specification, a single individual/respondent in the survey.

Before I turn to the individual-level regression analyses, it might be worthwhile to consider some cross-country evidence. Each graph in *Figure 1.4* shows, on the horizontal axis, the country's mean level of *Social Skills*, *Technical Skills* and *Job Zone*. On the vertical axes are the each country's mean residuals from a linear regression of the depicted index (*Pro-Immigration Attitude*, *Pro-Immigration Policy* or *Qualifications Stringency*) on *Age*, *Female*, *Education Years*, *Income Decile*, *Very Close to Country* and *Foreign-Born*.

Consistent with the predictions of my suggested theoretical mechanism, across the countries in the sample, there appears to be an association between greater occupational reliance

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[7] I estimate ordinary least squares (OLS) models (and, equivalently, in the case of binary dependent variables – linear probability models) in order to ease the interpretation of regression results. Estimating alternative models that may also be appropriate in some specifications – such as logistic or probit regression models in the case of binary variables, or ordered probit models for categorical (or scale-based) dependent variables – does not significantly change any important results.

on social skills and higher job zone on the one hand, and pro-immigration attitudes, pro-immigration policy preferences and a lower insistence on high qualifications for immigrants. The opposite relationships hold for technical skills, also consistent with the theoretical model.

Figure 1.4: Graphical Country-Level Overview of Regression Results
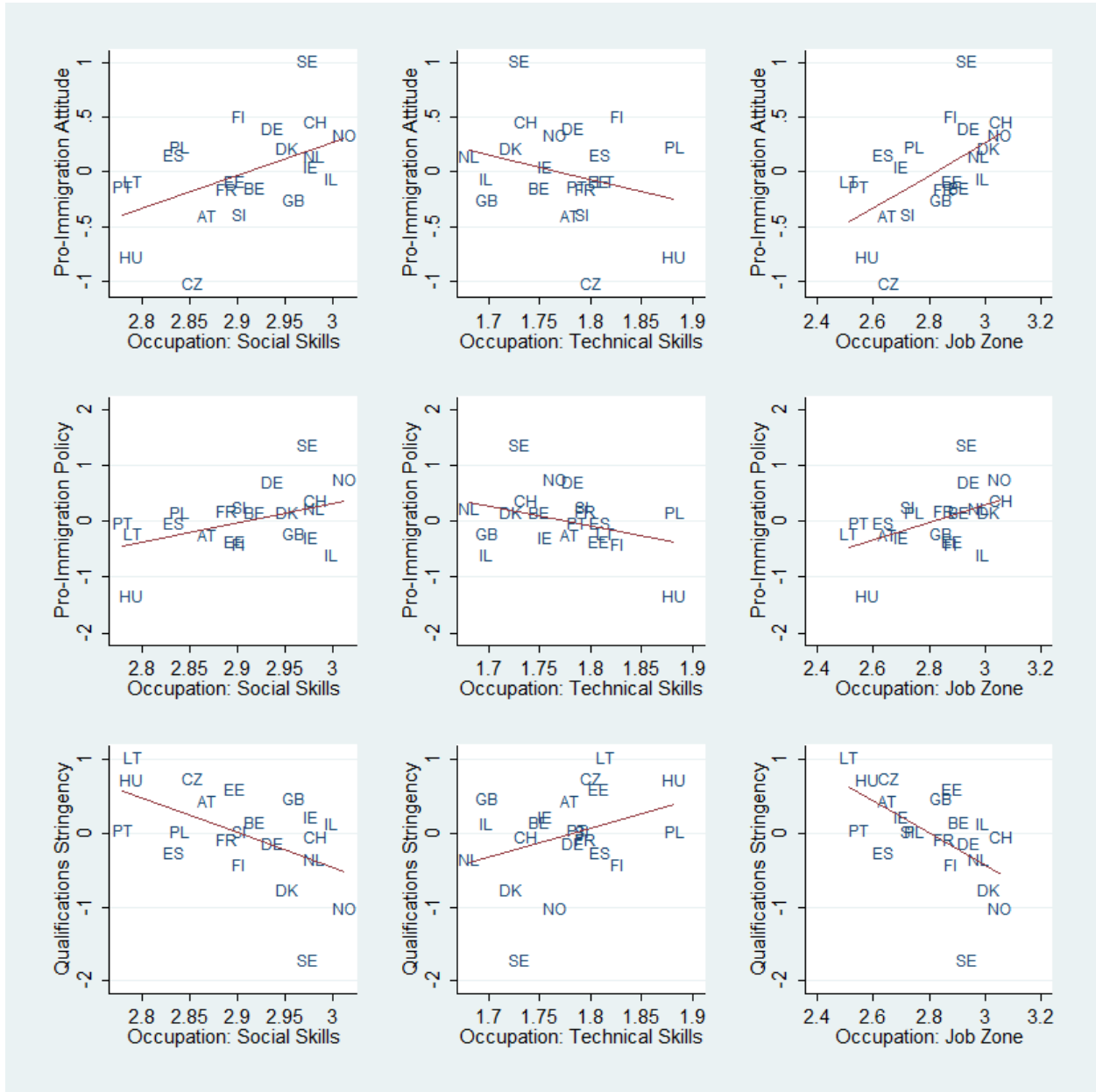
1.5.1 Occupational Choice by Foreign-Born Workers

The theoretical mechanism behind the influence of the social and technical skill composition of occupation on immigration attitudes relies primarily on labor market competition. In short, workers whose jobs rely on social skills, or whose jobs require high formal qualifications or previous job experience, are less likely to oppose immigration as they do not face as much competition from the newcomers. At the same time, if immigrants find it more difficult to find jobs that rely on skills and interpersonal communication, one might expect the task composition of the immigrants' occupations to be tilted more heavily towards technical skills, compared to occupations that natives work in.

Table 1.8 presents estimation results from a regression of the task composition of respondents' occupations on a set of demographic characteristics, including an individual's foreign-born status. The regression results confirm that the foreign-born (used here as a proxy for immigrants) work in occupations that are less social skill-intensive and more technical-skill intensive than those of the natives. I find, furthermore, that the foreign-born are less likely to work in occupations that involve considerable preparation (i.e., whose O*NET Job Zone >= 4) – this is consistent with the hypothesis that immigrants might, compared to natives, find it difficult to acquire formal educational or professional qualification (especially if they arrive later in life). In addition, they may be less likely to have amassed a sufficient amount of work experience, in part due to the sheer fact that they have not been in the country for as long.

In addition, the regression results indicate that women tend to work in more social skills-intensive occupations, and men are more likely, *ceteris paribus*, to have a technical skills-intensive job, but there is no difference across genders in the probability that one's occupation involves considerable preparation (*Job Zone >= 4*). Individuals who have completed more years

of education are likely to work in jobs that require more social skills and fewer technical skills. Unsurprisingly and, to some extent, mechanically, they are also likely to hold occupations that require considerable prior preparation in terms of qualification or work experience.

Table 1.8: Regression Results – Social and Technical Skills Composition

VARIABLES	(1) Occupation: Social Skills	(2) Occupation: Technical Skills	(3) Occupation: Job Zone >= 4
Foreign-Born Respondent	-0.071*** (0.007)	0.026*** (0.007)	-0.052*** (0.007)
Age	0.002*** (0.000)	0.001*** (0.000)	0.003*** (0.000)
Female	0.090*** (0.004)	-0.333*** (0.004)	-0.006 (0.004)
Years of Education	0.039*** (0.001)	-0.019*** (0.001)	0.048*** (0.001)
Constant	2.279*** (0.011)	2.174*** (0.011)	-0.552*** (0.011)
Observations	34,110	34,110	34,125
R-squared	0.164	0.214	0.192
Country-fixed effects	Yes	Yes	Yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

1.5.2 Attitudes towards Immigration

Table 1.9 reports the regression results for my analysis of immigration attitudes. For the occupational variables, the estimation results are consistent with my research hypotheses. Individuals in occupations that rely in greater measure on social skills tend to believe that immigration is better for their country's economy, that it enriches its culture, and that it makes their country a better place to live. The same pattern holds for respondents in occupations that require considerable or extensive preparation (i.e., those in a Job Zone of at least 4), while the opposite is true for individuals whose occupations make greater use of technical skills. These results suggest that individuals who are protected from labor market competition by barriers to entry – such as by their occupations' reliance on social skills or on the need for extensive experience or training – exhibit more favorable attitudes towards immigration. To provide a more easily digestible graphical summary of the regression results, *Figure 1.5* contains the corresponding regression coefficient plot with 95-percent coefficient intervals.

The coefficients on the control variables are, for the most part, in line with my *ex ante* expectations. As expected, education and income are associated with stronger pro-immigration attitudes in all three specifications. Similarly and predictably, the respondent's foreign-born status is associated with more favorable attitudes towards immigration in all three specifications. Somewhat surprisingly, the coefficient on *Very Close to Country* is not statistically significant at conventional levels, suggesting no correlation between patriotism and the examined attitudes towards immigration. Interestingly, older respondents are more likely to regard immigration as good for the economy – perhaps reflecting the fact that, in many European countries, increased rates of immigration may be one way of counteracting a demographic crisis that threatens the sustainability of pension systems (Han, 2013; Bloom et al., 2015).

Table 1.9: Regression Results – Attitudes towards Immigration

VARIABLES	(1) Good for Economy	(2) Enrich Culture	(3) Country Better Place
Occupation: Social Skills	0.156*** (0.049)	0.181*** (0.047)	0.203*** (0.051)
Occupation: Technical Skills	-0.235*** (0.052)	-0.276*** (0.054)	-0.218*** (0.043)
Occupation: Job Zone >= 4	0.346*** (0.050)	0.280*** (0.059)	0.202*** (0.057)
Age	0.004** (0.002)	-0.001 (0.002)	-0.002 (0.002)
Female	-0.311*** (0.058)	0.006 (0.050)	-0.103* (0.059)
Years of Education	0.102*** (0.010)	0.117*** (0.010)	0.090*** (0.008)
Income Decile	0.079*** (0.009)	0.058*** (0.009)	0.052*** (0.008)
Very Close to Country	0.060 (0.066)	-0.034 (0.063)	0.036 (0.074)
Foreign-Born Respondent	0.751*** (0.120)	0.664*** (0.130)	0.883*** (0.119)
Constant	2.923*** (0.167)	3.725*** (0.220)	3.423*** (0.173)
Observations	26,993	27,032	26,924
R-squared	0.141	0.172	0.144
Country-fixed effects	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 1.5: Regression Coefficient Plot – Attitudes towards Immigration
(with 95% confidence intervals)
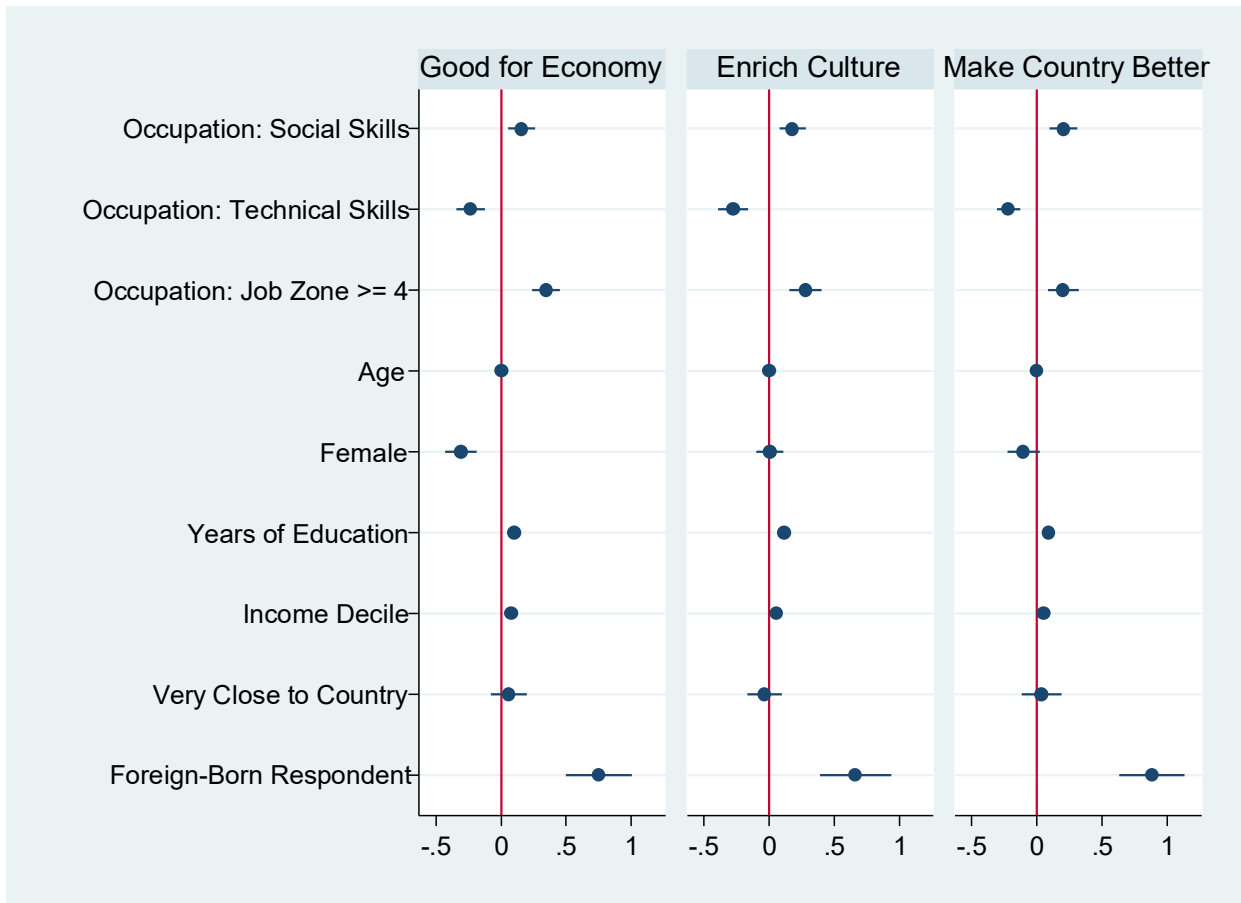
Table 1.10 presents what the implied effects, based on the regression results presented above, on respondents' attitudes towards immigration would be, if those respondents were to switch from the least social or technical occupation (hand launderers and pressers; and client information workers, respectively) to the most social or technical occupation (hotel managers, and systems administrators, respectively). [8]

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[8] Such a switch represents an increase of 2.045 on the *Occupation: Social Skills* measure, and an increase of 1.99 on the *Occupation: Technical Skills* measure. To obtain the implied magnitude of the effect, I multiply the regression coefficient by these increases. Please note that I am using language somewhat loosely here in the interest of fluent presentation: moving from the least to the most social occupation here entails a hypothetical change in the social skills content of a respondent's occupation from that associated with the least social job to that associated with the

Table 1.10: Magnitude of Implied Effects – Attitudes towards Immigration

VARIABLES	(1) Good for Economy	(2) Enrich Culture	(3) Country Better Place
Occupation: Social Skills	0.319	0.370	0.415
Occupation: Technical Skills	-0.467	-0.549	-0.433

Note that the implied effects are quite sizeable, suggesting that one's occupation can exert a non-negligible influence on attitudes towards immigration. If an individual were to move from the least to the most social occupation, for instance, the increase in favorable attitudes towards immigration would be comparable to having between three and four additional years of education, and equal to about half of the effect of having been born outside of the country. Similarly, moving from the least to the most technical occupation is associated with a decrease in pro-immigration attitudes that is similar to having between four and five years fewer complete years of schooling.

most social job, *holding everything else constant* (including, importantly, the technical-skills composition of the occupation).

1.5.3 Preferences over Immigration Policy

Table 1.11 presents estimation results for regressions of immigration policy attitudes, and *Figure 1.6* plots the coefficients graphically. The coefficients on *Social Skills*, *Technical Skills* and *Job Zone >= 4* are all statistically significant and have the hypothesized signs. Individuals whose occupations rely on social rather than technical skills, as well as those whose jobs require considerable or greater preparation, tend to be willing to allow more immigrants into their countries – whether or not those immigrants be European, or from the same racial/ethnic group or not.

Again, the control variables exhibit the expected signs. Consistent with expectations, *Years of Education* and *Income Decile* are associated with a greater willingness to admit more immigrants from all groups. Patriotism correlates with a statistically significantly lower willingness to accept immigrants, except in the case where they are from the same racial or ethnic group. Foreign-born respondents appear to be more sympathetic to admitting a larger number of immigrants from their own group, different group, or from another European country. They do not differ significantly from natives in their willingness to admit immigrants from outside Europe. Older respondents are less inclined to admit a larger number of immigrants, unless those immigrants are of the same ethnic group as they are.

Table 1.11: Regression Results – Preferences over Immigration Policy

VARIABLES	(1) European	(2) Non-European	(3) Same Group	(4) Different Group
Occupation: Social Skills	0.026** (0.010)	0.019* (0.010)	0.038*** (0.009)	0.033*** (0.011)
Occupation: Technical Skills	-0.044*** (0.013)	-0.041*** (0.012)	-0.030*** (0.008)	-0.040*** (0.013)
Occupation: Job Zone >= 4	0.050*** (0.011)	0.055*** (0.011)	0.029** (0.011)	0.052*** (0.011)
Age	-0.001*** (0.000)	-0.002*** (0.000)	-0.000 (0.000)	-0.001*** (0.000)
Female	-0.008 (0.008)	0.001 (0.008)	-0.002 (0.008)	-0.008 (0.007)
Years of Education	0.014*** (0.001)	0.016*** (0.001)	0.014*** (0.001)	0.017*** (0.001)
Income Decile	0.007*** (0.002)	0.006*** (0.002)	0.011*** (0.002)	0.008*** (0.002)
Very Close to Country	-0.030** (0.011)	-0.037*** (0.013)	0.014 (0.015)	-0.020* (0.011)
Foreign-Born Respondent	0.043* (0.025)	0.033 (0.021)	0.076** (0.029)	0.063** (0.024)
Constant	0.409*** (0.058)	0.345*** (0.043)	0.420*** (0.044)	0.345*** (0.049)
Observations	25,776	27,048	27,149	27,132
R-squared	0.139	0.152	0.122	0.156
Country-fixed effects	Yes	Yes	Yes	Yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 1.6: Regression Coefficient Plot – Preferences over Immigration Policy
(with 95% confidence intervals)
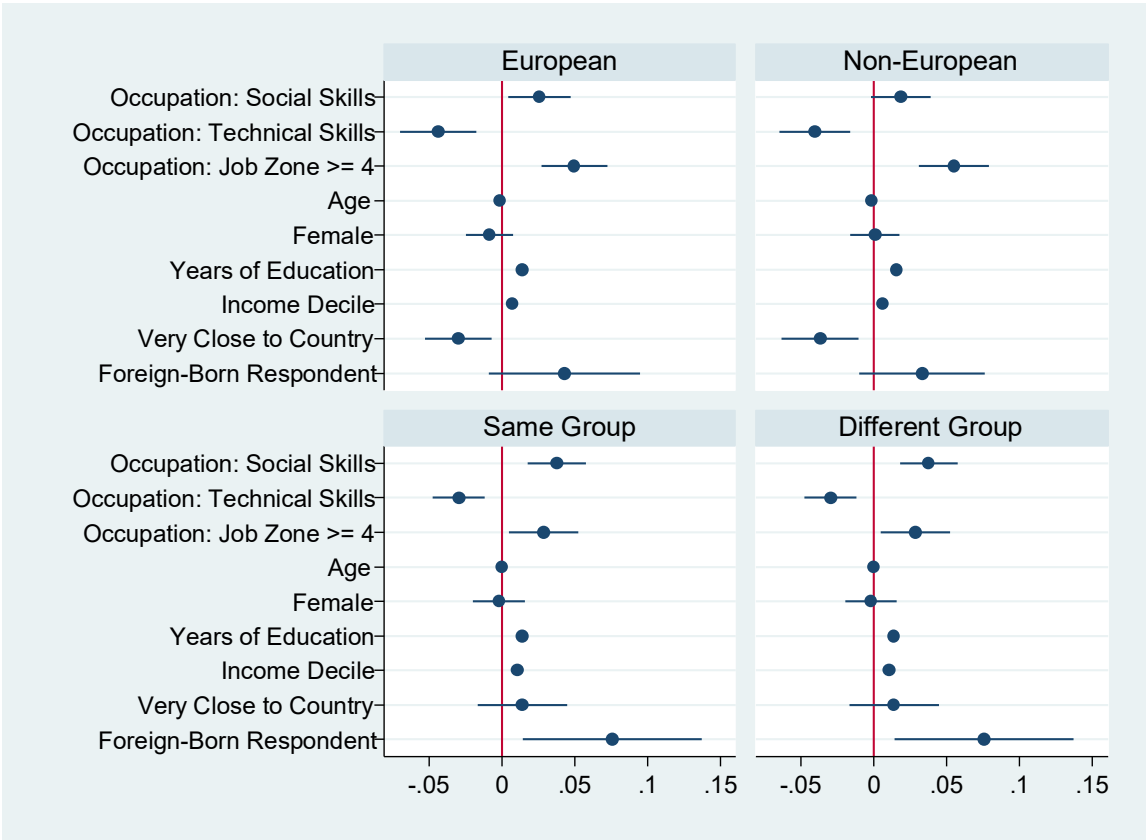
Table 1.12 presents the implied effects on immigration policy preferences of switching from the least to the most social or technical occupation, respectively. As was the case for attitudes towards immigration, the effects are considerable, and – in fact – have a similar magnitude. Moving from the least to the most social occupation has an implied effect that is similar to that of foreign-born status, and equivalent to having several additional years of education – for instance, approximately 2.4 years in the case of preferences over non-European migration, or almost 6 years in the case of same group migration.

Table 1.12: Magnitude of Implied Effects – Preferences over Immigration Policy

VARIABLES	(1) European	(2) Non-European	(3) Same Group	(4) Different Group
Occupation: Social Skills	0.053	0.039	0.078	0.068
Occupation: Technical Skills	-0.088	-0.082	-0.060	-0.080

As one might expect, we also find similar effect magnitudes for moving from the least to the most technical occupation. Moving from the least to the most technical occupation is roughly equivalent, in its implied effect, to having four to six fewer years of education completed, depending on the specification. These are, once again, sizeable effects that suggest that the skills composition of one's occupation can be meaningfully associated with one's political and social attitudes.

1.5.6. Immigrants' Qualifications for Admission

Table 1.13 contains regression results, and *Figure 1.7* the corresponding coefficient plots, that focus on the qualifications that respondents believe should be important in deciding whether immigrants should be able to come and live in their countries. In these regressions, occupational variables yield somewhat more mixed results, as their coefficients are not statistically significant in all models. When they do reach significance, however, they always have the hypothesized sign.

Of the occupational variables, *Job Zone >= 4* is the most consistently significant, as the only model in which it does not reach statistical significance is *Education*. The coefficient has a negative sign, suggesting that individuals whose jobs require considerable preparation tend to favor less stringent requirements for the admission of immigrants. The social skills intensity of respondents' jobs only appears to be associated with a lower insistence that potential newcomers be white.

Individuals whose jobs rely on technical skills tend to be more insistent that potential immigrants be able to speak the official language, have work skills that the recipient country needs, and that they be Christian, and committed to the recipient country's way of life. The positive coefficient on *Language* and, to some extent, also on *Way of Life* might suggest a desire on the part of those employed in technical occupations to use public policy to generate a rough equivalent of the social skills-based barrier to entry that benefits those with more social jobs.

Table 1.14 shows the magnitude of the implied effects of going from the least to the most social/technical occupation for the coefficients that achieve statistical significance. As was the case with immigration attitudes and preferences over immigration policies, we see that – in cases

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where there is a statistically significant effect – the magnitudes are sizable, and translate to the equivalent of several years' differences in the years of schooling.

Going back to *Table 1.13* with the main regression results, we see, yet again, that more educated respondents are less demanding of potential immigrants across all estimated models. Interestingly, *Income Decile* is much less consistently significant in these regression models. While it does have the expected sign, it only reaches statistical significance when the dependent variable is *Language* and *White*. Individuals who feel very close to the country demand more of potential immigrants in all regression models except one.

Perhaps the most intriguing result that comes out of this set of regressions is the consistently positive coefficient on *Foreign-Born Respondent*. It appears that, across all of the estimated models, individuals who were born abroad tend to prefer more stringent requirements that potential immigrants would have to meet. This phenomenon may well be deserving of further study. One intriguing possibility might be that foreign-born respondents are concerned about statistical discrimination in the labor market (e.g., Altonji and Pierret, 1997), if they are – in the eyes of society or, say, potential employers – pooled with other foreign-born individuals (and therefore also with new immigrants).

Table 1.13: Regression Results – Immigrants' Qualifications for Admission

VARIABLES	(1) Education	(2) Language	(3) Christian	(4) White	(5) Work Skills	(6) Way of Life
Occupation: Social Skills	0.040	-0.048	-0.088	-0.166**	-0.064	0.017
	(0.056)	(0.044)	(0.075)	(0.061)	(0.050)	(0.061)
Occupation: Technical Skills	0.043	0.185**	0.092*	0.074*	0.155**	0.184***
	(0.060)	(0.065)	(0.048)	(0.041)	(0.059)	(0.050)
Occupation: Job Zone >= 4	-0.103**	-0.373***	-0.245***	-0.164***	-0.157***	-0.250***
	(0.043)	(0.060)	(0.071)	(0.035)	(0.041)	(0.052)
Age	0.011***	0.010**	0.033***	0.025***	0.019***	0.013***
	(0.002)	(0.004)	(0.003)	(0.002)	(0.002)	(0.003)
Female	-0.177**	0.024	0.042	-0.125**	-0.257***	0.025
	(0.073)	(0.064)	(0.066)	(0.050)	(0.076)	(0.044)
Years of Education	-0.030**	-0.068***	-0.071***	-0.070***	-0.042***	-0.041***
	(0.011)	(0.012)	(0.011)	(0.008)	(0.010)	(0.007)
Income Decile	-0.012	-0.037***	-0.006	-0.034***	-0.012	0.015
	(0.011)	(0.010)	(0.012)	(0.008)	(0.012)	(0.011)
Very Close to Country	0.217***	0.349***	0.592***	0.112	0.315***	0.611***
	(0.054)	(0.054)	(0.180)	(0.071)	(0.066)	(0.046)
Foreign-Born Respondent	0.323**	-0.002	0.381**	-0.018	0.093	0.115
	(0.139)	(0.138)	(0.157)	(0.084)	(0.148)	(0.125)
Constant	5.857***	6.840***	2.408***	2.348***	6.065***	6.469***
	(0.263)	(0.267)	(0.439)	(0.293)	(0.186)	(0.318)
Observations	27,434	27,538	27,352	27,391	27,469	27,475
R-squared	0.092	0.183	0.274	0.261	0.142	0.114
Country-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Figure 1.7: Regression Coefficient Plot – Immigrants' Qualifications for Admission
(with 95% confidence intervals)
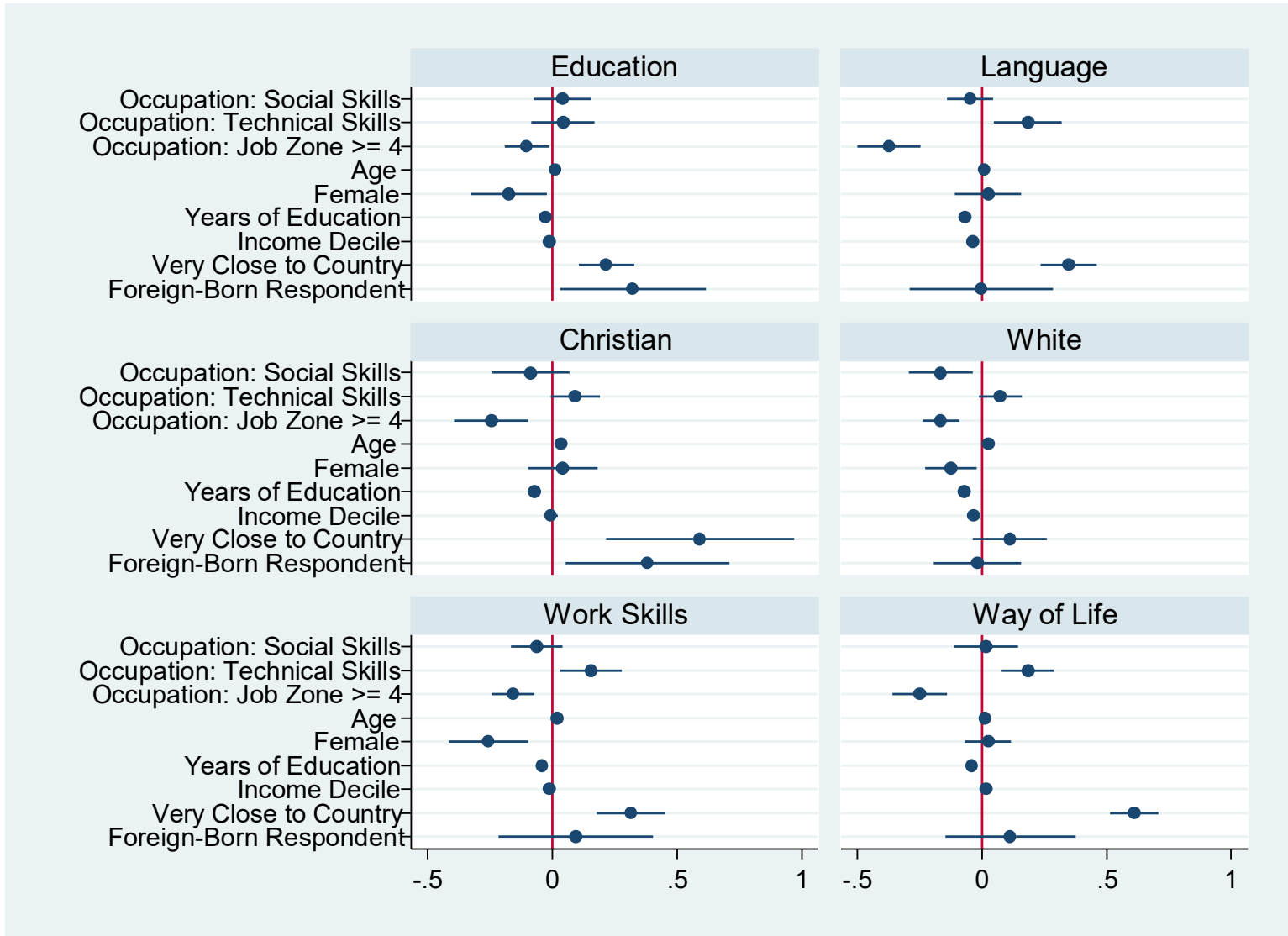
Table 1.14: Magnitude of Implied Effects – Immigrants' Qualifications for Admission

VARIABLES	(1) Education	(2) Language	(3) Christian	(4) White	(5) Work Skills	(6) Way of Life
Occupation: Social Skills				-0.340		
Occupation: Technical Skills		0.368	0.183	0.147	0.308	0.366

1.5.6. Micro-Results for Individual Countries

Note that *Appendix A* contains micro-results – presented graphically as coefficient plots with 95-percent confidence intervals – with the *Pro-Immigration Attitudes*, *Pro-Immigration Policy* and *Qualifications Stringency* indices as the dependent variables - for all the countries included in the sample.[9] Due to a smaller sample size and less within-sample variation, many of the coefficients lose their statistical significance. Nevertheless, when they do reach significance at conventional levels, they tend to have the hypothesized signs. This occurs, as one would expect given the proposed causal mechanism, primarily in the case of Western European countries that have experienced a great deal of immigration – e.g., Austria, Belgium, Denmark, Finland, France, Ireland, the Netherlands or the United Kingdom. In countries that have experiences large immigration flows, the labor market threat from new immigrants is likely to be more salient in the minds of survey respondents than in countries that have not received a great deal of immigrants.

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[9] The within-country results with these indices' component variables on the left-hand side yield similar patterns.

1.6 Conclusion

This essay has analyzed Europeans' immigration attitudes and policy preferences using survey data from the most recent wave of the European Social Survey (ESS) and data on occupational characteristics from O*NET. I have found that foreign-born individuals are more likely to work in occupations that rely on technical, rather than on social skills. Individuals who work in social skills-intensive occupations are – controlling for a set of other demographic and socio-economic characteristics – more likely to believe that immigration is good for the economy, that immigrants enrich the local culture, and that immigration makes their country a better place. They also favor admitting more immigrants from both European and non-European countries, as well as immigrants from within and without their own ethnic group. The same is true of individuals who work in occupation that require considerable preparation in terms of education, formal qualifications or previous work experience.

By contrast, those who work in occupations that rely on technical skills exhibit the opposite pattern, and tend to be less favorably disposed towards immigration and favor less permissive immigration policies. People who work in technical occupations, furthermore, generally favor more stringent admission criteria for immigrants, and are more likely to insist that newcomers speak their country's language, be Christian, white, have needed work skills, and be committed to their country's way of life.

All in all, these findings are largely consistent with a political economy explanation of immigration attitudes and policy preference that relies primarily on the role of labor market competition. Individuals whose jobs rely greatly on social skills and involve plenty of interpersonal interaction and communications are less likely to compete with recent immigrants in the labor market. The same is likely to be the case for individuals who work in occupations

that involve a great deal of preparation – e.g., those that require credentials that might be difficult for immigrants to obtain, especially if they enter the country after childhood.

These results can help inform public policy, as previous research has established a connection between immigration attitudes and immigration policies implemented in democratic societies (Facchini and Mayda, 2008). They may be of particular interest, as the skills structure of advanced economies is changing. Recent research in labor economics suggests, for instance, that automation and globalization have contributed to the erosion of employment in routine occupations that are often technical-skills intensive (Autor and Dorn, 2013). Such changes in the occupational structure of the economy may well have an effect on the distribution of immigration attitudes, and eventually translate into a demand for immigration policy changes.

The study suggests several avenues for potential future research. For instance, its conclusions could be further verified using data from other international and national surveys that are commonly used in comparative political economy research. Obvious examples of international surveys include the European Values Study (EVS), the World Values Survey (WVS), or the National Identity module of the International Social Survey Programme, last fielded in 2013, which includes cross-national survey data on, among other topics, "attitudes towards foreigners and foreign cultures." (ISSP, 2016) Relevant national surveys may include, among others, the General Social Survey (GSS) in the United States, or the British Social Attitudes Survey in the United Kingdom, both of which ask questions about respondents' immigration attitudes.

A limitation of relying on survey data – one that affects much of extant comparative political economy research on immigration attitudes and other topics – is the difficulty of establishing causal relationships. While it appears unlikely that reverse causality is at play in this

essay's argument – an individual's immigration attitudes appear somewhat unlikely to exert a strong influence over occupational choices – it is plausible that both immigration attitudes and occupational choices might be affected by an unobserved factor (e.g., some feature of a respondent's personality or empathy), and therefore lead to biased regression coefficients (e.g., Dinesen, Klemmensen and Norgaard, 2014). The experimental ideal is very difficult to achieve in comparative political economy research, as the random assignment of individuals to occupations appears implausible. Nevertheless, future research should, with more detailed surveyed data, try and account for any currently unobserved characteristics, or – even better for establishing causality – try to take advantage of suitable natural experiments or instrumental variable designs.

Chapter 2:

The Labor Market Effects of English Language Proficiency:

Communication Skills and the Occupational Choice of

Childhood Immigrants to the United States

2.1 Introduction

In this paper, I estimate the causal effect of English language proficiency on the occupational choice of childhood immigrants into the United States. In particular, I examine the hypothesis that immigrants with a stronger grasp of English find employment in occupations in which communications skills are more important. To do so, I use an instrumental variable approach, first proposed by Bleakley and Chin (2004), that exploits the *critical period hypothesis* from cognitive science: Young immigrant children possess superior second language acquisition skills before they reach a critical age after which their skills begin to gradually deteriorate. I also employ an additional instrument, based on Chiswick and Miller (2004), that accounts for the variation in English language acquisition difficulty among immigrants who may be native speakers of other languages. While the effect of English proficiency on labor market earnings and a variety of social outcomes has been examined in previous research (e.g., Bleakley and Chin, 2004; 2010), my study is the first one to consider the causal effect of language skills on the skills composition of immigrants' occupations.

I use data from the Integrated Public Use Microsample Series (IPUMS) of the 2000 U.S. Census of Population and Housing. I complement these data with information on the skills composition of occupations from the Occupational Information Network (O*NET). Since my hypothesis concerns English language proficiency, I focus on the role of communication skills: active listening, negotiation, persuasion, reading comprehension, speaking, and writing.

I find that immigrants who are better at English are more likely to work in occupations that place a great deal of emphasis on good communication skills. I show that communication skills-intensive occupations tend to provide workers with higher annual earnings. I conclude that the sorting of immigrants into occupations that place more or less emphasis on communication skills

might be an important additional channel through which English proficiency affects labor market outcomes. My findings complement existing studies by shedding additional light on the source of labor market outcome disparities between native and immigrant workers.

This paper proceeds as follows: In *Section 2.2*, I provide some background information, along with a brief review of the literature on immigration, occupational choice, and the skills composition of occupations. I then proceed, in *Section 2.3*, to describe my study's empirical strategy. *Section 2.4* describes the data set I use to test my hypotheses empirically, and provides some descriptive statistics about the examined sample, occupational earnings, and the importance of communication skills in various jobs. I then report and discuss the principal results of my empirical analysis. In the concluding section, I summarize my findings, and provide suggestions for future research.

2.2 Background and Literature Review

Despite the slowdown during the Great Recession of 2007-2009, immigration flows into the United States in the 2000s continued at the high levels that had characterized the end of the 20th century (Cherlin, 2010). The high levels of immigration, along with frequent talk of immigration reform, have put the spotlight on the economic, social and assimilation outcomes of immigrants. In this essay, I estimate the causal effect of English language proficiency on the occupational choices and the communication skills composition of immigrants' jobs.

A small but growing research literature has examined the association between English proficiency and occupational outcomes. This strand of literature was initiated by Chiswick (1991), who found that immigrants' English speaking and reading fluency increased with the

duration of their stay in the United States. The increase in language proficiency was, furthermore, higher for those with more schooling and for non-Hispanic immigrants. A more recent study by Chiswick and Taengnoi (2008) finds that high-skilled immigrants with limited proficiency in English, and those whose mother tongue is linguistically distant from English, are more likely to work in occupations in which English communication skills are relatively unimportant. One exception, their analysis shows, are some "speaking-intensive" occupations in the social services. In these, they argued, workers may get away with not being fluent in English if they mostly provide services to immigrants from a similar linguistic background. Chiswick and Miller (2010), furthermore analyze data from the 2000 U.S. Census, and find that respondents' labor earnings increase with their proficiency in English. Additionally, Ipshording and Otten (2012) used survey data from the U.S. Census, the German Socio-Economic Panel (SOEP) and from the National Immigrant Survey of Spain to examine how linguistic distance affects immigrants' acquisition of their host country's language. They find that immigrants from linguistically distant countries are slower to acquire English, German and Spanish, respectively, and can be put at a disadvantage that is equivalent to several years of residency in their host country.

None of these studies, however, address the fact that language skills might be endogenous to the outcome variables. To remedy this shortcoming, Bleakley and Chin (2004; 2010) use an instrumental variables approach – based on the critical period hypothesis from cognitive science – to analyze the effect of English proficiency on a variety of economic and social outcomes. Bleakley and Chin (2004) find that high proficiency has a positive effect on immigrants' wages, and argue that most of the effect is mediated through education. In a later study, Bleakley and Chin (2010) look at a broad range of social outcomes. They find that immigrants who are better

at English assimilate more thoroughly into American society, as measured by the similarity of their marriage, fertility and ethnic segregation outcomes to those of natives.

Bleakley and Chin (2010) thus connect the literature on the labor market consequences of immigrant language proficiency to a broader research agenda on immigrant assimilation (Chiswick, 1978; Borjas, 1985). Borjas (2015) used data from the 1970 – 2010 decennial U.S. Censuses to re-examine trends in immigrant vs. native earnings in the United States labor market. He finds that, among immigrants who entered the country after the 1980s, wage convergence with the natives has been minimal. Borjas highlights the role of English proficiency as one of the reasons for the slowdown in immigrant-native wage convergence. More recent immigrant cohorts, he argues, have been slower at picking up English language skills, and this slowdown is particularly notable among larger national origin groups.

In this essay, I adopt the empirical strategy from Bleakley and Chin (2004; 2010) to consider how immigrants' English language skills affect the annual earnings and communication skills composition of their occupations. I construe occupations as bundles of tasks (or skills) that are required or workers. Individuals are heterogeneous in terms of their proficiency at each task. As a result, they have comparative advantage in performing some tasks and a comparative disadvantage in others. In particular, some immigrants' lack of English language ability puts them at a disadvantage in performing communications-intensive job tasks. The view of occupations as bundles of tasks/skills is similar to that proposed by Lazear (2009). Rather than classifying skills as being either general or occupation-specific (e.g., Becker, 1962), each skill is transferable across occupations. In my theoretical framework, individuals self-select into occupations based on the comparative advantage. Such selection is consistent with the canonical

Roy model of occupational choice (Roy, 1951), as well as with its later applications to labor markets (e.g., Heckman and Sedlacek, 1985; Bils and McLaughlin, 2001).

2.3 Empirical Strategy

In my analysis, I aim to estimate the causal effect of English language proficiency on childhood immigrants' occupational choices. I test the hypothesis that immigrants with a stronger command of the language find employment in better-paid occupations that tend to emphasize communication skills. The study of the relationship between English skills and occupational choice is plagued by issues of omitted variable bias and by the potential for reverse causality. In this section, I discuss these threats to internal validity, justify my use of an instrumental variables approach, and describe my identification strategy.

2.3.1 Endogeneity of English Language Skills and Occupational Choice

2.3.1.1 Omitted Variable Bias from Unobserved Characteristics

English language skills are potentially endogenous to labor market and social outcomes. Some unobserved characteristic – for instance, ambition or generalized cognitive ability – can lead an immigrant both to become more proficient in English, and also to be more successful in the labor market. Such an effect work either directly, or through education if more ambitious or able immigrants acquire more schooling (Bleakley and Chin, 2004).

In the context of occupational choice, the same "ambition" that could make an immigrant work harder to achieve good English skills could also make him or her more likely to choose a

more lucrative occupation, or to pursue additional education that would enable him to do so. The same unobserved traits can also lead an immigrant to assimilate more effectively into his or her social environment. As a result, the immigrant might exhibit more native-like social outcomes with respect to segregation, marriage/divorce patterns, or fertility (Bleakley and Chin, 2010).

2.3.1.2 Potential for Reverse Causality

An alternative way in which English proficiency can be endogenous to occupational choice concerns the potential for reverse causality. On the one hand, immigrants who are worse at English might seek out jobs where they do not need to rely on their language skills as much. At the same time, immigrants working in less communication-intensive jobs may speak poorer English in part precisely because they are working in occupations that provide them with fewer opportunities to hone their language skills (Lazear, 1999).

Early studies of the effects of language proficiency on labor market outcomes tended to neglect the issue of endogeneity, and simply estimated Ordinary Least Squares (OLS) models with a measure of language skills as one of the regressors. Examples include McManus et al. (1983), Kassoudji (1988), Tanier (1988), and Chiswick (1991). In these models, language skills might be positively correlated with the error term due to unobserved characteristics of immigrants that make them both more likely to succeed in labor markets, and to achieve better language proficiency. The resulting upward bias of the OLS estimated would then cause researchers to overestimate the labor market return to language skills.

2.3.1.4 Exploiting the Critical Period for Language Acquisition

To deal with the problem of endogeneity, I use an instrumental variable, proposed by Bleakley and Chin (2004; 2010) and described more thoroughly in the next subsection, that relates English language skills to the immigrants' age at arrival. In addition, I also employ an instrumental variable, constructed from Chiswick and Miller (2004), that relates age at arrival to the relative difficulty of learning English for native speakers of the immigrants' languages.

These instruments are motivated by the critical period hypothesis from cognitive science, which links a childhood immigrant's age with the ability to acquire a foreign language. According to this hypothesis, first proposed by Lenneberg (1967), language acquisition – in terms of vocabulary, grammatical structures, as well as accent (Johnson and Newport, 1991) – is significantly easier for children than for adults before a critical age is reached. The exact timing of the critical age cutoff is a matter of some dispute, but is generally thought to occur around the onset of puberty. Newman (2002) provides a comprehensive overview of the critical period hypothesis.

As a result, the critical period hypothesis for the acquisition of a second language enables me to use a childhood immigrant's age at arrival as an instrument for English language proficiency. If earlier arrivals and immigrants who speak languages that make English relatively easy to learn end up with higher proficiency, the *relevance* requirement for a valid instrument will be satisfied. For an instrument to be valid, the exclusion restriction – the requirement that the instrument only affect occupational choice through its effect on English language proficiency – must also be satisfied. I discuss the instruments, as well as their plausible satisfaction of the exclusion restriction, in more detail in the following subsections.

2.3.2 Empirical Model and Identification Strategy

To tease out the causal effect of English language proficiency on occupational earnings and communication skills composition, I estimate a two-stage least square (2SLS) instrumental variables (IV) regression model. The second-stage equation captures the relationship between the dependent variable Y_{ija} – the median or mean annual earnings in a given occupation, or the average importance of a particular communication skill in an individual's occupation – and a set of explanatory variables, including the key independent variable of interest: English language proficiency (P_{ija}). The specification is as follows:

$$Y_{ija} = \alpha + \beta P_{ija} + \mathbf{X}_{ija}\boldsymbol{\rho} + \delta_a + \gamma_j + \varepsilon_{ija},$$

where i and j index the individual and the country of origin, respectively, while a denotes the immigrant's age at arrival. The vector $\mathbf{X}_{ija}$ contains a set of control variables, whereas δ_a and γ_j are full sets of age at arrival and country of origin dummies. Finally, ε_{ija} is the stochastic error term.

In all estimated specifications, the vector of control variables consists of a female dummy, a set of race and ethnicity dummies (with 'white' as the baseline), and a full set of age dummies. In specifications that control for educational attainment, I include three mutually exclusive additional dummy variables: one for high school diploma, one for 'some college,' and one for a college or advanced degree. The omitted baseline, then, is 'less than a high school education.'

In order to alleviate concerns about the endogeneity of language skills and occupation choice, I employ two instruments for English proficiency that exploit young immigrants' superior language acquisition abilities. In particular, I use the interaction of the English-speaking

status ($E_j = 1$ if the country is *not* English-speaking, and equal to zero otherwise) of an immigrant's country of origin, as categorized by Bleakley and Chin (2010), and his or her age at arrival:

$$Z_{ija} = \max (0, a_i - 9) \times E_j$$

Constructed in this way, the instrument imposes the restriction that the difference in English language acquisition skills does not differ between immigrants from English- and non-English-speaking countries up until the age of nine, but it thereafter linearly related to age at arrival.

Bleakley and Chin (2004) show that the exclusion restriction is plausibly satisfied. They demonstrate that childhood immigrants from English- and non-English-speaking countries do not differ in ways that would invalidate the instrument. In particular, they test whether non-language age-at-arrival effects differ across immigrants form English- and non-English-speaking countries. Non-English-speaking countries, for instance, tend to be poorer than English-speaking ones. As a result, countries where English is not predominantly spoken might have poorer educational systems, and therefore offer lower returns to education in the country of origin. To rule out this possibility, Bleakley and Chin (2004) include per capita GDP in the robustness checks, and find that the results do not differ significantly from their original analysis.

Note, however, that a subtle way in which the exclusion restriction could potentially be violated involves systematic differences between parents who immigrate when their children are very young, and those who immigrate when their children are somewhat older. For instance, it may require more resources – whether financial, educational, or otherwise – to pull one's child out of a home country elementary school, and find a suitable alternative in the United States than to do the same for, say, the enrollment of a slightly older child in a middle school. Under such

circumstances, differences in parental resources could lead to a selection effect that may explain why childhood immigrants exhibit better language proficiency and end up in higher-paid occupations. Unfortunately, the data set used in this analysis (described in more detail in a later section) does not allow me to control for such differences, as it does not contain information on the childhood immigrant parents' income or education.

The other instrument I use is based on Chiswick and Miller (2004), and allows for differences in how difficult immigrants might find it to learn English, depending on the linguistic distance from their mother tongue. Chiswick and Miller (2004) note that English is linguistically closer to Western European languages (e.g., French or German) than it is to languages spoken in East Asia (say, Korean or Japanese). As a result, it might be reasonable to expect that immigrants from Western Europe would attain a stronger command of the English language than immigrants from East Asian countries. For 43 languages, Chiswick and Miller (2004) report scores, based on a study by Hart-Gonzalez and Lindemann (1993), that indicate how proficient English-speaking Americans became in a foreign language after a set period of training (either 16 or 24 weeks). The scores were recoded to range from a low of 1.0 (indicating that the language is relatively easy to learn) for Afrikaans, Norwegian and Swedish to a high of 3.0 (difficult to learn) for Japanese and Korean.

I have used these scores to construct an instrumental variable in the following way:

$$Z_{ija} = I[a_i \geq 10] \times L_j,$$

where $I[a_i \geq 10]$ is an indicator variable that takes on the value of 1 when an individual is at least 10 years old at arrival, and L_j represents the language difficulty score from Hart-Gonzales and Lindemann (1993) associated with the language that is dominant in the immigrant's country of

origin. I have used information from the CIA World Factbook to identify the dominant language in each country of origin (CIA, 2016). If the dominant language is English, L_j is assumed to equal zero. As was the case with the Bleakley and Chin (2010) instrument and in keeping with the critical period hypothesis, this instrumental variable treats immigrants from English- and non-English-speaking countries who arrived before the age of ten equally.

Note that English language proficiency may well enable a childhood immigrant to develop better social skills. As a result, the effect of English language proficiency on occupational choices may not work purely through communication skills, but also through enabling the immigrant to better adapt to local cultural conventions and develop various non-cognitive skills (e.g., Heckman and Rubinstein, 2001). This potential channel is particularly salient when interpreting results obtained using the instrument based on Chiswick and Miller (2004), as "linguistic distance" is likely to be correlated with "cultural distance." For the sake of brevity, I refer mostly to the communication skill as the driver of occupational choice throughout this paper. The reader should, however, allow for a broader interpretation of the importance of language proficiency that includes culturally specific social skills. The overall argument of the paper is largely unaffected by this distinction, as such social skills may – much like greater ease in English-language communication – be hypothesized to increase the likelihood of choosing occupations that rely heavily on communication skills.

Table 2.1 shows the results of the first-stage IV regressions for both instruments. The relevance criterion is satisfied, as an immigrant's English language proficiency is statistically significantly associated with the value of the instrumental variable. The coefficients on the instruments are, as expected, negative in all cases. For the Bleakley and Chin (2010) instrument, an additional year of age beyond the critical threshold of nine years old decreases English

proficiency. Similarly, among immigrants who are at least ten years old, an additional one point of language difficulty – the measure of linguistic distance employed by Chiswick and Miller (2004) – is also associated with a weaker grasp of the English language.

Table 2.1: 2SLS Instrumental Variables Regression: First-Stage Results

	English Language Proficiency			
Instrument:	Bleakley and Chin (2010)		Chiswick and Miller (2004)	
Coefficient on Instrument	−0.087***	−0.071***	−0.090***	−0.079***
	(0.003)	(0.003)	(0.005)	(0.005)
Control for Education	No	Yes	No	Yes
Observations	82,810	81,654	80,574	79,445

Note: $^{*}p < 0.1;$ $^{**}p < 0.05;$ $^{***}p < 0.01$

The way I constructed the instruments allows for the difference in language skills between immigrants from English- and non-English-speaking countries to begin diverging around the end of the critical period for easy language acquisition. The first-stage regression relates the endogenous regressor P_{ija} to the instrumental variable Z_{ija} as well as to all the other exogenous variables in the analysis:

$$P_{ija} = \alpha + \beta_1 Z_{ija} + X_{ija}\rho_1 + \delta_{1a} + \gamma_{1j} + \varepsilon_{ija},$$

The coefficient of interest - β from the second-stage regression – captures the local average treatment effect (LATE) of English proficiency on the lucrativeness (measure by mean or median annual earnings) or communication skills composition of the individuals' occupation (e.g., Imbens and Angrist, 1994; Angrist and Krueger, 2001).

2.4 Data Sources and Descriptive Statistics

2.4.1 Sample Selection: U.S. Census of Population and Housing, 2000

My primary data source is the replication files for Bleakley and Chin (2010). This data set combines the 1 percent and 5 percent samples from the Integrated Public Use Microsample Series (IPUMS) of the 2000 U.S. Census of Population and Housing. It restricts the sample to

individuals who were – at the time of the survey – between the ages of 25 and 55, but arrived in the United States as children below the age of 15. Limiting the sample to individuals who arrived at such a young age helps alleviate concerns about self-selection into the sample: For immigrants who arrived before they turned 15, the timing of arrival was generally not a matter of personal choice, and can be therefore plausibly seen as uncorrelated with the error term.

Note that U.S. immigration law allows immigrating parents to bring along children younger than 21 years of age (USCIS, 2017). Including immigrants who came between the ages of 15 and 21 in the sample would, however, fail to exclude young men who immigrate on their own from Mexico or other Latin American countries. As a result, potential selection issues might be introduced into the analysis (Brick, Challinor and Rosenblum, 2011).

In addition, the group of immigrants who came to the United States at ages 15 to 21 might include a sizeable portion that arrive to pursue an undergraduate education. These immigrants are likely to differ significantly from others on unobserved characteristics such as ambition or cognitive ability. They might also have faced different institutional constraints – such as those that result from holding an F-1 student visa, or from the need to obtain an H1-B visa for post-graduation employment – that set them apart from other young immigrants.

Finally, since my analysis focuses on the lucrativeness and skill composition of samples individuals' occupations, I restrict my sample to employed individuals and omit those who are unemployed or not in the labor force.

2.4.2 English Proficiency

IPUMS provides an ordinal measure of English language proficiency that ranges from 0 (lowest) to 3 (highest). It is based on a question from the Census that asks: "How well does this person speak English?" The question provides four possible responses: "not at all" (=0), "not well" (=1), "well" (=2), "very well' (=3). It is, however, only asked of individuals who had previously indicated that they spoke a language other than English at home. For this reason, the proficiency measure used in this analysis codes those who speak English at home as speaking English "very well" (=3). Kominski (1989) notes that the Census measure of English-speaking skills correlated highly with other measures of language proficiency, such as standardized tests and some functional measures.

2.4.3 Summary Statistics

Table 2.2 provides summary statistics for the examined sample. The sample includes 496,956 immigrants whose mean age at the time of the survey was 37 years. Their mean age at arrival into the United States was 6.4 years, and their mean level of English proficiency is 2.8 on the three-point scale. A little less than half (46.8 percent) of the sample is female. The largest proportion of childhood immigrants are white. Of those who are not, five percent of the immigrants are black, while 11 percent are Asian or Pacific Islanders. Almost 19 percent describe themselves as belonging to 'other race.' Approximately 41 percent of the immigrants consider themselves Hispanic, and nearly 5 percent are multiracial. The educational achievement of the childhood immigrant is diverse: 21.3 percent have finished high school, and 34.2 percent have completed some college coursework. Finally, 29.8 percent of the sample have completed a college education or hold an advanced degree.

Table 2.2: Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Max
Age at Survey	496,956	37.182	8.273	25	55
Age at Arrival	496,956	6.401	4.697	0	14
Female	496,956	0.468	0.499	0	1
Black	496,956	0.053	0.224	0	1
Asian or Pacific Islander	496,956	0.111	0.314	0	1
Other Race	496,956	0.188	0.390	0	1
Multiracial	496,956	0.048	0.214	0	1
Hispanic	496,956	0.406	0.491	0	1
English Proficiency	496,956	2.819	0.496	0	3
High School	490,020	0.213	0.410	0	1
Some College	490,020	0.342	0.474	0	1
College or Advanced Degree	490,020	0.298	0.457	0	1

2.4.4 Occupational Earnings

For each occupation in the data set (as defined by the corresponding OCCSOC code), I calculate the mean and median annual earnings from last year. *Table 2.3* lists the highest- and lowest-earning occupations in the data set. In terms of both the median and mean annual earnings, the top three places are occupied by Physicians and Surgeons, Chief Executives, and Architectural and Engineering Managers with median (mean) earnings of $100,000, $85,000 and $82,000 ($131,348, $121,619 and $96,802), respectively. In each case, the means exceed the medians, a pattern that is consistent with the right-skewed nature of most earnings distributions.

Table 2.3: Highest-Earning Occupations

Median Occupational Earnings		
Rank	Occupation	Median Annual Earnings ($)
1.	Physicians and Surgeons	100,000
2.	Chief Executives	85,000
3.	Architectural and Engineering Managers	82,000
4.	Marine Engineers and Naval Architects	75,000
4.	Mining and Geological Engineers	73,000
Mean Occupational Earnings		
Rank	Occupation	Mean Annual Earnings ($)
1.	Physicians and Surgeons	131,348
2.	Chief Executives	121,619
3.	Architectural and Engineering Managers	96,802
4.	Lawyers	92,174
4.	Personal Financial Advisors	87,766

2.4.5   Skills Composition: Occupational Information Network (O*NET)

Data on the skills composition of individual occupations come from the Occupational Information Network (O*NET), developed under the sponsorship of the U.S. Department of Labor / Employment and Training Administration (USDOL/ETA) through a grant to the North Carolina Department of Commerce. The O*NET program describes itself as "the nation's primary source of occupational information," and provides a detailed, freely and publicly available, database with information on hundreds of standardized and occupation-specific descriptors (O*NET, 2016).

O*NET provides a measure of how important various skills are for the performance of each occupation that its database covers. Skill importance is measured on an ordinal scale that takes on values from 1 to 5, with higher values indicating that the skill is more crucial in the given occupation. For each occupational code, the database includes measure of importance for 35

skills. These are quite varied, as they cover skills as diverse as "equipment maintenance," "critical thinking," or "social perceptiveness."

Since my analysis focuses on the labor market effects of English language proficiency, I restrict my attention to six skills that depend heavily on an individual's communication abilities: active listening, negotiation, persuasion, reading comprehension, speaking, and writing. Other things equal, I expect individuals with a relatively poor command of the English language to find employment in occupations that, on average, put less emphasis on these communication skills.

Table 2.4 lists occupations in which each of the examined communication skills is most important. Active listening matters the most among marriage and family therapists, mental health counselors and judges. Negotiation is especially important for arbitrators, mediators and conciliators. Persuasive skills matter for artists' agents, sales engineers, chief executives, telemarketers, arbitrators and clergy. Reading comprehension is most important for historians, while speaking ability matters most for radio and television announcers. Unsurprisingly, writing skills are most important for writers, reporters and historians.

Because the standard occupation codes (SOC) reported in O*NET are more detailed than those used in the IPUMS data, I used a crosswalk published by the Bureau of Labor Statistics to make all codes consistent (BLS, 2013). If several O*NET codes corresponded to a single IPUMS occupation, I used the mean of the skill importance values across the O*NET codes in the final, merged data set.

Table 2.4: Communication Skills-Oriented Occupations

Active Listening

Rank	Occupation	Skill Importance
1. − 3.	Marriage and Family Therapists	4.75
1. − 3.	Mental Health Counselors	4.75
1. − 3.	Judges, Magistrate Judges, and Magistrates	4.75
4.	Child, Family and School Social Workers	4.62
5.	Clinical Counseling and School Psychologists	4.54

Negotiation

Rank	Occupation	Skill Importance
1.	Arbitrators, Mediators, and Conciliators	4.62
2.	Clergy	4.12
3.–4.	Chief Executives	4
3.–4.	Agents and Business Managers of Artists, Performers, and Athletes	4

Persuasion

Rank	Occupation	Skill Importance
1.–6.	Agents and Business Managers of Artists, Performers, and Athletes	4.12
1.–6.	Sales Engineers	4.12
1.–6.	Chief Executives	4.12
1.–6.	Telemarketers	4.12
1.–6.	Arbitrators, Mediators, and Conciliators	4.12
1.–6.	Clergy	4.12

Reading Comprehension

Rank	Occupation	Skill Importance
1.	Historians	4.75
2.–3.	Editors	4.62
2.–3.	Psychologists, All Other	4.62

Speaking

Rank	Occupation	Skill Importance
1.	Radio and Television Announcers	4.75
2.	Child, Family, and School Social Workers	4.62

Writing

Rank	Occupation	Skill Importance
1.	Technical Writers	4.88
2.	Writers and Authors	4.57
3.–4.	Reporters and Correspondents	4.38
3.–4.	Historians	4.38
5.–6.	Arbitrators, Mediators, and Conciliators	4.25
5.–6.	Clergy	4.25

2.5 Estimation Results and Discussion

2.5.1 The Effect of English Proficiency on Individual and Occupational Earnings

In *Table 2.5*, I report estimation results for regressions that examine the effect of English language proficiency on an individual's occupational earnings. I implement an instrumental variables approach to deal with endogeneity issues. My discussion will therefore focus on the two-stage least squares (2SLS) IV estimated, since they can be interpreted causally. Nevertheless, I also report Ordinary Least Squares (OLS) coefficients in order to be able to explore the magnitude and direction of the bias that arises from the endogeneity of English language skills and immigrants' occupational choices.

The 2SLS point estimates, based on the Bleakley and Chin (2010) instrument, reported in column (3) indicate that a one-point increase in the ordinal measure of English proficiency leads approximately to a 24-percent increase in the median occupational earnings and to a 23-percent rise in the mean earnings. As I have discussed previously, there are at least two ways in which a better command of the English language can influence occupational choice: The direct way involves individuals choosing, from the pool of available job opportunities, occupations in which communication skills are relatively less important. The other, indirect, route goes through education. In particular, an immigrant's better ability to speak and understand English might lead her to obtain more schooling, and thus make more lucrative occupations available.

To tease out the direct effect of English language proficiency, I control for educational attainment by including dummies for 'high school', 'some college' and 'college or advanced degree.' Column (4) shows that the 2SLS estimate shrinks to a little over a half of the 'overall' treatment effect: Keeping the level of educational attainment constant, a one-point increase in

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proficiency leads to a 14-percent increase in median and mean occupational earnings. Consistent with the conjecture that better education allows one to find a more highly paid occupation, the coefficients on the education dummies are positive, increasing and substantively large. All in all, it appears that about half of the effect of English language proficiency on occupational earnings can be attributed to the education channel. The results in columns (5) and (6), obtained using the Chiswick and Miller (2004) instrument, are consistent – both in sign and in magnitude – with these findings obtained using the Bleakley and Chin (2010) instrument.

Table 2.5: Effect of English Language Proficiency on Occupational Earnings

| | Log Median Occupational Earnings | | | | | |
| | OLS | | IV: Bleakley and Chin (2010) | | IV: Chiswick and Miller (2004) | |
	(1)	(2)	(3)	(4)	(5)	(6)
English Proficiency	0.121***	0.062***	0.236***	0.143***	0.285***	0.197***
	(0.006)	(0.005)	(0.053)	(0.041)	(0.080)	(0.061)
High School		0.071***		0.042***		0.023
		(0.007)		(0.014)		(0.023)
Some College		0.201***		0.168***		0.146***
		(0.012)		(0.017)		(0.029)
College or Advanced Degree		0.529***		0.495***		0.473***
		(0.013)		(0.019)		(0.030)

| | Log Mean Occupational Earnings | | | | | |
| | OLS | | IV: Bleakley and Chin (2010) | | IV: Chiswick and Miller (2004) | |
	(1)	(2)	(3)	(4)	(5)	(6)
English Proficiency	0.120***	0.061***	0.228***	0.135***	0.290***	0.200***
	(0.008)	(0.005)	(0.060)	(0.044)	(0.088)	(0.067)
High School		0.060***		0.034**		0.011
		(0.007)		(0.014)		(0.024)
Some College		0.188***		0.157***		0.132***
		(0.013)		(0.018)		(0.030)
College or Advanced Degree		0.551***		0.520***		0.495***
		(0.015)		(0.019)		(0.032)

Dummies:						
- Age	Yes	Yes	Yes	Yes	Yes	Yes
- Age at Arrival	Yes	Yes	Yes	Yes	Yes	Yes
- Country of Origin	Yes	Yes	Yes	Yes	Yes	Yes
- Gender	Yes	Yes	Yes	Yes	Yes	Yes
- Race	Yes	Yes	Yes	Yes	Yes	Yes
Observations	495,854	489,918	496,854	489,918	483,438	476,664
R^2	0.17	0.31	0.16	0.31	0.15	0.30

Note: $^*p < 0.1;^{**}p < 0.05;^{***}p < 0.01$

2.5.1.1 The Relationship Between Occupational Earnings and Communications Skills

Tables 2.6 and *2.7* show a set of linear regressions of log median and mean occupational earnings, respectively, on each of the six examined communication skills. The results show that higher importance given to communication skills is, on average, associated with greater earnings in a given occupation.

The more emphasis is put on listening, speaking reading, writing, negotiation or persuasion, the more lucrative an occupation is likely to be. All of these relationships are highly statistically significant. The positive relationship between occupational earnings and the importance of communication skills will become relevant in the next subsection. Therein, I examine whether differences in English language proficiency might lead immigrants to choose occupations that make more or fewer demands on their communication abilities.

Table 2.6: Median Occupational Earnings and Communication Skills

	Log Median Occupational Earnings					
	OLS					
	(1)	(2)	(3)	(4)	(5)	(6)
Active Listening	0.455***					
	(0.051)					
Negotiation		0.356***				
		(0.044)				
Persuasion			0.345***			
			(0.045)			
Reading Comprehension				0.508***		
				(0.038)		
Speaking					0.387***	
					(0.049)	
Writing						0.432***
						(0.035)
Constant	8.696***	9.366***	9.356***	8.618***	8.963***	9.005***
	(0.182)	(0.119)	(0.126)	(0.128)	(0.172)	(0.106)
Observations	324	324	324	324	324	324
R^2	0.20	0.17	0.15	0.36	0.16	0.33
Note:					$^*p < 0.1;^{**}p < 0.05;^{***}p < 0.01$	

Table 2.7: Mean Occupational Earnings and Communication Skills

	Log Mean Occupational Earnings					
			OLS			
	(1)	(2)	(3)	(4)	(5)	(6)
Active Listening	0.514***					
	(0.051)					
Negotiation		0.410***				
		(0.044)				
Persuasion			0.416***			
			(0.044)			
Reading Comprehension				0.546***		
				(0.037)		
Speaking					0.454***	
					(0.048)	
Writing						0.466***
						(0.034)
Constant	8.610***	9.345***	9.282***	8.611***	8.853***	9.025***
	(0.180)	(0.117)	(0.123)	(0.125)	(0.169)	(0.104)
Observations	324	324	324	324	324	324
R^2	0.24	0.22	0.22	0.40	0.21	0.37

Note: $^*p < 0.1;^{**}p < 0.05;^{***}p < 0.01$

2.5.2 The Effect of English Language Proficiency on Skills Composition

Tables 2.8 and *2.9* contain the regression results for models that estimate the effect of English proficiency on the skills composition of childhood immigrants' occupations. While I only report coefficient estimates on the English proficiency variable and on the three educational attainment dummies, each of the models also includes a full set of dummies for age at time of survey, age at arrival, gender and race, as well as for the country of origin.

For each of the six communication skills I analyze, a better command of the English language leads individuals to choose occupations in which the examined skills are more important. Compared to immigrants whose knowledge of English is less firm, those with a good proficiency in the language are more likely to self-select into occupations that place more emphasis on active listening, negotiation, persuasion, reading comprehension, speaking and writing. The fact that coefficients on the education dummies are, as one might expect, all positive and increasing in the level of attainment (i.e., college or advanced degree > some college > high school > less than high school) suggests that schooling allows immigrants to choose from occupations that rely more strongly on communication skills.

In all cases, controlling for educational attainment reduces the magnitude of the treatment effect: Much as was the case for occupational earnings, part of the effect of English language proficiency appears to have a direct influence on occupational choice, while another part works through education. The relative magnitudes of the 2SLS coefficients in regressions that do and do not control for education indicate that approximately 25 to 40 percent of the effect of proficiency operates through the education channel. The IV regression results are similar, regardless of whether I use the Bleakley and Chin (2010), or the Chiswick and Miller (2004) instrument.

Table 2.8: Effect of English Language Proficiency on Occupational Skills Composition

	Skill Importance					
	Active Listening					
	OLS		IV: Bleakley and Chin (2010)		IV: Chiswick and Miller (2004)	
	(1)	(2)	(3)	(4)	(5)	(6)
English Proficiency	0.141***	0.081***	0.302***	0.206***	0.315***	0.235***
	(0.008)	(0.011)	(0.038)	(0.032)	(0.073)	(0.054)
High School		0.114***		0.070***		0.060***
		(0.005)		(0.013)		(0.020)
Some College		0.247***		0.195***		0.184***
		(0.008)		(0.017)		(0.026)
College or Advanced Degree		0.453***		0.402***		0.392***
		(0.011)		(0.026)		(0.026)
	Negotiation					
	OLS		IV: Bleakley and Chin (2010)		IV: Chiswick and Miller (2004)	
	(7)	(8)	(9)	(10)	(11)	(12)
English Proficiency	0.155***	0.096***	0.313***	0.219***	0.254***	0.171*
	(0.012)	(0.014)	(0.048)	(0.046)	(0.111)	(0.093)
High School		0.115***		0.071***		0.089***
		(0.008)		(0.016)		(0.032)
Some College		0.253***		0.203***		0.223***
		(0.008)		(0.020)		(0.038)
College or Advanced Degree		0.433***		0.382***		0.405***
		(0.013)		(0.022)		(0.038)
	Persuasion					
	OLS		IV: Bleakley and Chin (2010)		IV: Chiswick and Miller (2004)	
	(13)	(14)	(15)	(16)	(17)	(18)
English Proficiency	0.157***	0.097***	0.298***	0.197***	0.256**	0.164*
	(0.012)	(0.014)	(0.046)	(0.044)	(0.110)	(0.092)
High School		0.121***		0.085***		0.097***
		(0.008)		(0.015)		(0.031)
Some College		0.250***		0.209***		0.227***
		(0.008)		(0.019)		(0.037)
College or Advanced Degree		0.441***		0.399***		0.415***
		(0.014)		(0.021)		(0.036)
Observations	82,810	81,654	82,810	81,654	80,574	79,445

Note: *p < 0.1; **p < 0.05; ***p < 0.01

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Table 2.9: Effect of English Language Proficiency on Occupational Skills Composition

	Skill Importance					
	Reading Comprehension					
	OLS		IV: Bleakley and Chin (2010)		IV: Chiswick and Miller (2004)	
	(1)	(2)	(3)	(4)	(5)	(6)
English Proficiency	0.170***	0.088***	0.358***	0.228***	0.363***	0.245***
	(0.007)	(0.010)	(0.048)	(0.034)	(0.078)	(0.051)
High School		0.133***		0.083***		0.078***
		(0.005)		(0.012)		(0.018)
Some College		0.316***		0.258***		0.252***
		(0.008)		(0.015)		(0.023)
College or Advanced Degree		0.669***		0.610***		0.605***
		(0.011)		(0.017)		(0.024)
	Speaking					
	OLS		IV: Bleakley and Chin (2010)		IV: Chiswick and Miller (2004)	
	(7)	(8)	(9)	(10)	(11)	(12)
English Proficiency	0.157***	0.092***	0.307***	0.197***	0.304***	0.211***
	(0.011)	(0.013)	(0.044)	(0.040)	(0.082)	(0.060)
High School		0.121***		0.084***		0.079***
		(0.006)		(0.014)		(0.020)
Some College		0.264***		0.221***		0.249***
		(0.008)		(0.017)		(0.025)
College or Advanced Degree		0.501***		0.457***		0.453***
		(0.013)		(0.019)		(0.025)
	Writing					
	OLS		IV: Bleakley and Chin (2010)		IV: Chiswick and Miller (2004)	
	(13)	(14)	(15)	(16)	(17)	(18)
English Proficiency	0.191***	0.096***	0.385***	0.228***	0.395***	0.255***
	(0.007)	(0.010)	(0.051)	(0.038)	(0.092)	(0.062)
High School		0.161***		0.114***		0.105***
		(0.006)		(0.014)		(0.021)
Some College		0.363***		0.309***		0.299***
		(0.008)		(0.018)		(0.026)
College or Advanced Degree		0.760***		0.705***		0.696***
		(0.011)		(0.020)		(0.027)
Observations	82,810	81,654	82,810	81,654	80,574	79,445

Note: $^{*}p < 0.1; ^{**}p < 0.05; ^{***}p < 0.01$

2.5.3   The Direction of Endogeneity Bias

In all estimation results tables, I report both OLS and 2SLS estimates for the coefficients. A comparison of their relative magnitudes allows for an analysis of the potentially countervailing effects of omitted variables bias and of measurement error. A large research literature in labor economics has discussed the influence of 'ability bias,' a form of omitted variable bias that occurs, for instance, when higher ability leads individuals to both get more schooling and to achieve more favorable labor market outcomes. In the context of my study, higher ability might lead childhood immigrants to both become better at English and to end up in better-compensated occupations. If ability bias is an important influence on immigrants' occupational choice, one would expect OLS coefficients to be upwardly biased.

Across all specifications in my analysis, OLS coefficients on the education are greater in magnitude than the corresponding 2SLS estimates. Such results are consistent with an ability bias story, in which greater ability leads some immigrants to obtain more education, as well as to opt for better-paid occupations or for jobs that require better communication skills.

For coefficients on the English language proficiency variable, however, the relative magnitudes are reversed: The 2SLS estimates are, in all cases, larger than the ones obtained from the ordinary linear regression models. Bleakley and Chin (2004; 2010) observe a similar pattern in their results. They note that measurement error might account for the discrepancy. In the presence of classical measurement error in an independent variable, OLS coefficients exhibit 'attenuation bias' – in absolute value, the magnitude of estimated coefficients is closer to zero than they would be if unbiased (e.g., Bound and Krueger, 1991). Measurement bias of this sort would, in my analysis, lead OLS coefficients to be downwardly biased.

Previous research indicates that measurement error in the categorical English language proficiency variable might indeed exert a countervailing effect on OLS coefficient bias. In their examination of the effects of proficiency on labor earning, Bleakley and Chin (2004) perform a validation test using an alternative measure of English language proficiency based on a literacy test, and find that classical measurement error (and the resulting downward bias) exerts more influence on the coefficients than omitted variables bias (e.g., ability bias that should lead to upward bias in OLS coefficients).

2.5.4   Robustness Checks

I perform two simple tests to check the robustness of my results to the exclusion of two immigrant source countries – Canada and Mexico. In terms of social, demographic and economic characteristics, Canada is more similar to the United States than any other country in the world. As the cultural and professional practices in Canada resemble very closely those found in the United States, one might wonder whether Canadian arrivals should be considered "immigrants" in the same way that someone who came from, say, Brazil would be. In addition, the largest proportion of childhood immigrants – as many as 21 percent – in the sample come from Mexico. I therefore consider the possibility that my results are driven, in large part, by the occupational choice of Mexican immigrants.

To test the robustness of my main results, I re-estimate my models using samples that exclude Canada and Mexico, respectively. I report the resulting 2SLS coefficients that represent the effect of English language proficiency on the occupational earnings composition in *Tables*

2.10 and *2.11*, respectively. While the coefficients' magnitudes change slightly relative to the full sample results, their signs stay the same and statistical significance remains high.

Table 2.10: Robustness Checks: Occupational Earnings – Instrument: Bleakley and Chin (2010)

	Log of Median Occupational Earnings					
	Full Sample		Without Canada		Without Mexico	
English Proficiency	0.236***	0.143***	0.237***	0.160***	0.346***	0.201***
	(0.053)	(0.041)	(0.062)	(0.048)	(0.076)	(0.068)
	Log of Mean Occupational Earnings					
	Full Sample		Without Canada		Without Mexico	
English Proficiency	0.228***	0.135***	0.222***	0.145***	0.346***	0.206***
	(0.060)	(0.044)	(0.068)	(0.053)	(0.083)	(0.070)
Control for Education	No	Yes	No	Yes	No	Yes
Observations	496,854	489,918	470,298	463,536	391,764	387,306

Note: $^{*}p < 0.1;^{**}p < 0.05;^{***}p < 0.01$

Table 2.11: Robustness Checks: Occupational Earnings – Instr.: Chiswick and Miller (2004)

	Log of Median Occupational Earnings					
	Full Sample		Without Canada		Without Mexico	
English Proficiency	0.285***	0.197***	0.270**	0.207**	0.340***	0.233***
	(0.080)	(0.061)	(0.112)	(0.083)	(0.120)	(0.084)
	Log of Mean Occupational Earnings					
	Full Sample		Without Canada		Without Mexico	
English Proficiency	0.290***	0.200***	0.262**	0.196**	0.356***	0.243***
	(0.088)	(0.067)	(0.121)	(0.089)	(0.129)	(0.089)
Control for Education	No	Yes	No	Yes	No	Yes
Observations	483,438	476,664	456,882	450,282	378,378	374,052

Note: $^{*}p < 0.1;^{**}p < 0.05;^{***}p < 0.01$

Similarly, *Tables 2.12* and *2.13* contain the results of my IV regression analysis of the effect of English language proficiency on the communication skills content of immigrants' occupations. For all examined communication skills, the 2SLS coefficients – using both the Bleakley and Chin (2010) and the Chiswick and Miller (2004) instruments – change only in a minor way, and generally remain statistically significant.

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Table 2.12: Robustness Checks: Skills Composition – Instrument: Bleakley and Chin (2010)

	Skill Importance *(2SLS)*					
	Active Listening					
	Full Sample		Without Canada		Without Mexico	
English Proficiency	0.302***	0.206***	0.279***	0.189***	0.343***	0.212***
	(0.038)	(0.032)	(0.038)	(0.037)	(0.069)	(0.057)
Control for Education	No	Yes	No	Yes	No	Yes
	Negotiation					
	Full Sample		Without Canada		Without Mexico	
English Proficiency	0.313***	0.219***	0.284***	0.194***	0.348***	0.232***
	(0.048)	(0.046)	(0.049)	(0.050)	(0.090)	(0.081)
Control for Education	No	Yes	No	Yes	No	Yes
	Persuasion					
	Full Sample		Without Canada		Without Mexico	
English Proficiency	0.298***	0.197***	0.264***	0.165***	0.312***	0.186***
	(0.046)	(0.044)	(0.047)	(0.047)	(0.087)	(0.076)
Control for Education	No	Yes	No	Yes	No	Yes
	Reading Comprehension					
	Full Sample		Without Canada		Without Mexico	
English Proficiency	0.358***	0.228***	0.347***	0.234***	0.451***	0.269***
	(0.048)	(0.034)	(0.053)	(0.041)	(0.078)	(0.063)
Control for Education	No	Yes	No	Yes	No	Yes
	Speaking					
	Full Sample		Without Canada		Without Mexico	
English Proficiency	0.307***	0.197***	0.269***	0.164***	0.328***	0.184***
	(0.044)	(0.040)	(0.040)	(0.040)	(0.082)	(0.070)
Control for Education	No	Yes	No	Yes	No	Yes
	Writing					
	Full Sample		Without Canada		Without Mexico	
English Proficiency	0.385***	0.228***	0.369***	0.229***	0.450***	0.238***
	(0.051)	(0.038)	(0.059)	(0.048)	(0.090)	(0.073)
Control for Education	No	Yes	No	Yes	No	Yes
Observations	82,810	81,654	78,384	77,257	65,299	64,551

Note: $^{*}p < 0.1;^{**}p < 0.05;^{***}p < 0.01$

Table 2.13: Robustness Checks: Skills Composition – Instrument: Chiswick and Miller (2004)

	Skill Importance (2SLS)					
	Active Listening					
	Full Sample		**Without Canada**		**Without Mexico**	
English Proficiency	0.315***	0.235***	0.266**	0.208***	0.330***	0.241***
	(0.073)	(0.054)	(0.103)	(0.072)	(0.103)	(0.070)
Control for Education	No	Yes	No	Yes	No	Yes
	Negotiation					
	Full Sample		**Without Canada**		**Without Mexico**	
English Proficiency	0.254***	0.171*	0.169	0.103	0.245*	0.164***
	(0.111)	(0.093)	(0.159)	(0.121)	(0.138)	(0.110)
Control for Education	No	Yes	No	Yes	No	Yes
	Persuasion					
	Full Sample		**Without Canada**		**Without Mexico**	
English Proficiency	0.256**	0.164*	0.164	0.089	0.241*	0.149
	(0.110)	(0.092)	(0.159)	(0.119)	(0.134)	(0.104)
Control for Education	No	Yes	No	Yes	No	Yes
	Reading Comprehension					
	Full Sample		**Without Canada**		**Without Mexico**	
English Proficiency	0.363***	0.245***	0.322***	0.236***	0.397***	0.265***
	(0.078)	(0.051)	(0.113)	(0.069)	(0.116)	(0.070)
Control for Education	No	Yes	No	Yes	No	Yes
	Speaking					
	Full Sample		**Without Canada**		**Without Mexico**	
English Proficiency	0.304***	0.211***	0.230**	0.160**	0.307***	0.210***
	(0.082)	(0.060)	(0.111)	(0.070)	(0.107)	(0.074)
Control for Education	No	Yes	No	Yes	No	Yes
	Writing					
	Full Sample		**Without Canada**		**Without Mexico**	
English Proficiency	0.395***	0.255***	0.346**	0.241***	0.426***	0.273***
	(0.092)	(0.062)	(0.137)	(0.085)	(0.129)	(0.081)
Control for Education	No	Yes	No	Yes	No	Yes
Observations	80,574	79,445	76,148	75,048	63,063	62,342

Note:	$^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$

All in all, I conclude that the patterns found in my main analysis are robust to the exclusion of Canada and Mexico, two potential sources of bias, from the data set.

2.6 Conclusions and Further Research

The empirical analysis in this paper suggests an important causal effect of English language proficiency on the occupational choices of childhood immigrants into the United States. Using two instruments for English language skills that are based on young children's greater ability to learn a foreign language, I find that higher English proficiency leads immigrants to work in occupations that put a greater emphasis on communication skills. These occupations, furthermore, tend to command higher wages. As a result, the sorting of immigrants into occupations that vary in their emphasis on communication might be an additional channel through which English language proficiency affects their labor market outcomes.

I find, furthermore, that about half of the effect on occupational choice works through the education channel, while the other half can be attributed to occupational choice within educational categories. Approximately 25 to 40 percent of the effect of English language proficiency on the communication skills composition of childhood immigrants' occupations is channeled through education. These results are somewhat at odds with Bleakley and Chin (2004), who find that much of the effect of English language proficiency on workers' earnings is mediated through higher educational attainment. By contrast, my analysis suggests that there appear to be economically important direct effects of English skills on occupational choice. These lead more proficient individuals to work in more lucrative occupations, even within given educational categories.

Several avenues for further research might prove fruitful. One involves the use of additional data that have become available in recent years. This paper's analysis relies on the

data set provided with Bleakley and Chin (2010), based on microdata from the 2000 U.S. Census. Microdata from the more recent census, conducted in 2010, is now available, and could be used to verify the findings of my analysis. In addition, analyzing data from the American Community Survey (ACS), an ongoing large-scale statistical survey that has been administered since 2005, could provide additional observations, as well as a sense of whether the magnitude of the effect of English proficiency remains stable over time. In this way, researchers might be able to provide additional evidence on whether the relationship between English language proficiency and labor market outcomes (including occupational choice) differs across cohorts and national origin groups, as suggested by Borjas (2015).

My analysis uses a measure of linguistic distance that relies on the difficulty of foreign language acquisition by American learners (Hart-Gonzales and Lindemann, 1993; Chiswick and Miller, 2004). One could, however, consider using a different measure. One candidate might be a measure that is based on classifications of languages into families (Guiso, Sapienza and Zingales, 2009). Another appealing possibility involves employing the Levenshtein distance between English and the dominant language in the immigrant's country of origin. Intuitively, the Levenshtein distance between two words record how many characters or sounds one needs to edit in order to turn one word into the other. Ipshording and Otten (2012) advocate for the use of the Levenshtein distance in labor economics research to measure how distant languages are from one another. One could obtain such a measure by averaging the Levenshtein distances of words that have the same meaning in both languages, based on comparative data sets such as the one maintained by the Automatic Similarity Judgment Program (ASJP) at the German Max Planck Institute for Evolutionary Anthropology (Ipshording and Otten, 2012).

Another intriguing possibility for future research concerns individuals' choices across educational concentrations. Having established that higher English proficiency leads immigrants to acquire more years of schooling and also affects their occupational choices, the natural next step might involve examining whether language skills affect what immigrants study in college. The American Community Survey has collected data on the fields of respondents' bachelor's degrees since 2009. An empirical analysis similar to the one presented in this study might be expanded to include immigrants' choice of college majors and how these might translate into social and labor market outcomes.

Chapter 3:

Social Capital, the Quality of Social Networks and Redistribution Preferences:

Evidence from the International Social Survey Programme

3.1 Introduction

People seek employment, among other reasons, to provide for themselves and for their families, to maintain a sense of self-worth, and to conform to social norms. One way in which individuals can increase their chances of employment, and thus of receiving a higher income, is through acquiring human capital. They can learn new skills, pursue on-the-job training, or complete more formal education. An alternative way to increase one's job prospects entails investment in social capital – i.e., joining social organizations or cultivating social networks. In this way, individuals can foster relationships that might lead to more, or better, job opportunities.

The variation in employment probabilities that stems from social and human capital investment can then affect individuals' redistribution preferences. In particular, those who find themselves more likely to suffer unemployment might prefer a greater degree of income redistribution to provide a cushion for themselves in bad times. On the contrary, those who are less likely to be unemployed would like to avoid paying taxes to finance government benefits they do not expect to collect. As a result, one might expect these individuals to be less supportive of redistributive policies.

I use survey data from 20 advanced industrialized countries included in the 2006 Role of Government module of the International Social Survey Programme to examine this relationship between social capital and redistribution preferences. I find some evidence that individuals with better-quality social networks tend to oppose increasing taxes on the rich and lowering taxes on the poor. In addition, they are more likely to believe, *ceteris paribus*, that the government ought to be responsible for providing jobs to those who want them, and for ensuring a decent living standard for the unemployed.

Nevertheless, I also find no statistically significant relationship between a higher social network quality and an individual's belief that the government ought to reduce income differences, or increase spending on unemployment benefits. Finally, the social network quality measures do not enhance the explanatory power of regression models significantly, suggesting that any implied effects are fairly tenuous.

This essay is laid out as follows: First, I provide some background by reviewing the existing research literature on the determinants of individual-level redistribution preferences, as well as on the role of social capital. In doing so, I outline a simple theoretical framework that illustrates the effect of social capital on a representative individual's preferences for redistribution. I then use survey data from the International Social Survey Programme to test the theoretical predictions empirically. I conclude by summarizing my results, and by suggesting potential avenues for further research.

3.2 Background, Literature Review and Outline of Theoretical Framework

The term 'social capital,' construed differently across fields and applications (Adler and Kwon, 2002), generally connotes the resources accumulated through one's relationships with other people (Coleman, 1988). This paper focuses on an understanding of social capital as the "circumstances in which individuals can use membership in groups and networks to secure benefits." (Sobel, 2002)

Economists, political scientists, social psychologists and sociologists have examined a range of benefits that social capital can bestow on individuals and societies. These include higher rates of region- and country-level economic growth (Helliwell and Putnam, 1995; Knack and Keefer,

1997), the quality of democracy and of life in general (Putnam, 1995), greater voter turnout in elections (Abrams, Iversen and Soskice, 2011), the creation of intellectual capital (Nahapiet and Ghoshal, 1998), as well as health and psychological well-being (Nieminen et al., 2010). In this essay, I consider another potential benefit of social capital – the ability to obtain a job, and avoid unemployment – and examine how it may, through this channel, affect individual-level preferences for redistributive tax policies.

3.2.1 Social Capital as an Asset in the Search for Employment

Social networks that can help individuals find higher-quality employment. They can thus either avoid unemployment entirely or, at least, shorten their unemployment spells. In addition, they could use their social networks to be hired into better-paid positions. Holzer (1988) extends a standard job search model to allow for multiple search methods, including referrals. Since seeking assistance form a friend or a family member is cheap, and generates a job offer with a relatively high probability, one might – according to Holzer's model – expect a significant proportion of jobs in the economy to be obtained through a referral. Holzer (1987) indeed finds this to be the case, as more than a third of firms surveyed in the Equal Opportunity Pilot Project filled their last vacancies through referrals.

More recently, Pellizzari (2004) provided cross-country evidence that a large proportion of workers find out about, or obtain, employment through their social connections. Employers might prefer to hire through social network referrals as well, since recommenders are likely to pre-screen applicants (Rees, 1966), and to refer those similar to themselves (Doeringer and Piore,

1971). Montgomery (1991) builds a formal model that predicts better labor market outcomes for workers who are more socially connected, and higher profits for firms that hire them.

3.2.2 Social Capital, Life-Time Income and Redistribution Preferences

An individual with a higher stock of social capital – one with a broader or higher-quality social network, or one that is a member of more or better-quality social organizations – will face a lower probability of unemployment. Since that same individual will, by the same token, spend more time in gainful employment, the present discounted value of her income will be higher. In simple terms, well-connected people enjoy higher life-time incomes.

A person's income, present or expected, can affect her redistribution preferences. Economic self-interest makes someone with a relatively low income more likely to support policies that redistribute income towards her, and vice versa. Social capital can, therefore, affect one's support for redistributive government tax policies through increasing an individual's expected income.

The Meltzer-Richard model has been the workhorse model for analyzing the relationship between the distribution of income and redistribution preferences (Meltzer and Richard, 1981). The model assumes that the median voter determines government policy, and that a proportional income tax pays for lump sum government transfers. It predicts that greater income inequality would lead to greater demand for redistribution. In the Meltzer-Richard model, lower income leads an individual to demand greater redistribution to increase his or her consumption possibilities. Low-income individuals, furthermore, are only stopped from shifting all income towards themselves (i.e., from expropriating the rich) by the disincentive effects of taxation.

Motivated partly by the mixed empirical record of the Meltzer-Richards model (Borge and Rattso, 2004), later models of redistribution preferences have introduced greater nuance into the determinants of individuals' support for income equalization or redistributive tax policies. Among the most notable contributions is the introduction of an insurance motive for redistribution (Sinn, 1995; Moene and Wallerstein, 2001), which suggests that even higher-income individuals might support some redistribution. Taxes effectively serve as the insurance premiums a worker has to pay to benefit from government transfers, should he fall on hard times. Following Baldwin's (1992) suggestion that labor market risk may affect redistribution preferences, Iversen and Soskice (2001) extend the insurance model by introducing skill-specificity as a measure of risk exposure. More recently, Cusack, Iversen and Rehm (2006) and Rehm (2009) have also focused on the role of risk in shaping individuals' redistribution preferences, and have highlighted the role of occupational risk in particular. Their analyses found that individuals who find a greater degree of occupation-specific job uncertainty tend to demand greater income redistribution.

In insurance models of redistribution preferences – such as Moene and Wallerstein (2001) and Iversen and Soskice (2001) - an individual may, with some probability, end up in a good state (e.g., employed, while using their general or specific skills) or a bad state (e.g., unemployed). In my conceptual framework, a higher degree of social capital would lead an individual to be less likely to end up in the unemployed state. As a result, one might expect a socially well-connected individual to demand less redistribution, as their lifetime expected income has increased.

The research literature on individual-level determinants of redistribution preference is, of course, much richer, and proposes a variety of additional and alternative explanations. Benabou

and Ok (2001), for instance, point out that prospects of upward social and economic mobility –
or, as Benabou and Tirole (2006) suggest, the self-indoctrination that such upward mobility is
indeed possible – can reduce individuals' demand for redistribution.

Other arguments have gone beyond material self-interest. Alesina and LaFerrara (2002) have,
for instance, found that those who believe that luck is more important than hard work in
achieving good economic outcomes are more likely to support income redistribution. Luttmer
(2001) and Fong and Luttmer (2008), for instance, note that individuals may be more willing to
redistribute towards those who are similar to them in terms of race, ethnicity, language or
religion. Alesina and Glaeser (2004), in fact, argue that one of the reasons that European welfare
states are more redistributive than the United States has to do with the relative racial
homogeneity of Europe. Alesina and Guiliano (2011) provide a comprehensive overview of the
extant research literature on redistribution preferences.

3.3 Empirical Strategy

The framework outlined in the previous section suggests that, in cross-sectional survey
data, one should expect to observe that individuals with higher human and social capital
endowments state a preference for less redistribution. In terms of tax policy, such a preference
would entail being opposed to increasing taxes on those who earn high incomes, and perhaps
also opposing the lowering of taxes on those with low incomes. Individuals with higher-quality
social networks might also be expected to support a greater government role in providing a
decent living standard for the unemployed, reducing income inequality or providing jobs to those

who would like to have them. They may also be more likely to support government spending on unemployment benefits.

I test these predictions empirically using survey data from 20 advanced industrialized countries, obtained from the Role of Government module of the 2006 wave of the International Social Survey Programme (ISSP). In particular, I focus on the role of social network quality – a measure of one's social capital endowment – constructed based on respondents' self-reports about the depth of their social connections. Data from the ISSP have been used extensively in comparative political economy research to study topics as varied as political trust (Svallfors, 1999), attitudes towards the environment (Franzen and Meyer, 2010), the welfare state (Larsen, 2008), wage inequality (Osberg and Smeeding, 2006), or immigration (Mayda, 2006).

3.3.1 Model Specification

To estimate the relationship between individuals' social network quality s_{ij} and their redistribution preferences, I estimate an Ordinary Least Squares (OLS) multiple regression model with the following specification:

$$r_{ij} = \gamma_j s_{ij} + X_{ij}\rho + \mathbf{d}_i \delta_a + \varepsilon_{ij}$$

where i and j index countries and individuals within countries, respectively. The coefficient of interest is γ, which represents the effect of social capital on preferences. $\mathbf{X}_{ij}$ is a vector of individual-level control variables. The model includes country-fixed effects – represented by d_i, a full set of country dummies – to allow for the possibility that surveyed individuals' baseline redistribution preferences might differ across countries. Finally, ε_{ij} is the stochastic error term.

3.3.2 Dependent Variables

My analysis focuses on several dependent variables that gauge individuals' attitudes toward redistribution: some of these variables refer to the ISSP respondents' views on tax policy, government spending on unemployment benefits, and the government's responsibility to provide employment, to ensure a decent standard of living for the unemployed, or to reduce income differences.

3.3.2.1 Redistributive Tax Policy Preferences

Measures of individuals' preferences over redistributive tax policies are based on *Questions 12a* and *12c* in the ISSP questionnaire. *Question 12a* asks "Generally, how would you describe taxes in [Country] today? (We mean all taxes together, including [wage deductions], [income tax], [taxes on goods and services] and all the rest.) First, for those with high incomes, are taxes…", and then proceeds to give the respondents five answer choices: "much too high", "too high", "about right", "too low", and "much too low." *Question 12c* asks "Lastly, for those with low incomes, are taxes…", and has respondents choose from the same answer possibilities.

Based on the respondent's answer to these questions, I construct a dummy variable that captures their implied preferences over tax policy – an individual who believes taxes are too high is presumed to prefer a lower tax rate, and vice versa. The dummy variable *Tax High More* takes on a value of 1 if the respondent, based on her answer to *Question 12a*, states that taxes on those with high incomes are either "too low" or "much too low." Similarly, the dummy *Tax Low Less* equals 1 if the respondent, based on *Question 12c*, believes that, for those with low incomes, taxes are "much too high" or "too high." For the purposes of a robustness check, I have also

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constructed, in an analogous manner, dummy variables *Tax High Much More* and *Tax Low Much Less* based on respondents' answers of "much too low" and "much too high" only.

3.3.2.2 Other Measures of Redistribution Attitudes

In addition to considering respondents' views on tax policies, I examine how the quality of their social networks relates to several additional measures of redistribution attitudes that are included in the survey data. *Question 7* of the ISSP questionnaire asks "On the whole, do you think it should or should not be the government's responsibility to…," and then continues to gauge the respondents' opinion on several potential responsibilities.

The ones most relevant to my analysis are *7a* ("…provide a job for everyone who wants one"), *7b* ("provide a decent standard of living for the unemployed") and *7g* ("reduce income differences between the rich and the poor"). The answers to these questions form the basis of variables *Provide Jobs*, *Living Standard for Unemployed* and *Reduce Inequality*, respectively. In the questionnaire, respondents are given four possible ways of answering *Question 7*: "definitely should be [the government's responsibility]", "probably should be", "probably should not be" and "definitely should not be". I recode these responses so that the three aforementioned variables are binary, with a value of 1 when the respondent answers "definitely should be" or "probably should be", and a value of zero otherwise.

Finally, I use a dependent variable – called *Spending on Unemployment Benefits* – based on *Question 6g*: "Please show whether you would like to see more or less government in [the] area [of] unemployment benefits." The available options are "spend much more", "spend more", "spend the same as now", "spend less" and "spend much less". Again, I recode the variable to be

an indicator of whether the individual favors spending "more" or "much more" on unemployment benefits.

Table 3.1 presents the mean values of all dependent variables for each of the 20 advanced industrial countries included in my sample.

Table 3.1: Means of Dependent Variables by Country

Country	Tax High More	Tax Low Less	Provide Jobs	Living Standard for Unemployed	Reduce Inequality	Spend on Unempl. Benefits
Australia	0.287	0.728	0.420	0.554	0.595	0.114
Canada	0.387	0.676	0.323	0.585	0.631	0.227
Denmark	0.267	0.653	0.571	0.808	0.542	0.195
Finland	0.434	0.470	0.556	0.847	0.759	0.407
France	0.476	0.609	0.613	0.677	0.756	0.140
Germany	0.594	0.751	0.675	0.702	0.690	0.320
Great Britain	0.313	0.675	0.551	0.564	0.678	0.152
Ireland	0.505	0.674	0.620	0.805	0.793	0.502
Israel	0.385	0.738	0.793	0.638	0.861	0.422
Japan	0.613	0.757	0.465	0.541	0.612	0.262
Netherlands	0.484	0.668	0.546	0.648	0.691	0.113
New Zealand	0.138	0.613	0.350	0.455	0.463	0.060
Norway	0.420	0.754	0.773	0.869	0.716	0.181
Portugal	0.577	0.885	0.847	0.911	0.929	0.614
South Korea	0.831	0.733	0.696	0.690	0.805	0.506
Spain	0.455	0.794	0.798	0.928	0.843	0.576
Sweden	0.371	0.820	0.539	0.808	0.644	0.265
Switzerland	0.637	0.681	0.498	0.675	0.692	0.284
Taiwan	0.712	0.728	0.323	0.585	0.631	0.227
United States	0.563	0.628	0.407	0.515	0.531	0.370

3.3.3 Independent Variables of Interest: Social Network Quality

The Role of Government module of the 2006 ISSP contains two questions that can serve as proxies for the quality of an individual's social network, and therefore as a measure – in my simple set-up – of social capital endowments.

Question 14a asks: "Some people because of their job, position in the community or contacts, are asked by others to help influence important decisions in their favour. What about you? How often are you asked to help influence important decisions in other people's favour?" Respondents can choose from four options: "never" (coded in the data set as 1), "seldom" (2), "occasionally" (3) and "often." (4) By asking how often others seek the respondent's help in influencing important decisions, this question gets at the respondent's importance in a social network. Other things equal, presumably, an individual with more and higher-quality social connections will be more likely to be asked for help in influencing decisions in others' favor. I refer to the ordinal measure based on answers to *Question 14a* as the independent variable *Asked*.

Another question captures the quality of an individual's social network by asking how many people the respondent can turn to when needed. The ordinal independent variable *Ask* is based on *Question 14c* in the questionnaire: "And are there people you could ask to help influence important decisions in your favour?" There are, again, four possible answer choices: "No, nobody" (coded as 1), "Yes, a few people" (2), "Yes, some people" (3) and "Yes, a lot of people." (4).

Higher values on the ordinal measures *Ask* and *Asked* are assumed to correspond to higher stocks of social capital. Based on my conceptual framework, I expect higher values of both *Ask* and *Asked* to be associated with a preference for less redistributive government policies.

In particular, individuals with a greater social capital endowment – as measured by either variable – will be less likely to express a preferences for higher taxes on the rich or for lower taxes on the poor. In addition, I expect them to be more inclined to believe that it is the government's responsibility to provide jobs to those who want them, to ensure a decent living standard for the unemployed, and to reduce income inequalities. Last but not least, I anticipate that individuals with a higher-quality social network will express a preference for increased government spending on unemployment benefits.

Tables 3.2 and *3.3* contain the mean values of the two measures of social network quality – *Ask* and *Asked*, respectively. In addition, they tabulate the distribution of these variables' values, expressed as percentages of the number of respondents who answered the corresponding questions. For both variables, it appears that most respondents fall – on the four-category ordinal scale – into the lowest two categories: they can only ask "nobody" or "a few people" to help influence important decisions in their favor (variable *Ask*), or they are "never" or only "seldom" asked to help influence such decisions in other people's favor (variable *Asked*). Nevertheless, a significant portion of the respondents answers that "some" or "a lot" of people ask them for help, and that they are "occasionally" or "often" asked themselves – suggesting that there is enough variation in the independent variables for the empirical analysis to be worthwhile.

Table 3.2: Means and Distribution of Key Independent Variable *Ask* by Country

Country	Ask	"No, nobody" = 1	"Yes, a few people" = 2	"Yes, some people" = 3	"Yes, a lot of people" = 4
Australia	1.78	38.7%	45.9%	13.6%	1.6%
Canada	1.82	37.8%	45.5%	13.8%	2.9%
Denmark	1.96	31.8%	43.3%	21.4%	3.3%
Finland	1.71	47.0%	36.9%	13.9%	2.2%
France	1.85	34.6%	46.7%	17.7%	0.9%
Germany	1.54	56.8%	32.7%	9.7%	0.8%
Great Britain	1.71	44.6%	41.1%	12.9%	1.5%
Ireland	1.73	43.3%	40.8%	14.9%	1.0%
Israel	1.76	40.2%	46.9%	9.7%	3.2%
Japan	1.81	37.7%	45.2%	15.9%	1.3%
Netherlands	1.87	36.1%	43.0%	18.5%	2.4%
New Zealand	1.94	29.1%	51.3%	16.2%	3.4%
Norway	1.80	38.7%	43.6%	16.5%	1.1%
Portugal	1.88	40.6%	34.1%	22.4%	2.9%
South Korea	1.78	43.9%	34.9%	20.1%	1.0%
Spain	1.97	38.4%	28.5%	31.0%	2.2%
Sweden	2.01	29.1%	44.8%	22.7%	3.4%
Switzerland	1.61	49.1%	41.9%	7.7%	1.3%
Taiwan	2.20	23.8%	36.5%	35.6%	4.1%
United States	1.91	36.6%	41.5%	16.2%	5.8%

Table 3.3: Means and Distribution of Key Independent Variable *Asked* by Country

Country	Asked	"Never" = 1	"Seldom" = 2	"Occasionally" = 3	"Often" = 4
Australia	1.98	36.2%	34.2%	25.3%	4.3%
Canada	1.93	37.1%	37.3%	21.6%	4.0%
Denmark	2.05	33.4%	33.6%	27.2%	5.7%
Finland	1.70	51.0%	31.2%	15.1%	2.8%
France	2.08	35.2%	27.6%	30.9%	6.3%
Germany	1.76	50.0%	27.7%	18.8%	3.4%
Great Britain	1.94	39.0%	31.9%	24.6%	4.5%
Ireland	1.56	66.0%	16.5%	13.2%	4.4%
Israel	2.08	39.3%	25.6%	22.4%	12.6%
Japan	1.80	39.9%	40.9%	18.0%	1.2%
Netherlands	2.09	33.0%	30.6%	30.8%	5.6%
New Zealand	2.08	31.3%	34.6%	28.6%	5.6%
Norway	1.95	32.4%	41.4%	24.6%	1.6%
Portugal	1.74	51.6%	26.0%	19.3%	3.1%
South Korea	1.94	38.4%	31.7%	27.4%	2.6%
Spain	1.73	56.8%	17.3%	22.2%	3.6%
Sweden	2.01	37.4%	31.2%	24.4%	7.0%
Switzerland	1.74	50.4%	27.6%	19.6%	2.5%
Taiwan	2.10	30.1%	35.0%	29.7%	5.2%
United States	2.10	34.8%	29.4%	27.0%	8.7%

3.3.4 Control Variables

A simple regression of measures of redistribution preferences on the social network quality measures will yield biased coefficients, if other determinants of redistribution attitudes are also correlated with the social capital measure. To obtain regression coefficients that do not suffer from omitted variable bias, I control for the stock of human capital, several demographic characteristics (age, gender, marital status, religion), income, and trade union membership. These control variables were chosen as previous research has connected them to redistribution preferences – see, e.g. Alesina and Giuliano (2011) for an exhaustive overview. As we shall see later in the empirical portion of this essay, many of them are potential determinants of the depth of an individual's social network quality.

3.3.4.1 Human Capital

The simple framework outlined earlier focuses not only on social capital, but also on individuals' human capital endowments. In particular, it predicts that those with more human capital – in other words, people with better skills and with greater educational attainment – will favor lower levels of redistribution: their optimal tax rate is lower, as is their preferred size of unemployment benefits. Education can, furthermore, be correlated with social capital. More educated people might, for instance, find it easier to enter certain organizations, such as professional associations, or might be able to cultivate social networks that can help them find jobs more effectively (Huang et al., 2009).

I use *Years of Education* completed as a proxy for the stock of human capital, a measure that has been widely used in research literature (e.g., Angrist and Krueger, 1991; Farber and

Gibbons; 1996; Lleras-Muney, 2005). The degree of correspondence between the *Years of Education* measure and an individual's stock of human capital will be particularly tight if, across the sampled countries, students acquire similar skills in corresponding education years.

Note that the ISSP questionnaire includes questions about educational attainment that rely on the level of education that each respondent has completed and on the degrees she has obtained. Compared to the *Years of Education* proxy I use, however, this alternative measure is less suitable for my analysis, as the possible responses are not consistent, and are difficult to translate meaningfully across the countries in the sample.

3.3.4.1 Demographic Characteristics

I control for the respondent's age, gender, marital status, and religion. Controlling for these demographic characteristics is important, as they may correlate with the quality of an individual's social network. Women, for instance, might face discrimination, and have reduced access to some social organizations or opportunities (Burt, 1998; Heim et al., 2011). Age or marital status can also have an effect on one's ability to accumulate social capital. Glaeser et al. (2002), for instance, finds that social capital first rises, and then falls with age. Religious communities might also act a source of social capital, as individuals may use their church connections, for instance, to look for employment (Putnam, 1995; Wuthnow, 2002).

At the same time, these same demographic characteristics can be linked to differences in redistribution preferences. Svallfors (1997) found that, even after controlling for class position and labor market status, "men […] are more prone to support large income differences than women." These differences, he found, are "little affected by [welfare] regime type," as defined

by Esping-Andersen (1990) or Castles and Mitchell (1992). Age has also been linked to differences in redistribution preferences: Corneo and Gruner (2002) examine ISSP data, and conclude that "being old enhance[s] the preference for governmental redistribution." Stegmueller et al. (2012), furthermore, find that there is a cleavage between secular and religious individuals in their attitudes towards redistribution. In particular, they find that both Catholics and Protestants strongly oppose income redistribution by the state. Scheve and Stasavage (2006) argue that higher levels of religiosity are associated with a preference for less redistribution, as religion and the welfare state are substitute mechanisms that insure individuals against adverse life events.

3.3.4.2 Income and Trade Union Membership

In addition to human capital and demographic characteristics, I also control for the each respondent's annual family income. Many standard models of redistribution, most notably the canonical Meltzer-Richard model (1981), suggest a relationship between income and redistribution preferences. An individual's income can also affect her ability to build up a high-quality social network. Admission to some social organizations, for instance, may require the payment of a fee, or require members to make regular financial contributions. To control for family income, I construct an *Income Decile* variable based on the respondents' self-reports. I use deciles for my income variable, as family income is coded differently for each country in the survey, and the ISSP data do not contain a consistent cross-country measure of income.

In addition, trade union membership has been consistently found to correlate with a preference for greater redistribution (e.g., Fong, 2001; Finseraas, 2008). I therefore include a

Union Member dummy in all specifications that takes on a value of 1 if the respondent is currently a member of a trade union. The association of union membership with a preference for redistribution is unsurprising, since they have historically been linked to the political left (Huber and Stephens, 2001), and have been active. Iversen and Soskice (2015), in fact, refer to them as "one of the few remaining formal organizations with political objectives that still play a significant role in the welfare of a large […] number of people."

3.3.5 Summary Statistics

Table 3.4 contains the summary statistics – the number of observations, the means, and the standard deviations of each right-hand-side variable – for the sample used in my analysis. The average age in the sample is 43 years, and approximately 53 percent of included respondents are female. Two thirds of the respondents are married, and the average number of years of education is 13. There are about equal numbers of Catholics and Protestants – 28 percent each. Last but not least, as many as 29 percent of individuals in the sample are currently members of a trade union. The *Income Decile* variable does not appear in this summary statistics table, as it is simply the value of the decile to which an individual corresponds in her country's income distribution. Note that, in the ISSP data, income categories are measured in each country's own currency, and are therefore not easily comparable across country-specific questionnaires.

Table 3.4: Summary Statistics

Variable	N	Mean	Standard Deviation
Age	19,044	43.1	10.074
Female	19,042	0.53	0.499
Married	18,894	0.66	0.473
Years of Education	18,142	13.1	3.928
Union Member	17,276	0.29	2.724
Catholic	18,582	0.28	0.453
Protestant	18,582	0.28	0.451
Other Religion	18,582	0.17	0.448

3.4 Estimation Results and Discussion

3.4.1 Determinants of Social Network Quality

I begin my empirical analysis by analyzing the determinants of social network quality. What kinds of factors are correlated with one being an important member of a social network (as proxied by the *Asked* variable), or with having social connections one can turn to (proxied by *Ask*)? To examine this question, I regress the *Ask* and *Asked* ordinal measures on the demographic and socio-economic characteristics described earlier, and present the estimation results in *Table 3.5*.

Table 3.5: Determinants of Social Network Quality

VARIABLES	(1) Ask	(2) Asked
Age	-0.004***	-0.003***
	(0.001)	(0.001)
Female	-0.052***	-0.065***
	(0.015)	(0.017)
Married	-0.081***	-0.113***
	(0.019)	(0.025)
Years of Education	0.014***	0.018***
	(0.003)	(0.003)
Income Decile	0.035***	0.045***
	(0.005)	(0.005)
Union Member	-0.027	0.011
	(0.019)	(0.020)
Catholic	0.044**	0.036
	(0.020)	(0.030)
Protestant	0.082***	0.034
	(0.018)	(0.024)
Other Religion	0.052	0.053
	(0.031)	(0.035)
Constant	1.672***	1.647***
	(0.078)	(0.070)
Observations	13,246	13,597
R-squared	0.067	0.063

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Consistent with previous research, age and being female are statistically significant determinants of the quality of one's social network. Both women and older respondents have lower-quality social networks. We find a similar relationship between being married and social network quality, perhaps suggesting that married individuals find it difficult – maybe due to the need to take care of their families – to network very extensively. By contrast, more highly educated individuals and those in higher family income deciles enjoy higher-quality social networks. Such income and education patterns are consistent with those found by Glaeser, Laibson and Sacerdote (2002), who find – using data from the General Social Survey (GSS) in the United States – that higher levels of income and education are associated with an individual's belonging to more social organizations. Trade union membership show no significant association with either social capital stock measure.

The coefficients on the religious affiliation dummies exhibit an interesting pattern. While they do not appear to be significantly correlated with the *Asked* measure, the dummies on both Catholic and Protestant reach statistical significance and have a positive sign in the specification where *Ask* is the dependent variable. This pattern is consistent with religious and church communities acting as environments where one can, among other things, acquire new social connections that can later prove helpful (e.g., Taylor, Chatters, Lincoln and Woodward, 2017).

3.4.2 Preferences for Redistributive Tax Policy

Table 3.6 presents estimation results from a regression of *Tax High More* – i.e., the respondent's preference for higher taxes on those with high incomes – on the two measures of social network quality (*Ask* and *Asked*) and the full set of control variables.

Table 3.6: Tax Policy Preferences: Taxing Those with High Incomes More

VARIABLES	(1) Tax High More	(2) Tax High More	(3) Tax High More
Ask	-0.023***		-0.011**
	(0.004)		(0.004)
Asked		-0.025***	-0.021***
		(0.006)	(0.007)
Age	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)
Female	0.002	0.003	0.002
	(0.014)	(0.013)	(0.014)
Married	-0.018*	-0.017	-0.020*
	(0.010)	(0.011)	(0.010)
Years of Education	-0.001	-0.001	-0.001
	(0.003)	(0.003)	(0.003)
Income Decile	-0.018***	-0.019***	-0.018***
	(0.003)	(0.003)	(0.003)
Union Member	0.083***	0.086***	0.085***
	(0.016)	(0.017)	(0.017)
Catholic	-0.045***	-0.045***	-0.045***
	(0.014)	(0.013)	(0.014)
Protestant	-0.029**	-0.029**	-0.030**
	(0.012)	(0.011)	(0.011)
Other Religion	-0.042**	-0.043**	-0.043**
	(0.018)	(0.017)	(0.018)
Constant	0.501***	0.507***	0.521***
	(0.041)	(0.039)	(0.041)
Observations	12,414	12,719	12,309
R-squared	0.140	0.140	0.142

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The regression results are consistent with my hypothesis that individuals with higher-quality social networks will be less inclined to support redistributive tax policies, as evidenced by the statistically significant negative coefficients on *Ask* and *Asked* in all specifications. *Table 3.7* presents estimation results when *Tax Low Less* is the dependent variable. The regressions yield results consistent with my hypothesis for the *Ask* variable. There appears to be, however, no statistically significant relationship between *Asked* and desiring lower taxes for the poor.

Table 3.7: Tax Policy Preferences: Taxing Those with Low Incomes Less

VARIABLES	(1) Tax Low Less	(2) Tax Low Less	(3) Tax Low Less
Ask	-0.014**		-0.016**
	(0.006)		(0.006)
Asked		-0.002	0.004
		(0.005)	(0.005)
Age	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)
Female	0.021*	0.021*	0.020*
	(0.011)	(0.011)	(0.011)
Married	-0.013	-0.014	-0.013
	(0.011)	(0.011)	(0.011)
Years of Education	-0.014***	-0.014***	-0.014***
	(0.002)	(0.002)	(0.002)
Income Decile	-0.017***	-0.018***	-0.017***
	(0.003)	(0.003)	(0.003)
Union Member	0.015	0.016	0.014
	(0.012)	(0.013)	(0.012)
Catholic	0.013	0.010	0.013
	(0.016)	(0.016)	(0.016)
Protestant	-0.007	-0.007	-0.009
	(0.016)	(0.018)	(0.016)
Other Religion	-0.011	-0.013	-0.010
	(0.017)	(0.017)	(0.017)
Constant	0.969***	0.949***	0.963***
	(0.047)	(0.043)	(0.046)
Observations	12,664	12,974	12,555
R-squared	0.059	0.059	0.059

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 3.1: Coefficient Plots for Tax Policy Preference Regressions (95% confidence intervals)
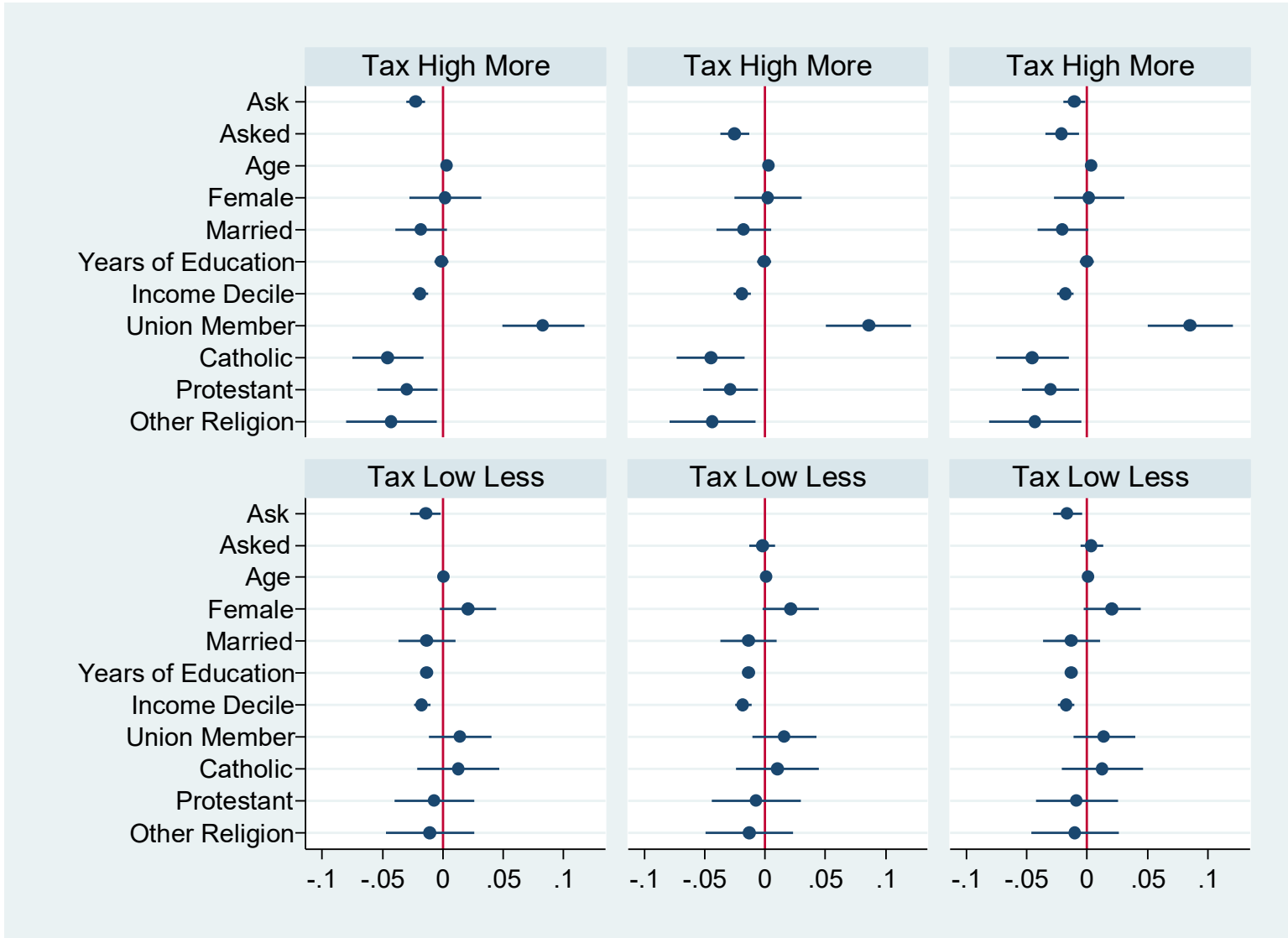
3.4.3 Views on Government Responsibilities and Spending on Unemployment Benefits

Table 3.8, 3.9 and *3.10* present estimation results from regressions that examine individuals' views on the government's responsibilities – i.e., model that have *Provide Jobs*, *Living Standard for Unemployed* and *Reduce Inequality*, respectively, as dependent variables.

The regression results suggest that individuals who can ask many other people to influence important decisions in their favor are, *ceteris paribus*, less likely to believe that it should be the government's responsibility to provide a job to everyone who wants one. No statistically significant result is, however, found for those who are frequently themselves asked to help influence decisions in favor of others. Furthermore, when each of our two measures of social network quality (*Ask* and *Asked*) is included in the regression model separately, the estimation results appear to suggest that those with higher stocks of social capital are less likely to believe that the government ought to be responsible for ensuring a decent living standard for the unemployed. When both of the measures are included in the same model, however, the corresponding coefficients lose their statistical significance.

Finally, there appears to be no statistically significant relationship between the quality of an individual's social network and her views on whether the government should be responsible for reducing income inequalities. A similar picture appears in *Table 3.11*, which presents regression results with *Spending on Unemployment Benefits* as the dependent variable, where most of the relevant regression coefficient do not reach statistical significance.

Overall, the estimation results that focus on respondents' attitudes toward the government's responsibilities – summarized graphically in *Figure 3.2* – appear to provide only weak support for my hypotheses.

Table 3.8: Government Responsibility: Provide Jobs

VARIABLES	(1) Provide Jobs	(2) Provide Jobs	(3) Provide Jobs
Ask	-0.014**		-0.016**
	(0.005)		(0.007)
Asked		-0.002	0.003
		(0.006)	(0.007)
Age	-0.002***	-0.002***	-0.002***
	(0.001)	(0.000)	(0.000)
Female	0.073***	0.077***	0.074***
	(0.010)	(0.011)	(0.010)
Married	0.004	0.005	0.004
	(0.011)	(0.012)	(0.012)
Years of Education	-0.008***	-0.009***	-0.008***
	(0.002)	(0.002)	(0.002)
Income Decile	-0.028***	-0.028***	-0.028***
	(0.004)	(0.004)	(0.004)
Union Member	0.043***	0.043***	0.044***
	(0.013)	(0.014)	(0.014)
Catholic	0.028	0.025	0.026
	(0.019)	(0.017)	(0.018)
Protestant	-0.012	-0.011	-0.014
	(0.012)	(0.011)	(0.012)
Other Religion	0.052***	0.051***	0.049***
	(0.017)	(0.016)	(0.016)
Constant	0.903***	0.880***	0.899***
	(0.037)	(0.032)	(0.036)
Observations	12,881	13,193	12,761
R-squared	0.161	0.160	0.162

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.9: Government Responsibility: Living Standard for Unemployed

VARIABLES	(1) Living Standard for Unemployed	(2) Living Standard for Unemployed	(3) Living Standard for Unemployed
Ask	-0.011**		-0.006
	(0.005)		(0.007)
Asked		-0.009**	-0.006
		(0.004)	(0.006)
Age	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)
Female	0.032***	0.031***	0.031***
	(0.007)	(0.007)	(0.007)
Married	-0.033**	-0.032*	-0.033**
	(0.015)	(0.015)	(0.015)
Years of Education	0.004**	0.004**	0.004**
	(0.001)	(0.002)	(0.001)
Income Decile	-0.017***	-0.018***	-0.017***
	(0.004)	(0.004)	(0.004)
Union Member	0.039***	0.038***	0.038***
	(0.012)	(0.010)	(0.012)
Catholic	-0.022	-0.020	-0.022
	(0.014)	(0.013)	(0.014)
Protestant	-0.026**	-0.025*	-0.028**
	(0.011)	(0.012)	(0.011)
Other Religion	0.032*	0.030*	0.032*
	(0.016)	(0.016)	(0.016)
Constant	0.654***	0.652***	0.658***
	(0.042)	(0.039)	(0.042)
Observations	12,793	13,119	12,675
R-squared	0.114	0.114	0.114

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.10: Government Responsibility: Reduce Inequality

VARIABLES	(1) Reduce Inequality	(2) Reduce Inequality	(3) Reduce Inequality
Ask	-0.009		-0.004
	(0.005)		(0.004)
Asked		-0.010	-0.009
		(0.006)	(0.006)
Age	0.001*	0.001*	0.001**
	(0.001)	(0.001)	(0.001)
Female	0.053***	0.054***	0.053***
	(0.011)	(0.012)	(0.012)
Married	-0.009	-0.007	-0.010
	(0.013)	(0.013)	(0.013)
Years of Education	-0.004	-0.004	-0.003
	(0.002)	(0.002)	(0.002)
Income Decile	-0.028***	-0.028***	-0.028***
	(0.005)	(0.005)	(0.005)
Union Member	0.086***	0.084***	0.086***
	(0.020)	(0.019)	(0.020)
Catholic	-0.005	-0.006	-0.005
	(0.014)	(0.013)	(0.014)
Protestant	-0.041***	-0.039***	-0.040***
	(0.011)	(0.012)	(0.011)
Other Religion	0.022	0.019	0.021
	(0.023)	(0.021)	(0.023)
Constant	0.825***	0.841***	0.829***
	(0.047)	(0.045)	(0.048)
Observations	12,834	13,152	12,722
R-squared	0.130	0.130	0.131

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.11: Government Spending Preferences: Spend on Unemployment Benefits

VARIABLES	(1) Spend on Unemployment Benefits	(2) Spend on Unemployment Benefits	(3) Spend on Unemployment Benefits
Ask	-0.010*		-0.007
	(0.005)		(0.006)
Asked		-0.007	-0.004
		(0.005)	(0.005)
Age	0.002***	0.002***	0.002***
	(0.001)	(0.001)	(0.001)
Female	0.002	0.004	0.002
	(0.009)	(0.010)	(0.009)
Married	-0.018	-0.015	-0.016
	(0.011)	(0.012)	(0.012)
Years of Education	-0.005***	-0.005***	-0.005***
	(0.002)	(0.002)	(0.002)
Income Decile	-0.028***	-0.028***	-0.027***
	(0.003)	(0.003)	(0.003)
Union Member	0.028*	0.028*	0.029*
	(0.016)	(0.016)	(0.016)
Catholic	-0.021*	-0.023*	-0.024**
	(0.011)	(0.011)	(0.011)
Protestant	-0.024	-0.024	-0.025
	(0.016)	(0.016)	(0.016)
Other Religion	0.016	0.016	0.017
	(0.013)	(0.014)	(0.014)
Constant	0.486***	0.470***	0.489***
	(0.045)	(0.046)	(0.047)
Observations	12,883	13,212	12,764
R-squared	0.180	0.182	0.182

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Figure 3.2: Coefficient Plots for Other Redistribution Preference Regressions (95% confidence intervals)
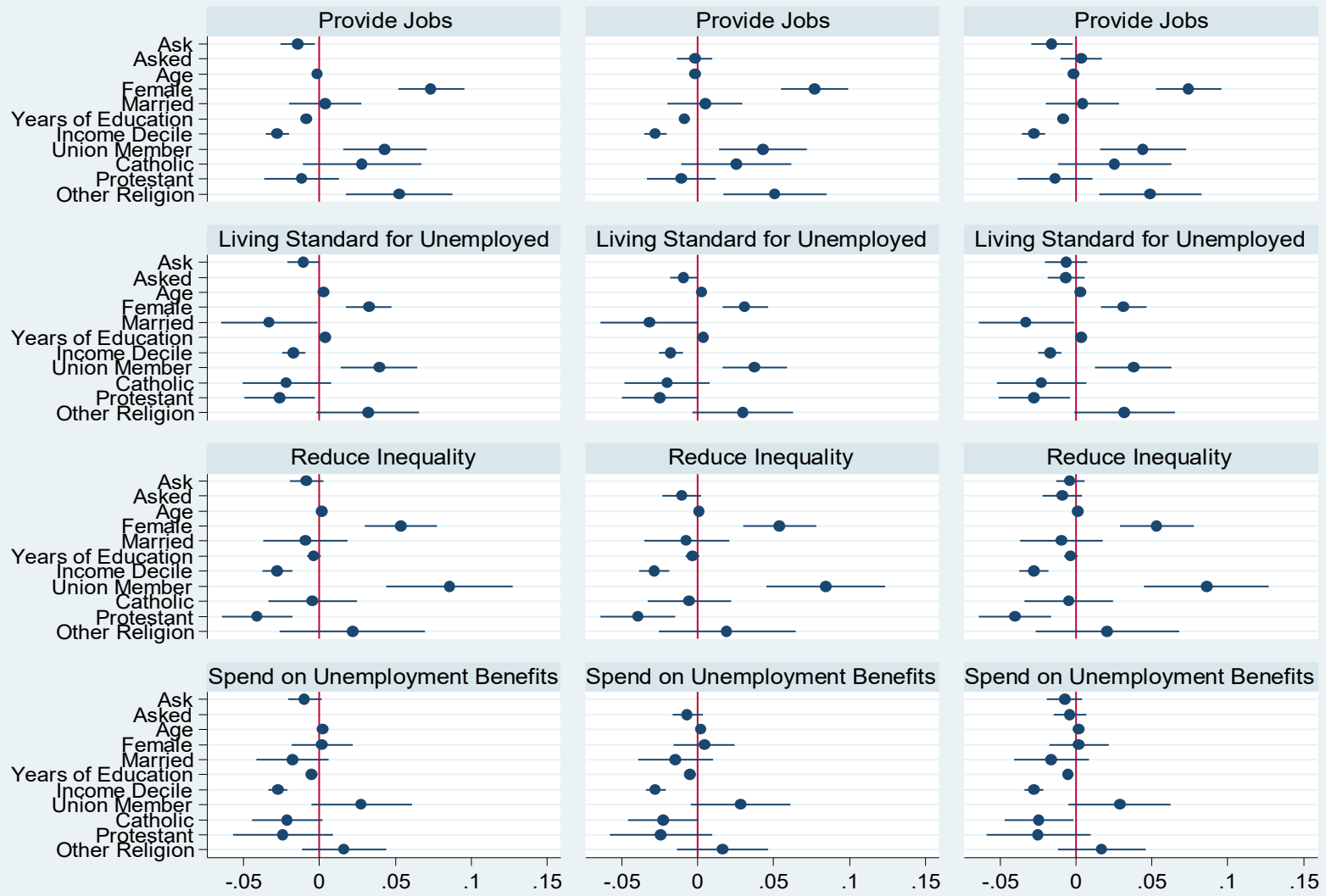
3.4.4 Estimated Results on Control Variables

A glance at the summary coefficient plots in *Figures 3.1* and *3.2* reveals that there appear to be some very consistent patterns in the estimation results on the included demographic and socio-economic control variables. By and large, these conform to my *ex ante* hypotheses.

Predictably, individuals who find themselves in higher income deciles are consistently more opposed to greater redistribution, as predicted by models that focus primarily on redistributive aspects of support for the welfare state (e.g., Meltzer and Richard, 1981). Additional education appears to have a similar effect in many specifications.

Women tend to be more supportive of redistribution than men. Being married does not appear to have a statistically significant correlation with pro-redistribution attitudes in most specifications, although it does appear that married individuals are less likely to believe that the government ought to ensure a decent living standard for the unemployed. A possible explanation might involve the marriage couples ability to share unemployment and other economic risks within their household (e.g., Becker, 1985; Rosenzweig, 1988; Iversen and Rosenbluth, 2006). The association of age with redistribution preferences does not appear to be very consistent across the estimated specifications.

Union membership is fairly consistently – with the only exception of one's support for an increase in spending on unemployment benefits – associated with greater support for redistribution. Compared to non-religious individuals and other denominations, Protestants tend to be less likely to believe that it is the government's role to reduce inequality (Scheve and Stasavage, 2006). Interestingly, relative to the non-religious, Catholics, Protestants and individuals of other faiths tend to be more supportive of increasing the tax rates on the rich.

3.4.5 How Much Variation Can Be Explained by Social Network Quality?

The regression results presented earlier have suggested that there appears to be some evidence that individuals whose social networks are of a higher quality (as measured by the *Ask* and *Asked* proxies) exhibit less redistributive attitudes towards tax policy. At the same time, the results for other redistribution-related attitudes – i.e., respondents' views on the governments' responsibilities and their preferences over the level of government spending on unemployment benefit – appears to support my hypotheses only very weakly, if at all.

How much variation in redistribution preferences can be explained by such tenuous results? *Table 3.12* presents a comparison of R^2 statistics for each of the examined dependent variables. They are presented for a set of regression specifications: a baseline model with neither key independent variable included, a model with only *Ask* included, a model with only the *Asked* variable, and finally a model that includes both. In each specification, the same demographic and socio-economic control variables are included as in the models estimated earlier in this paper. Note that *Appendix C* presents the estimation result for the baseline models with neither *Ask* nor *Asked* included.

In linear regression models such as the ones estimated in this essay, the R^2 statistic is a goodness-of-fit measure that indicates what proportion of the variance in the dependent variable (here: redistribution preferences) is explained by the variation in the included independent variables. The values presented in *Table 3.12* suggest that the addition of social network quality variable does very little to improve the explanatory power of the linear regression.

Table 3.12: Comparison of R^2 Statistics Across Estimated Models

Dependent Variable	Baseline	Ask	Asked	Ask + Asked
Tax High More	0.137	0.140	0.140	0.142
Tax Low Less	0.059	0.059	0.059	0.059
Provide Jobs	0.159	0.161	0.160	0.162
Living Standard for Unemployed	0.114	0.114	0.114	0.114
Reduce Inequality	0.129	0.130	0.130	0.130
Spend on Unemployment Benefits	0.181	0.180	0.181	0.182

3.5 Conclusion and Future Research

Using data from 20 advanced industrialized countries included in the 2006 Role of Government module of the International Social Survey Programme (ISSP), I found that a higher stock of social capital – as proxied by self-reported measures of the quality of one's social network – is associated with weaker individual-level preferences for income equalization through the tax system. In particular, I find that individuals with higher-quality social networks – i.e., those who are more often asked to help influence important decisions, and those who can turn to more people when they need help themselves – tend to be less supportive of increasing taxes on those with high incomes, and of decreasing them on those whose incomes are low. This finding is consistent with the prediction of a simple framework, in which individuals who have accumulated more social capital find it easier to find employment, and therefore face unemployment with a lower probability.

At the same time, I find only a very weak association between the quality of an individual's social network and her redistribution preferences, as measured by the respondent's views on various redistribution-related government responsibilities and her preferences over the amount of government spending on unemployment benefits. All in all, although there does appear to be some tentative support for my hypotheses, the results appear to be, on the whole, fairly tenuous.

The analysis in this essay opens several potentially fruitful avenues for future research. One of the paper's limitations – shared across much of the research literature on comparative political economy – lies in its reliance on cross-sectional survey data. As such, it can only provide a static analysis of the relationship between social capital and redistribution preferences. Yet, the accumulation of both human and social capital is a dynamic process (Glaeser, Laibson

and Sacerdote, 2002). The decision to acquire more skills or schooling, as well as the decision to broaden or deepen one's social network, might depend on an individual's circumstance at a particular point in time.

In addition, the choice between investing in human or social capital could be affected by the relative costs of acquiring each. The relative costs of acquiring social vs. human capital might, for instance, decline with the stock of human capital. For more educated individuals, learning additional skills might entail greater out-of-pocket expenses (for higher education or specialized courses), or greater opportunity costs (say, if courses meet during work hours).

A particularly intriguing research possibility concerns the effects of cognitive decline (e.g., Agarwal et al., 2009). As people age, they might find it more difficult to acquire new skills, and would perhaps be more inclined to improve their labor market prospects by expanding their social networks instead. Future studies could, for example, take advantage of panel data, if such exists, to examine the acquisition of human and social capital, and their interaction with individual-level redistribution preferences.

The present study relies on survey data and, as such, suffers from a limitation that afflicts a great deal of research in comparative political economy – namely, the difficulty of establishing causality. Another potential fruitful avenue for future research might therefore involve looking for plausible sources in exogenous variation in social capital. Bottan and Perez-Truglia (2015), for instance, use the priest abuse scandals in the Roman Catholic Church as a natural experiment, in order to see how declines in social capital cause decreases in charitable giving.

Last but not least, in recent years, a large amount of social network data has become available, unlocking a potentially fruitful area of research on the self-selection into particular

social networks, and on the effects of their quality (e.g., McPherson et al., 2001). The greater availability of online data – for instance, from social networking platforms such as Facebook or LinkedIn – has the potential to be profoundly transformative for the study of social networks and their effects on social and political attitudes.

Appendix A: Coefficient Plots for Country-Specific Regression Results

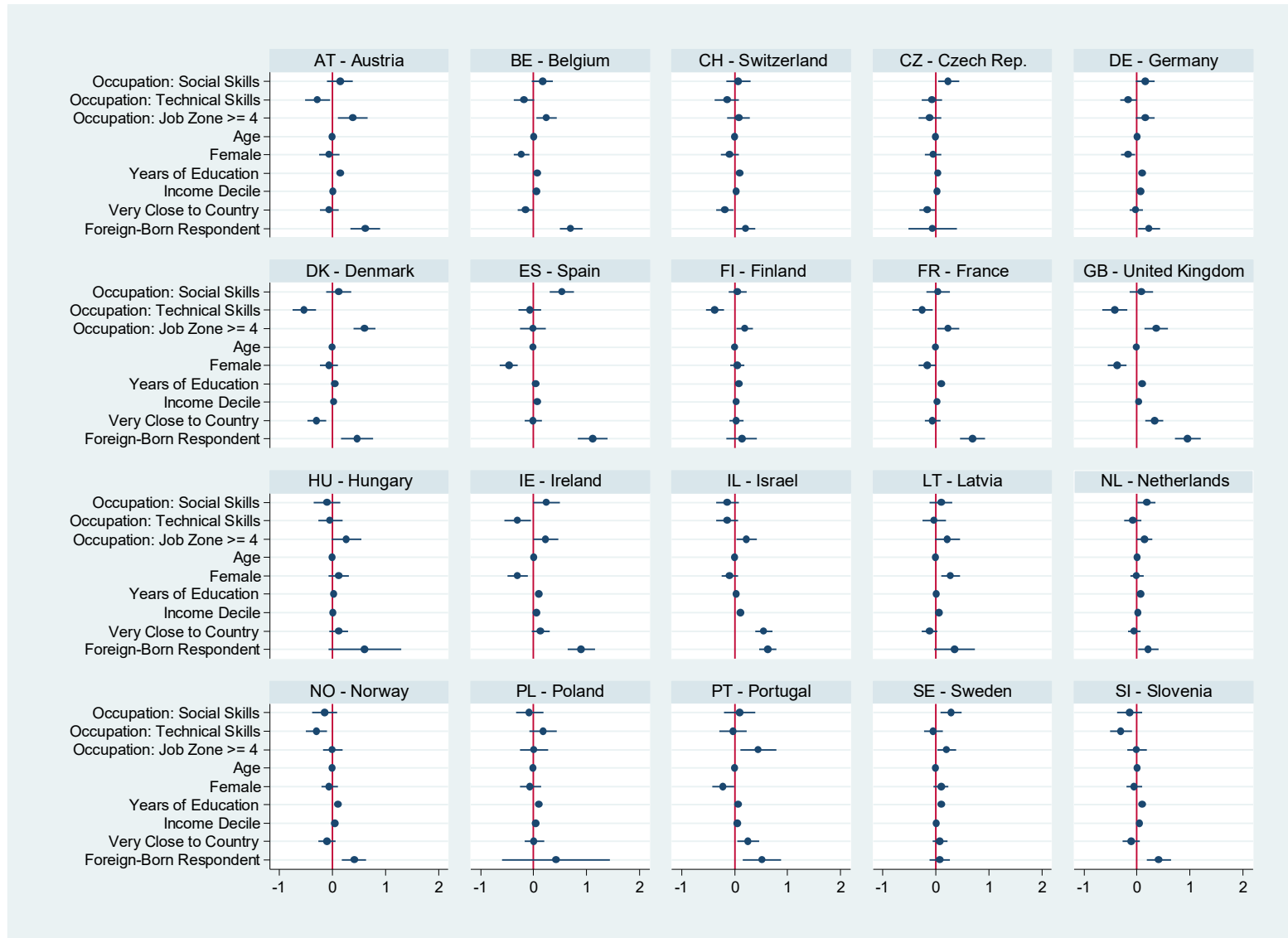**Figure A.1:** Dependent Variable: Pro-Immigration Attitude Index (PCA)

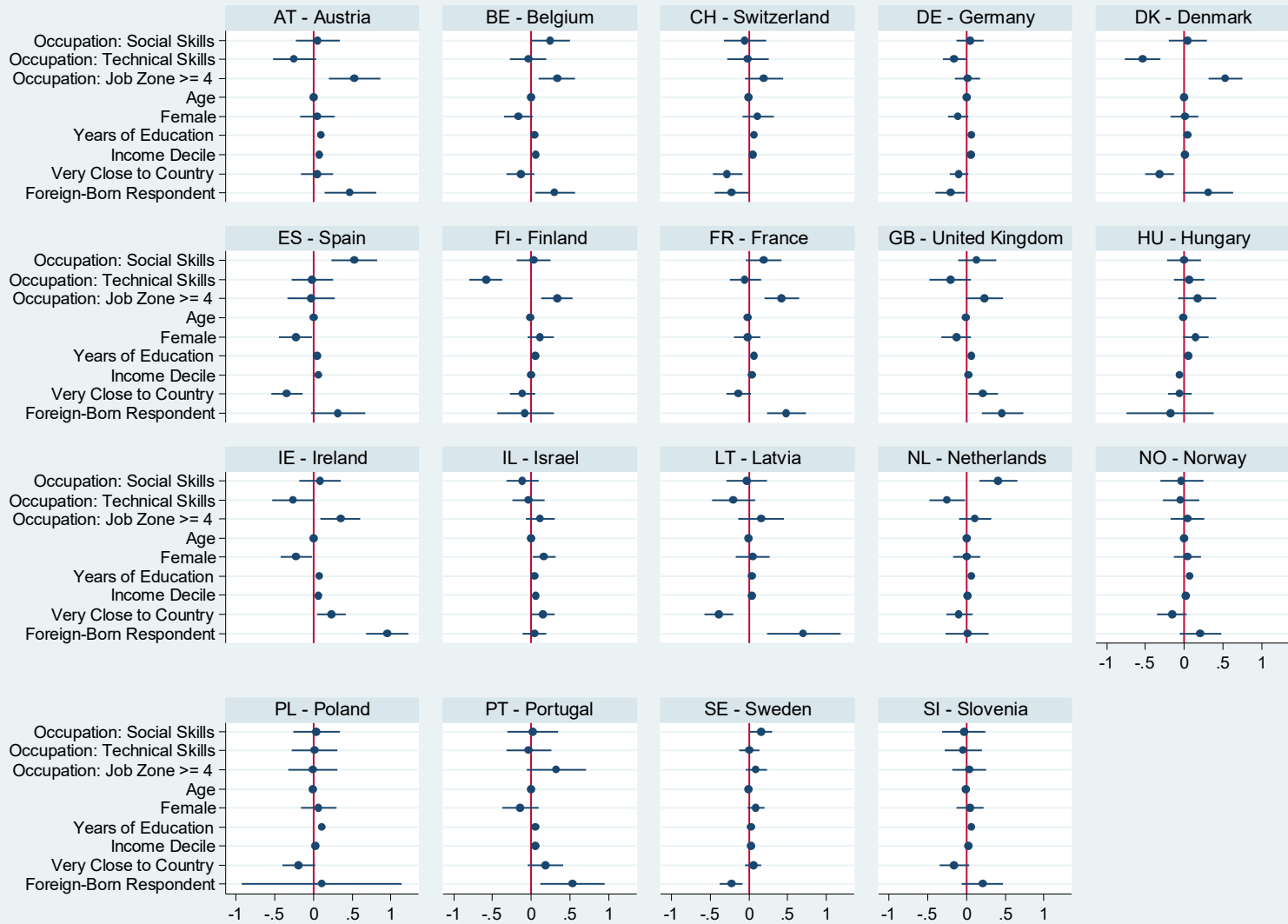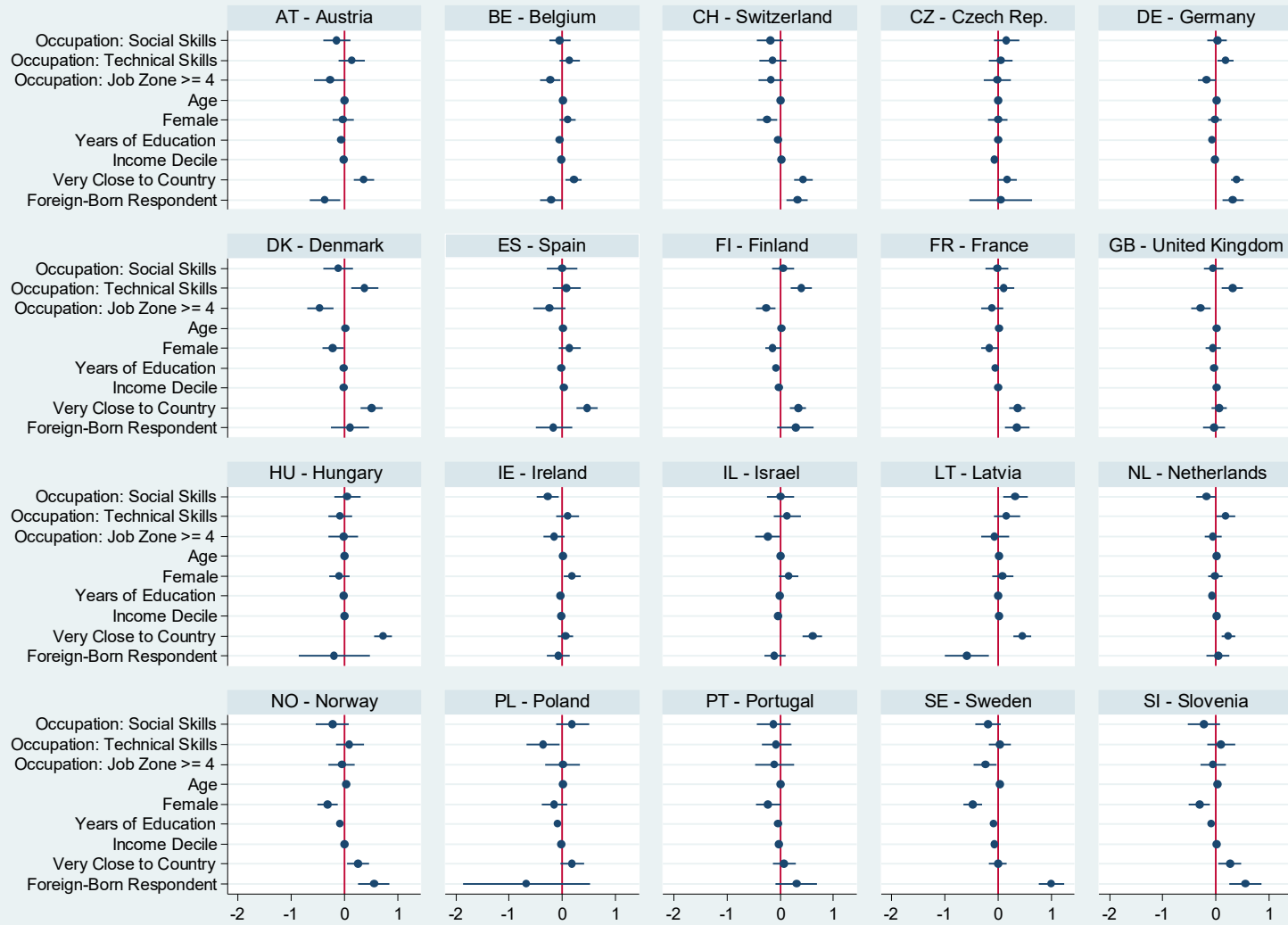**Figure A.2:** Dependent Variable: Pro-Immigration Policy Index (PCA)

Figure A.3: Dependent Variable: Qualifications Stringency Index (PCA)

Appendix B: Robustness Checks – Tax Policy Preferences

Table B.1: Tax Policy Preferences: Taxing Those with High Incomes *Much* More

VARIABLES	(1) Tax High *Much* More	(2) Tax High *Much* More	(3) Tax High *Much* More
Ask	-0.013***		-0.010*
	(0.004)		(0.005)
Asked		-0.011***	-0.007*
		(0.003)	(0.004)
Age	0.001**	0.001***	0.001**
	(0.000)	(0.000)	(0.000)
Female	-0.014	-0.014	-0.015
	(0.009)	(0.009)	(0.009)
Married	0.007	0.007	0.006
	(0.007)	(0.006)	(0.007)
Years of Education	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)
Income Decile	-0.011***	-0.010***	-0.010***
	(0.001)	(0.001)	(0.001)
Union Member	0.020**	0.020**	0.021**
	(0.008)	(0.008)	(0.008)
Catholic	-0.030**	-0.031***	-0.031***
	(0.011)	(0.011)	(0.011)
Protestant	-0.031**	-0.032**	-0.032**
	(0.012)	(0.011)	(0.012)
Other Religion	-0.023	-0.021	-0.024
	(0.014)	(0.015)	(0.014)
Constant	0.225***	0.222***	0.234***
	(0.027)	(0.023)	(0.026)
Observations	12,414	12,719	12,309
R-squared	0.116	0.115	0.116

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table B.2: Tax Policy Preferences: Taxing Those with Low Incomes *Much* Less

VARIABLES	(1) Tax Low *Much* Less	(2) Tax Low *Much* Less	(3) Tax Low *Much* Less
Ask	-0.010*		-0.010*
	(0.005)		(0.006)
Asked		-0.001	0.002
		(0.004)	(0.005)
Age	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)
Female	-0.009	-0.006	-0.008
	(0.008)	(0.008)	(0.008)
Married	0.013	0.015	0.013
	(0.015)	(0.016)	(0.015)
Years of Education	-0.009***	-0.010***	-0.009***
	(0.002)	(0.002)	(0.002)
Income Decile	-0.023***	-0.023***	-0.023***
	(0.003)	(0.003)	(0.003)
Union Member	-0.003	-0.004	-0.004
	(0.010)	(0.010)	(0.010)
Catholic	0.007	0.006	0.005
	(0.012)	(0.012)	(0.012)
Protestant	-0.007	-0.006	-0.007
	(0.009)	(0.009)	(0.009)
Other Religion	0.014	0.015	0.014
	(0.011)	(0.011)	(0.011)
Constant	0.531***	0.513***	0.528***
	(0.032)	(0.031)	(0.031)
Observations	12,664	12,974	12,555
R-squared	0.054	0.054	0.054

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix C: Baseline Regressions

Table C.1: Baseline Regressions of Redistribution Attitudes on Demographic and Socio-Economic Determinants

VARIABLES	(1) Tax High More	(3) Tax Low Less	(5) Provide Jobs	(6) Living Standards for Unemployed	(7) Reduce Inequality	(8) Spend on Unemployment Benefits
Age	0.004***	0.001	-0.002***	0.003***	0.001*	0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Female	0.005	0.023*	0.077***	0.033***	0.055***	0.003
	(0.013)	(0.011)	(0.011)	(0.007)	(0.011)	(0.010)
Married	-0.014	-0.012	0.004	-0.033**	-0.007	-0.017
	(0.011)	(0.011)	(0.011)	(0.015)	(0.014)	(0.011)
Years of Education	-0.001	-0.014***	-0.009***	0.004**	-0.004*	-0.005***
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Income Decile	-0.019***	-0.018***	-0.028***	-0.018***	-0.029***	-0.028***
	(0.003)	(0.003)	(0.003)	(0.004)	(0.005)	(0.003)
Union Member	0.083***	0.016	0.043***	0.040***	0.086***	0.028*
	(0.016)	(0.013)	(0.014)	(0.010)	(0.019)	(0.016)
Catholic	-0.046***	0.008	0.029	-0.018	-0.006	-0.020*
	(0.013)	(0.016)	(0.017)	(0.013)	(0.013)	(0.011)
Protestant	-0.028**	-0.007	-0.009	-0.024*	-0.040***	-0.024
	(0.012)	(0.017)	(0.010)	(0.012)	(0.011)	(0.015)
Other Religion	-0.042**	-0.014	0.052***	0.031*	0.021	0.014
	(0.016)	(0.017)	(0.016)	(0.016)	(0.022)	(0.013)
Constant	0.455***	0.950***	0.876***	0.635***	0.828***	0.461***
	(0.037)	(0.043)	(0.032)	(0.040)	(0.044)	(0.042)
Observations	12,963	13,223	13,487	13,410	13,445	13,514
R-squared	0.137	0.059	0.159	0.114	0.129	0.181

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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