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Financial Inclusion, Digital Payments and Their Impact on Income and Tax Revenue Around the World

Alim Maherali

A Thesis in the Field of International Relations

for the Degree of Master of Liberal Arts

Harvard University

May 2017

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Abstract

This study investigates and quantifies the impact of financial inclusion and digital payments on income and individual government tax revenues for countries around the world. Of the almost two billion people in the world that are financially excluded, the World Bank and other stakeholders have committed to helping one billion people gain access to financial services and become involved in the formal economy by 2020. This rapid pace of financial inclusion will bring vast amounts of income and tax revenues into the global economy that is important to understand as it creates different opportunities and challenges for developing and advanced countries that they will need to prepare for.

Using various global datasets, a methodology was developed to forecast financial inclusion rates, digital payments rates, average income, and other factors up to the year 2020. The results suggest a sharp increase in financial inclusion rates and digital payment rates which translate to hundreds of millions of people entering the formal economy. Details of the most affected countries by dollar value, percent change, and the regional affects are provided for various indicators throughout the study. With regards to capturing the most tax revenue, China and the United States gain the most in dollar terms while Turkmenistan gains the most in percentage terms. Between 2014 and 2020, a cumulative $12 trillion of income is projected to enter the formal economy worldwide resulting in $4.1 trillion in tax revenue. Governments around the globe could take advantage of this significant opportunity.

Dedication

To Saara, thank you for everything and always. With your support, obstacles are surmountable, everything is possible, and success is inevitable.

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Chapter I

Introduction

Prior to 2011, there was no consistent set of data that was available to understand the financial lives of people all around the world. The release of the Global Financial Inclusion database, known as the Global Findex, changed all that. The Global Findex has published datasets in 2011 and 2014 with over 100 indicators, covering 140 countries and interviews with 150,000 people.[1] This dataset has become the world's most comprehensive and consistent dataset for looking at people's financial lives.

Using the data from the Global Findex and other sources, this study will investigate how financial inclusion efforts aided by digital payment technology will bring millions of people into the economy, thereby raising the amount of income and taxes that is captured in the economy. This section will go through an overview of the state of financial exclusion in 2014, provide some unique perspectives on the scale of the issue and introduce the research question of this study.

The results of the Global Findex project allows, for the first time, a measurement to be taken of just how many people were financially included, and thus counted as part of the formal economy, and how many were not. The Global Findex also allows for interesting calculations to be made which could provide unique insights into various

[1]Asli Demirguc-Kunt et al., "The Global Findex Database 2014 Measuring Financial Inclusion Around the World" (The World Bank Group, n.d.), 2, http://www.worldbank.org/en/programs/globalfindex.

economies around the world, their standing versus one another and the economic possibilities of various countries going forward.

For example, the gross domestic product per person or GDP per capita is calculated as the gross domestic product of a country divided by its population. However, prior to 2011, it was difficult to identify how many people were contributing to GDP versus how many were not. As a first step to investigating this question, we would need to know how many people are not contributing. However, getting a figure for the number of people not being counted as part of GDP or the formal economy is complex and challenging. One way to take a measurement is to take the population of a nation and subtract from it the number of people that are contributing to GDP and the formal economy. This leaves behind the number of people that do not contribute to GDP and are not included in the formal economy.

While the definition of financial inclusion will be discussed in detail later in this report, for simplicity we can define a person as being financially included if they have a bank account and are an adult, defined as being aged 15 to 64. Then, adults aged 15 to 64 that do not have bank accounts can be defined as being financially excluded. Thanks to the data from the Global Findex, this construction makes it possible to identify the number of people financially excluded around the world and measure how GDP per capita would change if the financially excluded population is removed. We start with Table 1 below which shows the top ten countries with the largest percent of the population who are financially excluded and Table 2 shows the top ten countries with the largest population of people who are financially excluded.

Table 1: Top Ten Countries by Financial Exclusion as a Percent of Population

Rank	Country Name	2014 population	2014 Adult Population	2014 Financially Excluded Population	Financially Excluded as a Percent of Adult Population
1	Turkmenistan	5,307,188	3,582,006	3,517,861	98.21%
2	Niger	19,113,728	8,986,960	8,673,311	96.51%
3	Madagascar	23,571,713	12,997,261	12,252,844	94.27%
4	Guinea	12,275,527	6,652,949	6,242,454	93.83%
5	Yemen, Rep.	26,183,676	14,822,828	13,866,981	93.55%
6	Burundi	10,816,860	5,720,931	5,323,700	93.06%
7	Chad	13,587,053	6,732,902	6,214,502	92.30%
8	Pakistan	185,044,286	111,618,980	101,901,276	91.29%
9	Afghanistan	31,627,506	16,665,899	4,768,031	88.5%
10	Congo, Dem. Rep.	74,877,030	38,092,678	11,471,638	87.8%

Table 2: Top Ten Countries by Number of Financially Excluded People

Rank	Country Name	2014 population	2014 Adult Population	2014 Financially Excluded Population	Financially Excluded as a Percent of Adult Population
1	India	1,295,291,543	845,811,113	399,613,525	47.2%
2	China	1,364,270,000	1,004,273,165	211,632,693	21.1%
3	Indonesia	254,454,778	170,252,166	109,051,007	64.1%
4	Pakistan	185,044,286	111,618,980	101,901,276	91.3%
5	Bangladesh	159,077,513	103,508,200	73,343,737	70.9%
6	Nigeria	177,475,986	94,379,786	52,689,214	55.8%
7	Mexico	125,385,833	82,287,262	50,445,918	61.3%
8	Egypt	89,579,670	55,402,095	47,838,739	86.3%
9	Brazil	206,077,898	141,982,773	45,259,636	31.9%
10	Philippines	99,138,690	62,734,852	45,127,858	71.9%

As shown above, many countries have a large population that is financially excluded in terms of the absolute number of people and/or as a percent of their adult population. With this information, we can also see the world through a different perspective by dividing the GDP of countries not by their total population, but by only those who are participating in it. Table 3 shows this unique comparison and lists the top fifteen countries by GDP per capita less the financially excluded population while Table 4 shows the bottom 15 nations all in US dollars. Appendix 1 shows the comparison of GDP per capita versus GDP per capita less financially excluded for all countries.

Table 3: Top 15 Countries by GDP per Capita less Financially Excluded

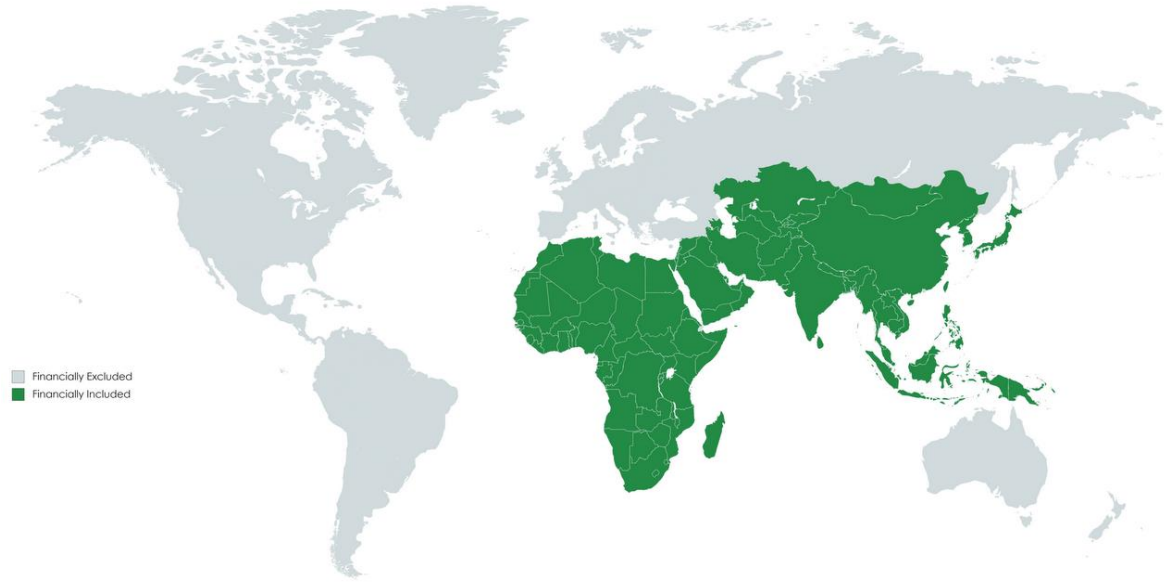
Rank	Country Name	2014 Population	2014 GDP per Capita	2014 GDP / (Population - Financially Excluded Population)
1	Luxembourg	556,319	$116,613	$119,798
2	Switzerland	8,188,649	$85,815	$86,996
3	Australia	23,464,086	$61,996	$62,470
4	Sweden	9,696,110	$59,180	$59,285
5	Singapore	5,469,724	$56,007	$57,541
6	Ireland	4,617,225	$55,503	$57,500
7	United States	318,907,401	$54,540	$56,972
8	Kuwait	3,753,121	$43,332	$54,489
9	Austria	8,541,575	$51,323	$52,473
10	Netherlands	16,865,008	$52,157	$52,400
11	United Arab Emirates	9,086,139	$44,239	$51,619
12	Canada	35,543,658	$50,185	$50,495
13	Germany	80,982,500	$47,903	$48,298
14	Belgium	11,231,213	$47,347	$47,932
15	United Kingdom	64,613,160	$46,412	$46,736

Table 4: Bottom 15 Countries by GDP per Capita less Financially Excluded

Rank	Country Name	2014 Population	2014 GDP per Capita	2014 GDP / (Population - Financially Excluded Population)
1	Burundi	10,816,860	$286	$563
2	Malawi	16,695,253	$363	$636
3	Niger	19,113,728	$431	$790
4	Congo, Dem. Rep.	74,877,030	$438	$801
5	Madagascar	23,571,713	$453	$943
6	Ethiopia	96,958,732	$574	$999
7	Somalia	10,517,569	$537	$1,000
8	Rwanda	11,341,544	$698	$1,066
9	Guinea	12,275,527	$540	$1,098
10	Uganda	37,782,971	$735	$1,139
11	Togo	7,115,163	$630	$1,149
12	Nepal	28,174,724	$703	$1,181
13	Afghanistan	31,627,506	$634	$1,206
14	Burkina Faso	17,589,198	$697	$1,263
15	Guinea-Bissau	1,800,513	$616	$1,396

The Global Findex identified 2.5 billion people that were financially excluded in 2011. However, due to efforts of various countries and organizations, between 2011 and 2014, 700 million new people gained financially inclusion.[2] Despite this great accomplishment, in 2014 the number of financially excluded adults around the world stood at approximately two billion people, as global adult population growth offset some of the gains that were made.[3] Visually, if we removed the entire population of North America (579 million people), South America (422 million people), Europe (739 million people) and Australia (40 million people) from a map, the number of financially excluded people would still be greater than the 1.78 billion people that were removed.[4]

Figure 1: Visual Representation of the Number of Financially Excluded People



[2] Ibid., 13.

[3] Ibid.

[4] "World Population Prospects - Population Division - United Nations," 2015, https://esa.un.org/unpd/wpp/.

As the world moves towards financial inclusion, it is important for governments in each country to work towards increasing financial inclusion of their citizens so that individual contributions are captured, their domestic economy is strengthened and to help their country compete in the global economy. In addition, it is important for governments to understand how the increased financial inclusion of their citizens will affect their economy and tax revenues. As people become financially included and their incomes grow over time, this will in turn increase their tax contributions to the government. Thus, it is important for governments to understand this future impact so they can determine the best way to utilize these increased revenues to move their nation forward.

Tax contributions to governments come in various forms such as income taxes, business taxes, and tariffs from trade. The income tax that governments collect depend on the number of people paying taxes and their level of income, both of which are directly impacted by financial inclusion. Business and other taxes will be outside the scope of this paper. This paper will focus on quantifying the incremental individual tax revenue that will be captured by governments around the world as a result of financial inclusion and answer the research question "How much individual tax revenue will governments gain by the year 2020 because of financial inclusion?"

This section has introduced how the Global Findex allows for greater insight into people's financial lives, the state of financial exclusion in 2014, and the research question that will be answered. The next section will present evidence of a direct link between financial inclusion and economic gains, dive into the issues related to estimating financial inclusion and discuss the broad range of benefits that result from increased financial inclusion.

Chapter II

Financial Inclusion

In 2013, World Bank Group President Dr. Jim Yong Kim declared that "Universal access to financial services is within reach thanks to new technologies, transformative business models and ambitious reforms. As early as 2020, such instruments as e-money accounts, along with debit cards and low-cost regular bank accounts, can significantly increase financial access for those who are now excluded."[5]

Soon after Kim's talk, the Universal Financial Access 2020 initiative was launched led by the World Bank Group in partnership with various stakeholders. This epic initiative looks to realize Kim's vision and has committed to helping a billion financially excluded adults join the formal financial system by the year 2020 which will mean a 50% reduction in the number of financially excluded adults.[6]

Another organization that has done a lot of work around this topic is The Abdul Latif Jameel Poverty Action Lab (J-PAL). J-PAL, housed in the Massachusetts Institute of Technology's Economics department, has gathered evidence from over 130 studies in 29 countries related to financial inclusion. Many of their key findings directly link

[5] "Universal Financial Access Is Vital to Reducing Poverty, Innovation Key to Overcoming the Enormous Challenge, Says President Jim Yong Kim," Text/HTML, *World Bank*, accessed March 3, 2017, http://www.worldbank.org/en/news/press-release/2013/10/11/universal-financial-access-vital-reducing-poverty-innovation-jim-yong-kim.

[6] "UFA2020 Overview: Universal Financial Access by 2020," *World Bank*, accessed March 3, 2017, http://www.worldbank.org/en/topic/financialinclusion/brief/achieving-universal-financial-access-by-2020.

financial inclusion to increased income for businesses and individuals.[7] For example, households that gained access to microcredit in Mexico increased revenue by 27 percent and business-related expenditures by 36 percent.[8] Similarly, a project by the World Bank found that as a result of financial inclusion, Malawian farmers who had their earnings directly deposited into a new bank account spent 13% more money on equipment and increased the value of their crop output by 21%.[9] In both these examples and as often is the case, the use of non-cash digital payments enables financial inclusion while at the same time creates records of income that can be used by governments to track taxes owing to them. For now, what we have done is shown a direct link between financial inclusion and increased incomes. However, before we discuss how this income can be recognized so it can be taxed. we need a way to quantify financial inclusion.

While there is a link between financial inclusion and increased incomes, measuring this link directly is not straight forward. For this paper, we define a person as being financially included if they have a bank account and are an adult, defined as being aged 15 to 64. However, the World bank states, "Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance –

[7] "Financial Inclusion Helping the Poor Manage and Grow" (Innovation for Poverty Action, 2016), 2, http://www.poverty-action.org/sites/default/files/publications/IPA-Program-Area-Brief-Financial-Inclusion-Letter-Updated.pdf.

[8] Ibid.

[9] Leora Klapper, Mayada El-Zoghbi, and Jake Hess, "Achieving the Sustainable Development Goals" (Consultative Group to Assist the Poor, 2016), 2, http://www.cgap.org/sites/default/files/Working-Paper-Achieving-Sustainable-Development-Goals-Apr-2016_0.pdf.

delivered in a responsible and sustainable way."[10] This definition leaves room for improvement in two major ways. First is the concept of access rather than usage and the second involves the breadth of financial instruments required to be counted as financial included.

Counting someone as financially included based on access misses the mark unless that person uses the financial services. The definition implies that those with access will take advantage of it but this is not necessarily the case. Second, the definition includes numerous subjective criteria, mentions multiple services, and requires "responsible and sustainable delivery". Together, these issues with the definition make it hard to measure financial inclusion as the definition can be easily misinterpreted and measured inconsistently. For example, it is not clear if a person would be counted if they have access to a bank account but not insurance services. Likewise, it is not clear if a person can be financially excluded after previously being included. Say for example, a person does not need insurance services this year and is declared included but the following year needs insurances services which are unavailable. The demonstrates the need for a revised and more solid definition since clearly the benefits of financial inclusion only accrue when people have access to financial services and also take advantage of them.

While financial inclusion is difficult to measure directly because of the way it is currently defined, it is possible to use a different defined measure to reach essentially the same result. In a major report by the global consulting firm McKinsey & Company, McKinsey acknowledged that two billion people were financial excluded and added that

[10] "Financial Inclusion Overview," n.d., http://www.worldbank.org/en/topic/financialinclusion/overview.

200 million business in just emerging economies also lacked access to the financial services they need.[11] McKinsey also noted the role of digital finance in spreading financial inclusion and the wide ranging economic benefits that are possible. In their report, McKinsey defines digital finance as financial services delivered via mobile phones, the internet or cards and used digital finance as a basis on which to quantify the economic impact of financial inclusion.[12] By this way, McKinsey eluded the measurement problems caused by the World Bank's definition of financial inclusion. The McKinsey report also highlights numerous insights directly linking the spread of digital finance to economic gains and even specifically to increased tax revenues. Selected highlights listed below from the McKinsey report show how digital finance has a wide range of macroeconomic benefits over a ten-year period in U.S dollars.[13]

- Digital finance has the potential to give 1.6 billion people access to a bank account for the first time, 45% of which are the poorest 40% income earners
- The creation of 95 million new jobs, $4.2 trillion dollars of new deposits and $2.1 trillion dollars of new credit
- A $110 billion dollar annual gain for governments around the world as a result of reduced leakages and increased tax collection
- A $3.7 trillion dollar increase in the GDP of all emerging markets by 2025. This represents a six percent increase compared to the status quo.

[11] James Manyika et al., "Digital Finance for All: Powering Inclusive Growth in Emerging Economies," (McKinsey Global Institute, September 2016), 3, https://www.infine.lu/new-mckinsey-global-institute-report-digital-finance-for-all-powering-inclusive-growth-in-emerging-economies-september-2016/.

[12] Ibid., viii.

[13] Ibid., 2–11.

This section discussed the international commitment to bring one billion people into the formal economy by 2020, the problems with the World Bank's definition of financial inclusion and the reason behind using a simplified definition in this paper. It also demonstrated the link between financial inclusion and higher incomes and tax revenues. Empirical examples from the field and the broad benefits of financial inclusion were also discussed. Having established these points, the next section will show how financial inclusion can be accelerated by leveraging digital payments along with mobile technology. Digital payment rates around the world will be examined and research from the field demonstrating how digital payments help to increase tax revenue will also be shared.

Chapter III

Digital Payments

If financial inclusion is the road to bring people to the formal economy, then digital payments are the vehicle that makes the journey possible. This section will explore the concept and definition of digital payments. Then it will show how digital payment technology plays a direct role in increasing government tax revenue. In doing so, the current level of digital payments will be compared to what is possible and recent examples of successful digital payment projects will be shared.

Every transaction requires an instrument, such as cash, check, mobile payment or electronic transfer, in order to be carried out. These instruments can be broken down into digital and non-digital instruments, depending on the definition that is used. The narrow definition of digital payments looks at paper versus non-paper instruments. Using this narrow definition, paper based instruments like cash, checks and money orders are non-digital instruments while all other instruments are digital.[14] In contrast, the broad definition of digital payments differentiates digital payments between cash versus non-cash instruments. The broad definition argues that non-cash instruments usually take a digital form at some point, usually as a result of requiring an account to originate or terminate.[15] For the purposes of this study, we will use the broad definition of digital

[14] "How to Define Digital Payments?," *Better Than Cash Alliance*, accessed February 12, 2017, https://www.betterthancash.org/tools-research/toolkits/payments-measurement/focusing-your-measurement/introduction.

[15] Ibid.

payments. This is because payment records and inclusion in the financial system relate closely with measuring how government tax revenue will change, while instrument types are of little significance.

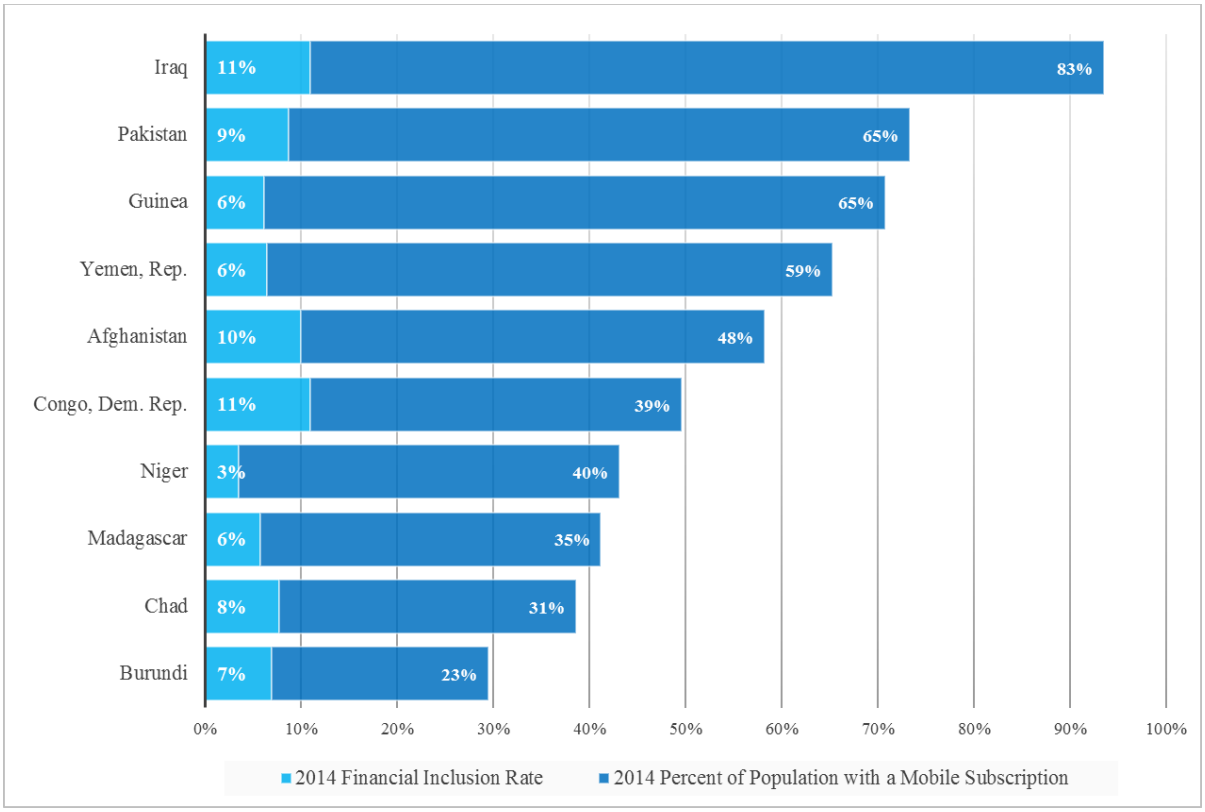
Digital payments occur through a variety of methods such as debit cards, credit cards, ATMs, online transactions, and mobile phones. While each method has a role to play in fostering financial inclusion, mobile phone based solutions hold the most promise. Leveraging cellular networks to deploy financial solutions provides a platform for financial inclusion that is estimated to cost 80 to 90 percent less than using physical locations and can be deployed years sooner.[16] Mobile phone networks now cover more than 90 percent of people in emerging economies and the levels of cellphone ownership is projected to reach over 90 percent by the year 2020.[17] As of 2014, roughly 80 percent of adults in emerging markets had a mobile subscription compared to only 55 percent of adults who had a financial account.[18] Figure 2 below illustrates how many countries have large gaps between the percentage of people who have financial accounts versus the percentage of people who have mobile service subscriptions.

[16] Manyika et al., "Digital Finance for All: Powering Inclusive Growth in Emerging Economies," 6.

[17] Ibid.

[18] Demirguc-Kunt et al., "The Global Findex Database 2014 Measuring Financial Inclusion Around the World."

Figure 2: Bank Accounts versus Mobile Subscription Rates for Select Countries



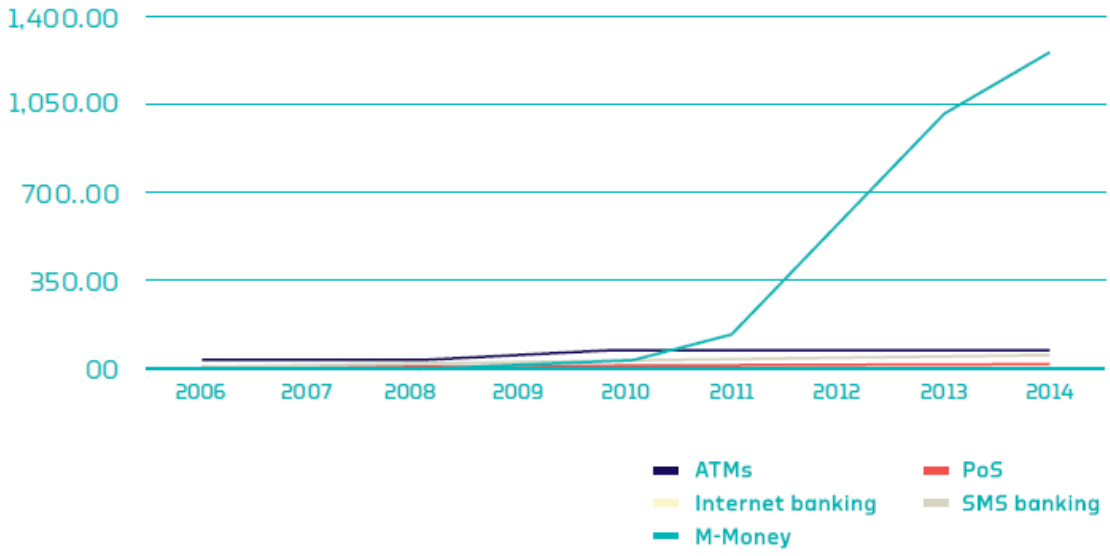
Considering the World Bank Group's commitment to bringing financial inclusion to one billion people and the cost-effective way that mobile phones can enable this, undoubtedly mobile payments will play a significant role in increasing financial inclusion and enabling governments to collected more tax revenues.

In Tanzania, a majority of the 702 bank branches are in a handful of major cities which makes access difficult for the 70% of the population that live in rural areas.[19] However, when financial institutions began offering digital services and mobile payment

[19] Rashmi Pillai, "Person-to-Government Payments: Lessons From Tanzania's Digitization Efforts" (Better Than Cash Alliance, September 2016), 21, https://www.betterthancash.org/news/media-releases/new-united-nations-study-digital-payments-could-boost-tax-revenue-by-nearly-us-500-million-each-year-and-drive-economic-modernization-in-tanzania.

solutions like M-PESA, rapid growth in terms of mobile subscribers, account holders and digital transactions users occurred. Between 2011 and 2014, the number of people with mobile subscriptions grew from 25.7 million (54.5% of the population) to 31.9 million (61.5% of the population), while the percentage of adults that had a transactional account increased from 17.3% to 39.8%. More importantly, the percent of people that used digital payments rose from 27.7% to 44.4%.[20] As of 2015, 96% of adults had a mobile subscription and only 61% of adults were registered for mobile financial services.[21] The growth of digital payments in Tanzania can also be seen in terms of annual payment volume which reached almost 1.4 billion Tanzanian Shillings (approximately $625,000 USD) by 2014 as shown in Figure 3 below.[22]

Figure 3: Annual Payment Volume in Billions of Tanzanian Shillings



[20] "Universal Financial Access - Measuring Progress Towards Financial Inclusion - World Bank Group," March 2016, http://ufa.worldbank.org/~/media/WBG/UFA/Documents/UFA2020-Full-Data-March2016.xlsx.

[21] Pillai, "Person-to-Government Payments: Lessons From Tanzania's Digitization Efforts," 23.

[22] Ibid., 24.

Rashmi Pillai from the Better Than Cash Alliance and author of a digital finance case study on Tanzania states how governments in other countries can benefit from digital payments.[23]

> Payment digitization can deliver higher revenue collection for governments, increased compliance, efficiency gains, higher accountability and transparency, and risk management. For individuals and businesses, the convenience, time savings, and reliability that come with digital payments increase the probability of these constituents continuing to remain active digital users. Thus, connecting them to the formal financial system, which in turn drives new economic opportunities and supports economic growth. In Tanzania, initiatives where certain payees (namely government-run institutions) have mandated payers to pay digitally through either existing payment instruments or other digital payment mechanisms have become a key channel to encourage first-time users to adopt digital payments.

Digital payment technology has the power to not only empower people with financial inclusion in developing economies but in every economy. Currently, only about 25 percent of countries in the world have digital payment rates greater than 50 percent.[24] Singapore leads the way with digital payments capturing a 90.5 percent share of transactions, followed by Latvia with 87.9 percent and the United Arab Emirates with 80.9 percent. For reference, the United States comes in at the 27th spot with a 64.7 percent digital payment rate.[25] Since most countries have digital payment rates less than 50 percent, there is tremendous potential for digital payment technology to foster further financial inclusion and allow countries to take part in the numerous other benefits that

[23] Ibid., 28.

[24] "Universal Financial Access - Measuring Progress Towards Financial Inclusion - World Bank Group."

[25] Ibid.

come about as a result. Table 5 below shows the countries with the largest rates of digital transactions.

Table 5: Top Ten Countries by 2014 Digital Transaction Rates

Rank	Country Name	Digital Payment Rate
1	Singapore	90.53%
2	Latvia	87.86%
3	United Arab Emirates	80.92%
4	Malta	80.08%
5	Norway	78.98%
6	Kenya	78.97%
7	Croatia	77.60%
8	Cyprus	75.68%
9	Finland	74.98%
10	Sweden	74.62%

Increased digital payment rates can create various economic benefits. One of the most significant benefits is that digital payments create digital records and leave digital traces. Unlike difficult to trace cash transactions, digital records aid transparency and shine a light into the otherwise unseen financial lives of individuals and businesses. The trails digital payments leave make it easier for governments to measure statistics for their county, including the income contributions of people that were recently included in the economy. Additionally, digital payments also help reduce the informal economy and improve adherence to tax laws.

The link between the informal economy and tax avoidance is well researched both in developing and developed nations. In a study of Europe's shadow economy, Schneider found that increasing digital payments an average of ten percent annually for four years can shrink the shadow economy by five percent and shift the behavior of

merchants who underreport sales.[26] Furthermore, a United Nations report claimed that Tanzania's digital payment initiatives will help it generate at least $477 million dollars annually through a variety of ways, ranging from a 42 percent increase in the collection of vehicle taxes to a 40 percent boost in VAT collection from small businesses.[27] Clearly, as digital payment initiatives take hold, governments can expect tax revenues to increase in most categories.

As we have discussed, digital payment technology will play a major role in enabling financial inclusion for millions of people. In this section, the broad and narrow definitions were reviewed and attention was drawn to the large gap between the number of people that have bank accounts versus the number of people that have cellular subscriptions. The opportunity to close this gap and accelerate financial inclusion through the use of mobile networks and digital payments was described. In addition, research was shared showing the numerous benefits that derive from digital payments such as enhanced transparency and increased tax revenues. Building on these benefits of digital payments, the next section takes a broader perspective by describing the benefits of financial inclusion. It will discuss how financial inclusion plays a role in solving major global challenges, how it can help reduce the shadow economy and the impact it has on economic metrics such as employment and the availability of credit.

[26] Friedrich Schneider, "The Shadow Economy in Europe" (AT Kearney, 2013), 18.

[27] Pillai, "Person-to-Government Payments: Lessons From Tanzania's Digitization Efforts," 29.

Chapter IV

The Widespread Benefits of Financial Inclusion

While the focus of this study is how financial inclusion will impact individual tax revenues, the vast benefits that arise in other areas are important to mention. This section will discuss how financial inclusion and digital payments play a role in solving global challenges, the broad impact they can have within a country and the impact they have on the shadow economy.

The Consultative Group to Assist the Poor, better known as CGAP, claims that financial inclusion is a key enabler to solve ten of the seventeen United Nations Sustainable Development Goals (SDG). These high profile and global goals were decided upon by government leaders and high representatives in September 2015 to form the centerpiece of the 2030 Agenda for Sustainable Development.[28] In a report issued by CGAP on achieving the sustainable development goals, of the 17 goals defined by the United Nations, CGAP presented research directly linking financial inclusion with helping to solve SDG goals 1 to 5 and outlined how financial inclusion plays a role in furthering another five goals.[29] For example, the ability to save money or access a loan can help overcome a health crisis and when women are given a chance to control finances, studies show they are more likely to spend on necessities such as health,

[28] "Transforming Our World: The 2030 Agenda for Sustainable Development" (United Nations, September 21, 2013), 3.

[29] Klapper, El-Zoghbi, and Hess, "Achiev ing the Sustainable Development Goals," 2–9.

education and food.[30] The five SDGs identified as being directly furthered through financial inclusion are listed below.

- SDG 1: End poverty in all its forms everywhere
- SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- SDG3: Ensure healthy lives and promote well-being for all at all ages
- SDG 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- SDG 5: Achieve gender equality and empower all women and girls

On a national scale, the value of financial inclusion can be seen more directly and even quantified. A comprehensive study of the benefits of digital payments to Indian society in 2010 revealed detailed estimates of the savings various ministries could expect. Beneficiaries ranged from the state governments, which stood to save $5.35 billion USD, to the Ministry of Planning and Development which stood to save $5.6 billion USD.[31] The total anticipated benefits that could be seen through digital payment implementation was calculated at $22.4 billion USD.[32]

In a more recent study by McKinsey and Co., focusing on the economic impact of digital finance in select countries by 2025, significant benefits were estimated across a range of economic indicators. These are shown in Table 6 below.[33]

[30] Ibid., 6.

[31] Tilman Ehrbeck et al., "Inclusive Growth and Financial Security" (McKinsey & Company, November 2010), 13.

[32] Ibid., 14.

[33] Manyika et al., "Digital Finance for All: Powering Inclusive Growth in Emerging Economies," 74–86.

Table 6: Estimated Economic Impact of Digital Finance by 2025

Country	Financial Inclusion (Millions of People)	New Jobs (Millions of People)	New Deposits (Billions USD)	New Credit (Billions USD)	Reduction in Government Leakages (Billions USD)
Brazil	35	4	71	76	1
China	132	6	1100	N/A	27
Ethiopia	39	3	15	8	<1
India	344	21	799	689	24
Mexico	46	2	142	162	2
Nigeria	46	3	36	57	2
Pakistan	93	4	263	23	7
TOTAL	**735**	**43**	**2426**	**1015**	**63**

Among just these seven countries, there is an opportunity for 735 million people to join the formal economy as well as significant other benefits in important economic variables.

Another major benefit of digital finance is its potential to reduce the size of the informal or shadow economy. While the shadow economy is also difficult to measure directly, a recent in-depth study measured the worldwide average to be 33.0% of GDP. This included an average of 17.1% of GDP for high income OECD countries and 40.2% of GDP for sub-Saharan African countries.[34]

With regards to the informal economy, there is a direct correlation between the use of cash in an economy and the size of its shadow economy.[35] Economies featuring a

[34] Friedrich Schneider, Andreas Buehn, and Claudio E. Montenegro, "Shadow Economies All over the World: New Estimates for 162 Countries from 1999 to 2007," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, June 1, 2010), 32.

[35] Olivier Denecker, Florent Istace, and Marc Niederkorn, "Forging a Path to Payment Digitization," *McKinsey on Payments*, March 2013, 3.

high rate of cash transactions generally have large and complex informal economies. Moreover, there are incentives for using cash for parties on both sides of the transaction. For example, a vendor can benefit by charging cash and then avoiding paying taxes while a purchaser can enjoy a lower price by not paying value added taxes. In addition, firms operating in the informal economy can offer goods and services at lower prices to gain market share from tax paying firms. In practice, this translates into cost advantages ranging from 5 percent of the cost of goods sold for Mexican food retailers to 25 percent in India's apparel industry and more than 100 percent in the Russian software industry.[36] Moreover, individuals operating on a cash basis knowingly or unknowing avoid having their purchases captured in the formal economy and can easily under report income to avoid income taxes.

Tax collection and tax law enforcement is difficult to enforce in advanced economies and is even more difficult in less developed economies given higher cash transaction rates. For tax year 2006, the Internal Revenue Service (IRS) estimated that taxes not paid voluntarily totaled over $450 billion USD and remained at approximately $385 billion USD after collection efforts.[37] Similarly, the heavy use of cash in the Indian post system has led researchers to believe that the Indian government is missing out on $700 million USD in revenue assuming only a two percent rate of fraud and theft.[38]

[36] "Digital Finance for All: Powering Inclusive Growth in Emerging Economies," 28.

[37] Kenneth Rogoff, "Costs and Benefits to Phasing out Paper Currency," 2014, 7.

[38] Manyika et al., "Digital Finance for All: Powering Inclusive Growth in Emerging Economies," 26.

Despite these large problems, financial inclusion and digital payments enable them to be changed into opportunities. As previously mentioned, an average increase in digital payments of ten percent per year could shrink the shadow economy by five percent. Moreover, studies in Argentina showed bribes reduced from 3.6% to 0.3% of transactions when digital payments were used for government benefit payments.[39] In Tanzania, an estimated 68% of Tanzanian MSMEs (micro, small or medium enterprises) were outside the formal economy offering an opportunity to generate the government a minimum of $144 million USD in value added taxes when they are included.[40] To put this amount in perspective, this would be enough to fund about 30% of Tanzania's budgeted agricultural expenditures.

While it is outside of the scope of this study to explore all the benefits that financial inclusion and digital payments have to offer, it is important to point out the substantial gains that occur in a wide number of areas. This sectioned showed how financial inclusion can directly help solve five of the United Nations SDGs, how it can plug leakages due to the use of cash and how it plays a role in shrinking the shadow economy. Having discussed the widespread benefits of financial inclusion, the next section will discuss what governments and other stakeholders can do to materialize the benefits as well as examples of nations already reaping the rewards.

[39] Mark Pickens, David Porteous, and Sarah Rotman, "Banking the Poor via G2P Payments" (Consultative Group to Assist the Poor, December 2009), 5.

[40] Pillai, "Person-to-Government Payments: Lessons From Tanzania's Digitization Efforts," 50.

Strategies to Increase Digital Payments and Financial Inclusion

With the tremendous benefits that can be gained by increasing financial inclusion and fostering digital payments, the natural question is how can these two measures be increased. The answer to this question is not an easy one nor is there a one size fits all solution for every country. Each nation has a unique internal dynamic that makes general prescriptions difficult. While an in-depth review of the strategies and tactics to increase financial inclusion and digital payments are beyond the scope of this work, this section contains an overview of one approach (Ecosystem Acceleration Framework) that nations can take to increase digital payment rates and thus financial inclusion. For additional guidance, there are various organizations and resources that can provide examples, case studies and operational guidance for implementation.

The Better Than Cash Alliance (BTCA) is a partnership between multiple governments and organizations such as the Bill & Melinda Gates Foundation, the Ford Foundation, Visa and MasterCard to help accelerate the transition from cash to digital payments in order to reduce poverty and drive inclusive growth.[41] Recently BTCA developed the Ecosystem Acceleration Framework that can be used by any country at any stage in their digital payment evolution. This framework consists of a collection of supply side drivers, demand side stimulators and policy/regulation elements that work in concert to accelerate digital payment usage in a given area or ecosystem.

The four supply slide drivers focus on the infrastructure, products and distribution networks that are needed for digital payments to thrive. They include the promotion of

[41] "About The Better Than Cash Alliance," *Better Than Cash Alliance*, n.d., https://www.betterthancash.org/about.

merchant acceptance infrastructure, leveraging existing networks or platforms for product/service delivery, establishing a shared digital payment infrastructure for all stakeholders and establishing interoperability.[42] Each of these supply side drivers have the potential to bring a significant number of people into the formal economy. For example, in Peru the government, financial institutions, telecom operators and other stakeholders joined forces to create a separate entity called Peruvian Digital Payments (PDP) whose main goal is to provide digital payment services to people who have cellphones but not bank accounts.[43] As a result, PDP created BIM, which claims to be the first national fully interoperable mobile money platform. BIM has captured hundreds of thousands of users and has a goal to reach 5 million people by the end of 2020.[44]

Demand side stimulators include the development of a unique identification program, the digitalization of routine use cases, and digitization of government payments and receipts.[45] Each of these drivers cause an increase in digital payments from the demand side by boosting end user utilization. Examples in countries like Estonia showcase what is possible through demand side stimulators. Of the 1.3 million Estonians, 94% have digital identification cards and 95% of tax declarations are done online with an

[42] "Accelerators to an Inclusive Digital Payments Ecosystem" (Better Than Cash Alliance, August 2016), 4.

[43] Carol Carus, "Digital Financial Inclusion in Peru; A Promising Trend to Watch," *Center for Financial Inclusion Blog*, January 19, 2016, https://cfi-blog.org/2016/01/19/digital-financial-inclusion-in-peru-a-promising-trend-to-watch/.

[44] Ibid.

[45] "Accelerators to an Inclusive Digital Payments Ecosystem," 4.

average time to file of three minutes. The country also attributes a savings of 2% of GDP to their paperless government programs.[46]

The policy and regulation drivers of the Ecosystem Acceleration Framework deal with governing the system in which supply side and demand side stakeholders operate. One driver pertains to regulation that promotes innovation especially around digital payments and the second pertains to polices that incentivize digital payment usage.[47] The usage of policy or regulatory means to drive financial inclusion or digital payment efforts can be extremely powerful and effective, such as the case of Uruguay's financial inclusion law. This law, launched in 2014, grants all works, social benefit recipients and small businesses access to free digital finance services and mandates that all salary, pension and social benefit payments will be digital by May 1st 2017. If well implemented, Uruguay stands to gain tremendously from the benefits of financial inclusion and digital payments mentioned in the previous sections and can become a benchmark for other nations.

In addition to the supply side, demand side and regulatory drivers, the framework outlines a five step evaluation process to help stakeholders determine what actions should be taken. The framework, including the five step process, can be used multiple times as part of an iterative process by any stakeholder. The steps to complete the process are listed below.[48]

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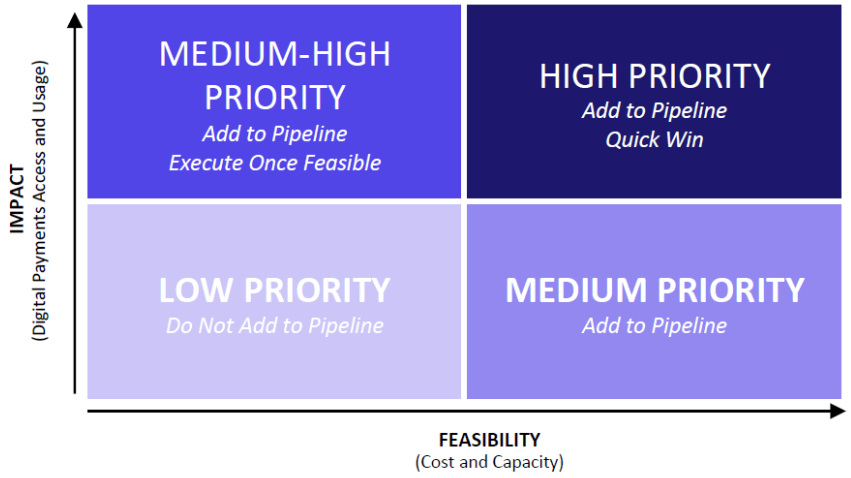
[46] "Facts - E-Estonia," 2017, https://e-estonia.com/facts/.

[47] "Accelerators to an Inclusive Digital Payments Ecosystem," 4.

[48] Ibid., 3.

1. Evaluate the accelerator's impact on the access and usage of digital payments on the market
2. Evaluate the cost and capacity to implement each accelerator
3. Plot the accelerator in the accelerator prioritization matrix (shown in Figure 4) based on the assessments made in steps 1 and 2.
4. Decide on the top accelerators to focus on based on the matrix plot.
5. Discuss which stakeholders should be involved in implementation and begin collaborative conversations with key stakeholders

Figure 4: Accelerator Prioritization Matrix[49]



In this section, a framework for governments and other stakeholders was presented describing an approach that can be used to increase financial inclusion and digital payments. Examples of nations that have benefited from supply side, demand side and policy/regulatory drivers were also presented. In the next section, the focus is returned to solving the research problem of how much individual tax revenue governments stand to gain by 2020 by first describing the methodology of the research that was conducted, the variables needed to carry out the analysis and explaining the formulas that were used to obtain results.

[49] Ibid.

Chapter V

Methodology

This section will outline the methodology that was used to calculate how financial inclusion affects government tax revenue. To date, only two major datasets on financial inclusion have been released that include worldwide data and both were released by the World Bank, called the Global Findex. The first dataset was released in 2011 and the second was released in 2014 with some additional indicators that were not included in 2011. Although the next dataset is expected to be released in 2017, it was not available at the time of this study. To allow for consistency in data and forecasting, 2014 was used as the baseline year in this study and forecasts up to 2020 were extrapolated from the 2014 baseline figures. Newer actualized data was used where possible and is noted in the methodology. In addition to the Global Findex, the second primary source of raw data was the World Bank online database from which a number of global indicators datasets were obtained. Data from sources other than the World Bank are also noted. A step by step breakdown on how the results were obtained are found in the methodology details that follow.

Tax Rate

The tax rates used in this study originate from the 2014 to 2017 Index of Economic Freedom reports conducted by the Heritage Foundation.[50] While the individual tax rates provided by this report were the top marginal tax rate, which will cause overestimates of tax revenues in some cases, this report provided the most comprehensive and consistent dataset for individual tax rates globally.[51] For years 2014 to 2017, the tax rates were taken directly from the report. For years 2018 to 2020, for which tax rates are not available, it was assumed that the tax rates would not change therefore the 2017 tax rates were used for calculations.

Calculating the Financially Excluded Population in Each Country

The financially excluded population for each country was calculated as the number of adults, defined as those ages 15 - 64, that did not have a bank account. This metric was chosen as it is the minimum requirement for which formal transactions can take place. To allow for consistency of measurements and comparability, the remaining calculations in this study also focus solely on the adult demographic aged 15 to 64 years.

It should be noted that there is a strong likelihood that a portion of those aged 65 years or older may activate a bank account, join the formal economy and pay taxes. While this segment, as well as those aged 14 years and younger, are not considered to be

[50] Terry Miller and Anthony Kim, "Index of Economic Freedom Data, Maps and Book Chapters," December 2016, http://www.heritage.org/index/download.

[51] Terry Miller and Anthony Kim, "Methodology 2017 Index of Economic Freedom Book," December 2016, 457, http://www.heritage.org/index/book/methodology.

financially excluded or included for the purpose of this study, any contributions by them would result in even greater tax revenue for the government than was calculated below.

To calculate the number of adults that were financially excluded in each country, the formula below was used.

For each country i, the [Financially Excluded Population for i] =

[Adult Population of i] x (1 – [percentage of Adult bank account holders in i])

Although as of 2014 there were 2 billion people considered financially excluded worldwide, only 132 countries had the complete set of data required for all the calculations in this study, representing a total of 1.87 billion financially excluded people. As a result, the number of financially excluded people in this study is slightly less than the total. Also, changes in demographic segments and population growth were not incorporated in the calculations. This assumes that persons entering the adult demographic would have an account and those exiting the adult demographic would no longer have an account. This assumption is also in line with the point made above that there are additional positive consequences of the financially included senior demographic on tax revenues.

A recent report from the World Bank regarding their commitment towards providing the world with universal financial access (from now on known as "Universal Financial Access Report") used the same formula to measure the financially excluded population and was heavily related to the 2014 Global Findex. This report published in mid-2015 featured slightly different adult population numbers than the Global Findex online, resulting in a slightly different number of financially excluded people. However,

the Universal Financial Access Report only featured financial inclusion indicators for 112 countries; statistics regarding the most advanced economies were not included.

Financial Inclusion Factor

To perform a calculation of the number of people who become financially included over time, a financial inclusion factor was needed. Although there is no precedent or previous method to calculate this factor, the World Bank and its partners have committed to bringing 1 billion people into the formal economy by 2020, which represents about 50% of the financially excluded population as of 2014. With this point in mind, it would be reasonable to select a factor that would result in approximately 50% of those that were excluded in 2014 to join the formal economy. This would translate to a simple average of 10% per year. Therefore, to calculate the number of people that are being financially included for all countries, the financial inclusion factor was set at 10% per year.

Number of People Financially Included

The number of people that are estimated to be financially included in a given year is calculated by multiplying the number of financially excluded people for each country by the financial inclusion factor. The formula used to calculate the number of people financially included annually for the ith country and for nth year is given below.

For year n = 0 to 6, n = 0 corresponds to 2014 and n = 6 corresponds to 2020

For country i and for year n: [Annual Financial Inclusion for i in year n+1] =

[Financial Inclusion Factor] x [Financially Excluded Population for i in year n]

As a corollary, for any given country, after determining the number of people that will be newly included, we can calculate the number of financially excluded people remaining at the end of year n. This figure will then serve as the number of people financially excluded for the following year, as required. Thus, we have the equation that follows.

For country i and year n = 0 to 6,

[Financially Excluded Population for i in year n+1] =

[Financially Excluded Population for i in year n] x (1 - [Financial Inclusion Factor])

Determining Average Income

Determining the average income of a financially excluded individual, or one that newly enters the formal economy, is a challenge because by definition, the contributions of these people were not measured. While intuitively, it would seem that the average income of a financially excluded person would be lower than the average income of an included individual, this may not always be the case.

For many countries, significant portions of their population are formally excluded and of the world's 7.26 billion people, approximately 2 billion are not a part of the formal economy. This represents about 27.5% of the global population. Given the large number of financially excluded people, it is assumed that the average income per capita of an excluded person approximates the income per capita of the country to which they belong, although it may be lower in reality, it is difficult to know by how much. This is similar to the type of result obtained when applying the law of large numbers in which the sample

mean converges to the distribution mean as the sample size increases.[52] Thus, the Gross National Income per capita in US dollars calculated by the Atlas method was selected to estimate the average income of a newly financially included person. This method is also the World Bank's preferred method to estimate per capita income as it better estimates the income of the average person in the economy.

Forecasting Average Income

Once the initial average income was calculated, the average income for successive years can be generalized to grow at the same pace as the growth rate of the economy. This is because the economy is based on the production of the individuals and businesses within it. Once again, because of the large population of financially included people, we can again turn to the law of large numbers and assume the average income of newly included people grows at the same rate as their domestic economy. The typical measure for the growth of a country's economy is the GDP growth rate which will be used to model the average person's income growth over time in this study.

For country i and year n, we have

[Average Income for i in year n+1] =

[Average income for i in year n] x [GDP growth rate for i in year n+1]

[52] "The Law of Large Numbers," n.d., http://www.math.uah.edu/stat/sample/LLN.html.

Digital Payments Rate

The percent of people using digital payments in each country was a measured statistic in the Global Findex and the statistic was used directly in the calculations as noted in the "Income Captured in the Formal Economy" section below. As a note, this rate was only provided for adults aged 15 to 64 years which matches the demographic used in this study. The digital payment rate for 2014 was set to the rate from the Universal Financial Access dataset for the countries that were listed in that dataset and to the rate from the Global Findex for the countries that were not mentioned in the Universal Financial Access dataset. In addition, to reflect the reality that not all transactions will occur digitally, digital payment rates were capped at 90% for all economies. The formula for the forecasted digital payment rates from 2015 onwards is below:

For country i and year n = 1 to 6

[Calculated Digital Payment Rate for i in year n] =

[Digital Payment Rate for i in year n-1] x (1 + [Digital Payment Growth Rate for i in year n]) *

* The Digital Payment Growth Rate is explained in the subsequent section

[Digital Payment Rate for i in year n] =

minimum (90%, [Calculated Digital Payment Rate for i in year n])

Digital Payment Growth Rate

Since only two measurements were done on the percentage of people using digital payments three years apart (2011 and 2014) and there are no future estimates of digital payment usage, estimating the future growth of digital payment usage is difficult. Moreover, as each country has their own starting point and internal dynamics that play a role in digital payment adoption, a broad global average or similar measure would not be reasonable. Since digital payments is an emerging technology, the adoption rate of cellular service technology can provide a parallel on which to build an estimate since cellular service was also an emerging technology in previous years.

Thus, to forecast the adoption rate of digital payments, the year over year change in mobile subscription rates were examined for each country for the past six years. The resulting figures will be used as a proxy for digital payment growth in each country. For example, if the cellular subscription growth rates for county i for the years 2011 to 2016 are given by 10%, 15%, 20%, 25%, 30% and 35%, respectively, then the estimate of the digital payments growth rates for country i for 2015 to 2020 would be 10%, 15%, 20%, 25%, 30% and 35%, respectively.

Where year n = 0 corresponds to 2014, for country i:

[Digital Payment Growth Rate for i in year n] =

([Mobile Subscription rate for i in year n-5]- [Mobile Subscription rate for i in year n-6]) / [Mobile Subscription rate for i in year n-5]

Income Captured in the Formal Economy

As previously mentioned, having a bank account does not necessarily mean a person will use it in a way in which their income is captured in the formal economy. Individuals in both advanced and developing economies continue to transact in cash regardless of their financial inclusion status. This is especially pertinent to those just entering the formal economy because for many people cash was the only transaction method they had ever used.

To model the fact that cash transactions would continue to occur for some portion of transactions despite a person becoming financially included, the average income for each person was multiplied by the rate of digital payment usage in their respective country. This produced an estimate of the amount of income per capita that would be captured in the formal economy and thus could be taxed. This formula is below.

For country i for year n = 1 to 6,

[Income Captured Per Capita for i in year n] =

[Average Income for i in year n] x [Digital payments Rate for i in year n]

For the total income captured in a given year by the newly financially included in that year we have the formula below.

[Income Captured for i in year n] =

[Income Captured Per Capita for i in year n] x [Financially Include Population for i in year n]

For the total income captured by those financially included since 2014 the formula is

[Total Income Captured for i in year n] =

[Income Captured Per Capita for i in year n] x

$\sum_1^n$[Financially Include Population for i in year n]

Captured Tax Revenue

The incremental tax revenue that a government will collect from one financially included person in a given year is a simple multiplication of the per capita income captured in the formal economy for the year times the corresponding tax rate.

For country i and for year n = 1 to 6,

[Captured Tax Revenue Per Capita for i in year n] =

[Income Captured Per Capita for i in year n] x [Tax Rate for i in year n]

For the total tax captured in a given year by the newly financially included in that year we have the formula below.

[Captured Tax Revenue for i in year n] =

[Income Captured for i in year n] x [Tax Rate for i in year n]

Total Annual Captured Tax Revenue

The total annual captured tax revenue measures the total captured taxes of all the newly financial included people since 2014. The total annual captured tax revenue metric shows how much governments can expect their tax revenues to increase due to financial inclusion and digital payments since 2014. The measure is defined as:

[Total Annual Captured Tax Revenue for i year n] =

[Captured Tax Revenue Per Capita for i in year n] x

$\sum_{1}^{n}$[Financially Include Population for i in year n]

Having completed a full discussion of the methodology, the variables needed for the analysis and the formulas to determine the results, the next section will convey the results. The analysis will show how financial exclusion decreases over time, the change in digital payments nations will experience and the income and tax revenue that will be captured in the formal economy. The countries that stand to gain the most in dollar terms and percent terms for various metrics will be identified and the research question of "How much individual tax revenue will governments gain by the year 2020 because of financial inclusion?" will be answered.

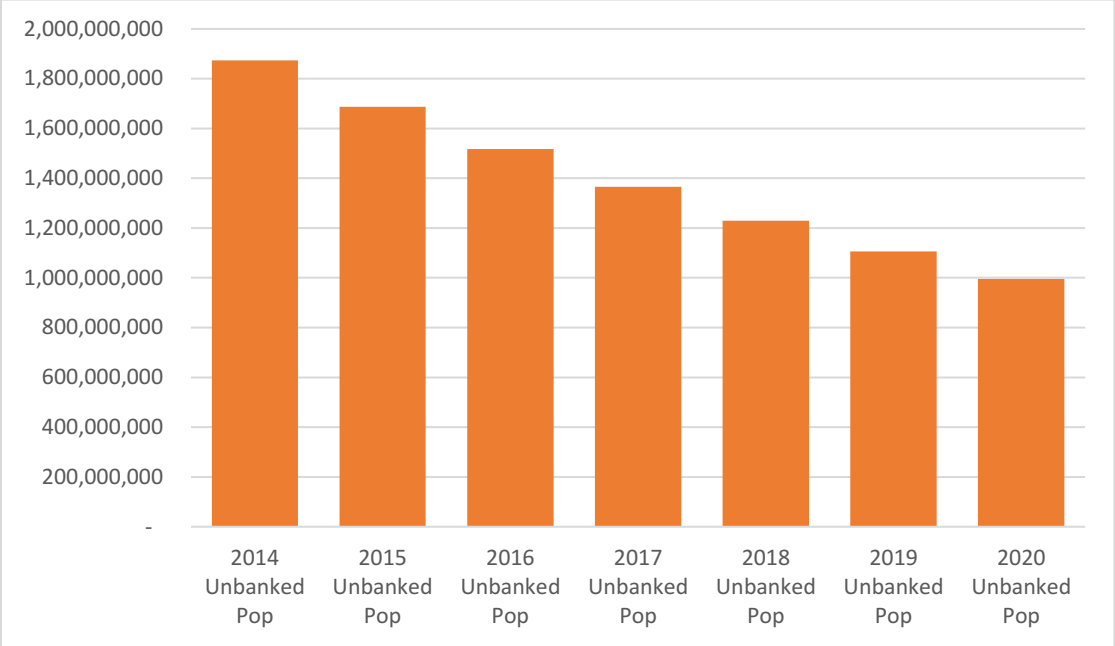
Chapter VI

Results and Analysis

In completing any analysis, reliable and consistent data plays a paramount role in the results. For the analysis in this paper, complete information was available for 132 counties. Partial information for other countries allowed for those countries to be included in certain calculations. Therefore, for each analysis, as many countries as possible were included based on the information available, and will be explained below.

We start by looking at the broad-based change between the world as it was in 2014 and what it is forecasted to look like in the year 2020. According to the Global Findex which estimated that almost 2 billion people worldwide were not financially included in 2014, based on the methodology of this report, the number will be approximately 995 million people by 2020. That represents a more than 50% reduction in the number of people that are not financially included over the 6 years under consideration. The estimated number of people financially excluded worldwide from 2014 to 2020 is shown in Figure 5 below.

Figure 5: Estimated Number of People Financially Excluded Worldwide



The preceding figure shows that the rate of financial inclusion slows over time and as a corollary will result in diminishing marginal results. With fewer and fewer people remaining outside the formal economy, maintaining the same pace of inclusion will be difficult due to the challenge of reaching and convincing these remaining individuals to join the economy. While material gains in financial inclusion can still be expected in the 2020s, at some point a global threshold will be reached. While this threshold will certainly be less than 100% inclusion, the hypothetical and empirical maximum rates are difficult to forecast with any accuracy.

A look at the nations with the most financially excluded people in 2014 reveals that the top 10 nations with the largest population of people that were not in the formal economy in 2014 does not change in 2020. However, they are cumulatively responsible for 500 million people (or just over half the number of people) that do become included over that time. Of the approximately 1.1 billion people that will remain financially

excluded in 2020, over 72% of them reside in these 10 nations as shown in Table 7 below, and therefore progress can still be made subsequent to 2020 in these nations to reduce their financially excluded populations. Appendix 2 lists all countries and their newly financially included populations by year.

Table 7: Countries with the Largest Financially Excluded Populations in 2014

Rank	Country	2014 Adult Population	2014 Financially Excluded	2020 Financially Excluded	2020 Newly Financially Included
1	India	845,811,113	399,613,525	212,371,012	187,242,514
2	China	1,004,273,165	211,632,693	112,470,290	99,162,403
3	Indonesia	170,252,166	109,051,007	57,954,176	51,096,831
4	Pakistan	111,618,980	101,901,276	54,154,516	47,746,760
5	Bangladesh	103,508,200	73,343,737	38,977,869	34,365,868
6	Nigeria	94,379,786	52,689,214	28,001,209	24,688,006
7	Mexico	82,287,262	50,445,918	26,809,029	23,636,889
8	Egypt	55,402,095	47,838,739	25,423,468	22,415,272
9	Brazil	141,982,773	45,259,636	24,052,826	21,206,810
10	Philippines	62,734,852	45,127,858	23,982,794	21,145,064
	TOTAL	**2,672,250,392**	**1,136,903,604**	**604,197,188**	**532,706,416**

The key insight from this list is that global progress towards financial inclusion will rely significantly on the progress or lack thereof amongst these ten countries. Given the direct link between financial inclusion and economic gains, accelerated financial inclusion of people from these top 10 countries will not only yield immediate economic results but their financial inclusion will begin the compounding benefits earlier as well. Due to compounding over time, a small increase in financial inclusion sooner could lead to sizable economic results in the coming decades in the same way as the principle of compounding works for retirement savings.

The results also show that the countries with the highest percentage of people who are financial excluded could make substantial progress towards involving their citizens in the formal economy. Table 8 shows the top 10 countries with the highest rates of financial exclusion as of 2014 and their corresponding rates by 2020. (Note: Nations cited in the data as having 100 percent of their adult populations as financially excluded were not included due to suspect data).

Table 8: Countries with the Highest Financial Exclusion Rates

Country	2014 Population	2014 Adult Population	2014 Financially Excluded Adult Percentage	2020 Financially Excluded Adults Percentage	Difference in Percentages
Turkmenistan	5,307,188	3,582,006	98.21%	52.19%	46.02%
Niger	19,113,728	8,986,960	96.51%	51.29%	45.22%
Madagascar	23,571,713	12,997,261	94.27%	50.10%	44.17%
Guinea	12,275,527	6,652,949	93.83%	49.87%	43.96%
Yemen, Rep.	26,183,676	14,822,828	93.55%	49.72%	43.83%
Burundi	10,816,860	5,720,931	93.06%	49.45%	43.60%
Chad	13,587,053	6,732,902	92.30%	49.05%	43.25%
Somalia	10,517,569	5,286,632	92.14%	48.97%	43.18%
Pakistan	185,044,286	111,618,980	91.29%	48.52%	42.78%
Afghanistan	31,627,506	16,665,899	90.04%	47.85%	42.19%

Like the nations with a large population of financially excluded people, nations with high starting rates of financial exclusion can similarly accelerate the gains from

financial inclusion by focusing on bringing people into the economy sooner rather than later. The bottom line for countries with either high rates of financial exclusion or a large number of people that are not economically counted is that the financial inclusion factor, which is the rate that people join the formal economy, can matter a great deal to the benefits the country will receive. Of the countries listed in Table 6 and Table 7, Pakistan was the only country to be featured on both lists with over 111 million people (91.29 percent of adults) financially excluded. Therefore, Pakistan has a large amount to gain by including their financially excluded people into the formal economy as soon as possible.

At a global level, in 2014 the average financial inclusion rate, was 52.2 percent with 69 nations falling below the average. Fast forward to the forecast for 2020 and the average financial inclusion rate sky rockets to 74.6% however 69 nations still fall below the average. While the number of countries below the average is identical five years later due to the uniform financial inclusion factor applied to every nation as part of the methodology, the range of percentages between the nations shrinks.

The 2014 financial inclusion rate ranged from 1.79% to 99.72%. The forecasts suggest that by 2020, the range will be 47.81% to 99.85%, with Turkmenistan holding the lowest financial inclusion rate and Sweden holding the highest at both times. Moreover, data from 2014 showed that 69 countries had inclusion rates below 50% and by 2020 only three countries will: Turkmenistan, Niger and Madagascar. It should be noted that the decrease in range will hold true regardless of the financial inclusion factor used because as nations approach 100% financially inclusion, they will hit the upper limit while nations with lower rates have a larger way to go before hitting the upper limit. The

distribution in the rates of financial inclusion and the difference in ranges can be seen in Figures 6 and Figures 7 below with select countries listed.

Figure 6: 2014 Financial Inclusion Rates in Decreasing Order

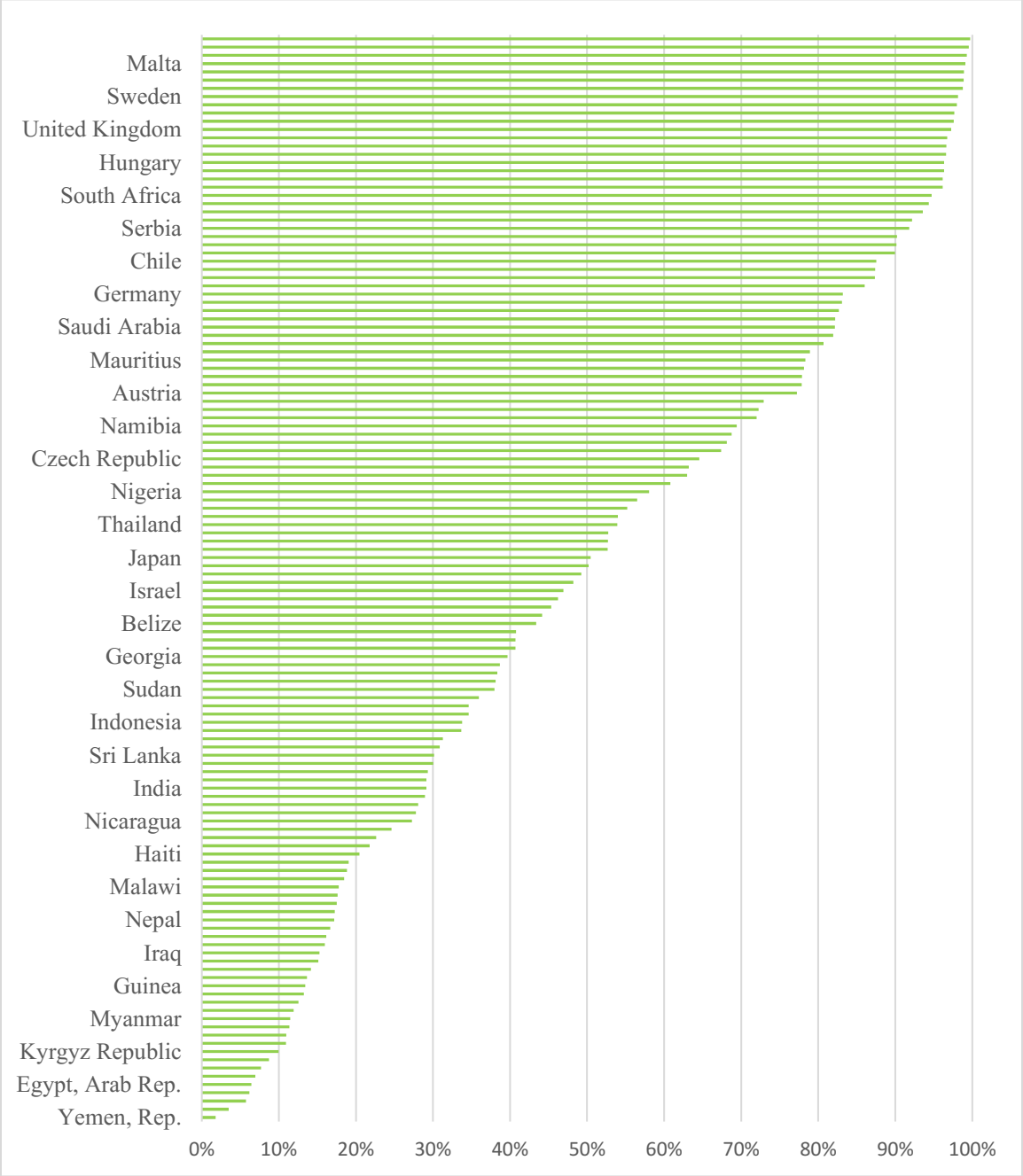
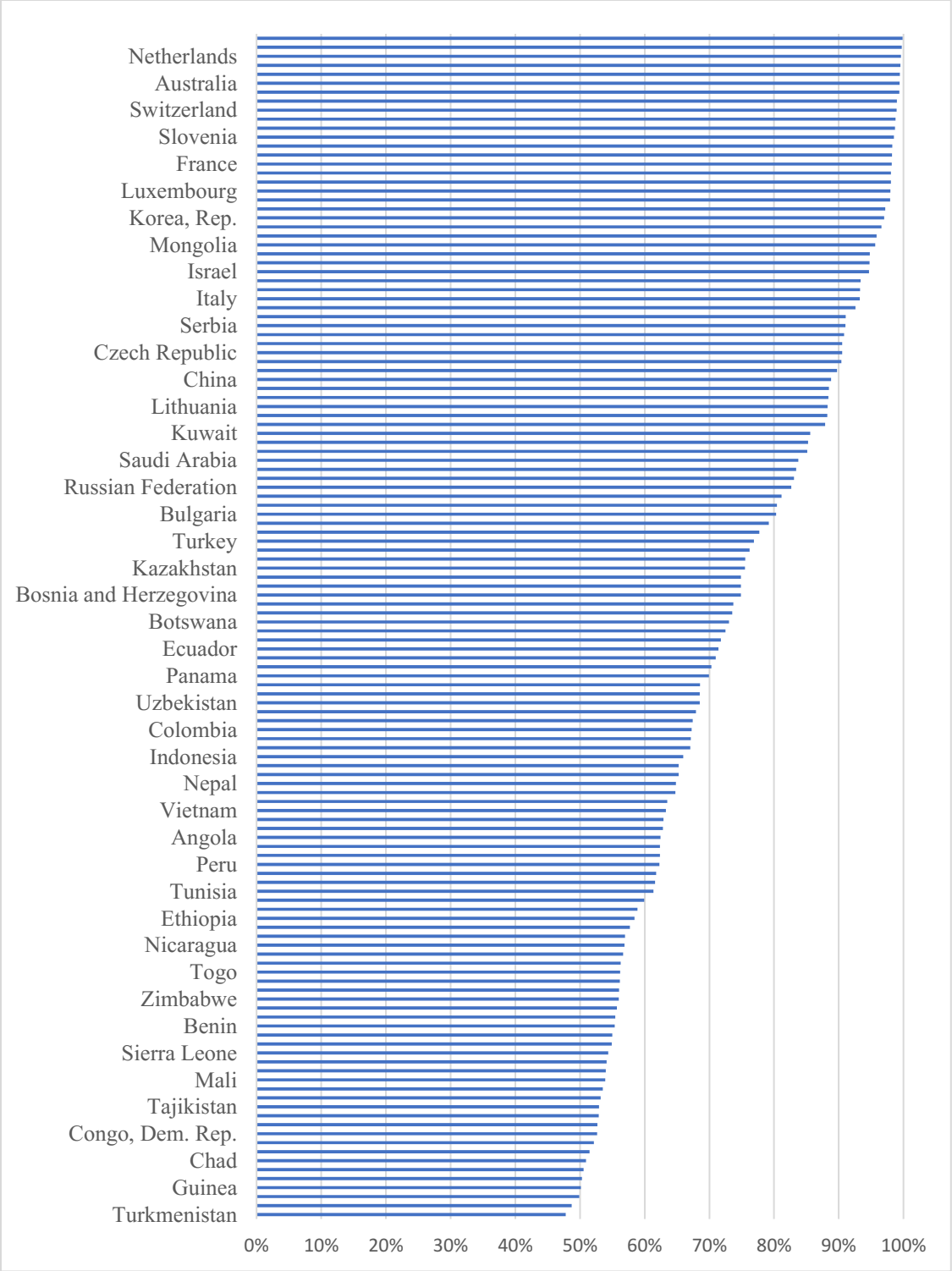


Figure 7: 2020 Financial Inclusion Rates in Decreasing Order



A key insight from this research is that while many states can turn to financial inclusion to bring about dramatic gains in their economies, the gains that can be had through this approach will diminish over time. When states discover that they no longer can drive fast economic growth by adding to the productive population, a shift towards efficiencies will likely be needed for continued growth. At the same time, nations that are starting with high inclusion rates will feel further pressure to grow their economies as the significant number of people entering the global economy will create competitive pressures and they will not be able to react by simply increasing their financially included population. This may in turn put a damper on the economic growth of these nations and those nations that fail to adjust may even see their economies shrink and competitive rank in the global context diminish.

At the regional level, in 2014 every region except North America had a dramatically wide range of financial inclusion rates and had multiple nations with financial inclusion rates less than 50%. However, by 2020, forecasts show that the range within regions narrows materially and there will be five regions that have all countries with greater than 50% financial inclusion rates. Only a handful of nations in the African region and Europe and Central Asia region will have rates below 50%. Figures 8 and 9 show the financial inclusion rates in 2014 and 2020 by region with select nations listed for reference. A listing of each country, their region and their income level grouping is provided in Appendix 7.

Figure 8: 2014 Financial Inclusion Rates by Region

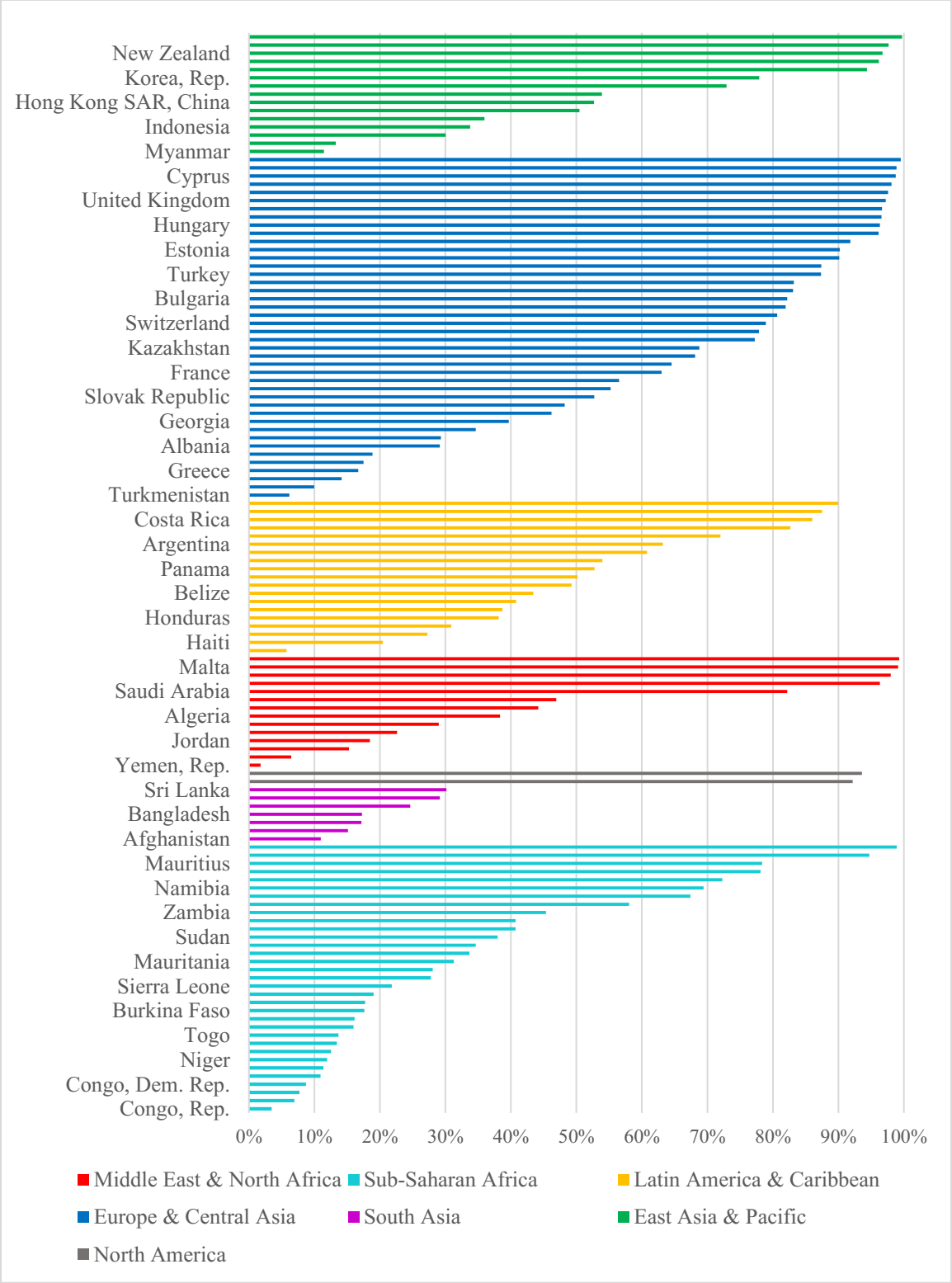
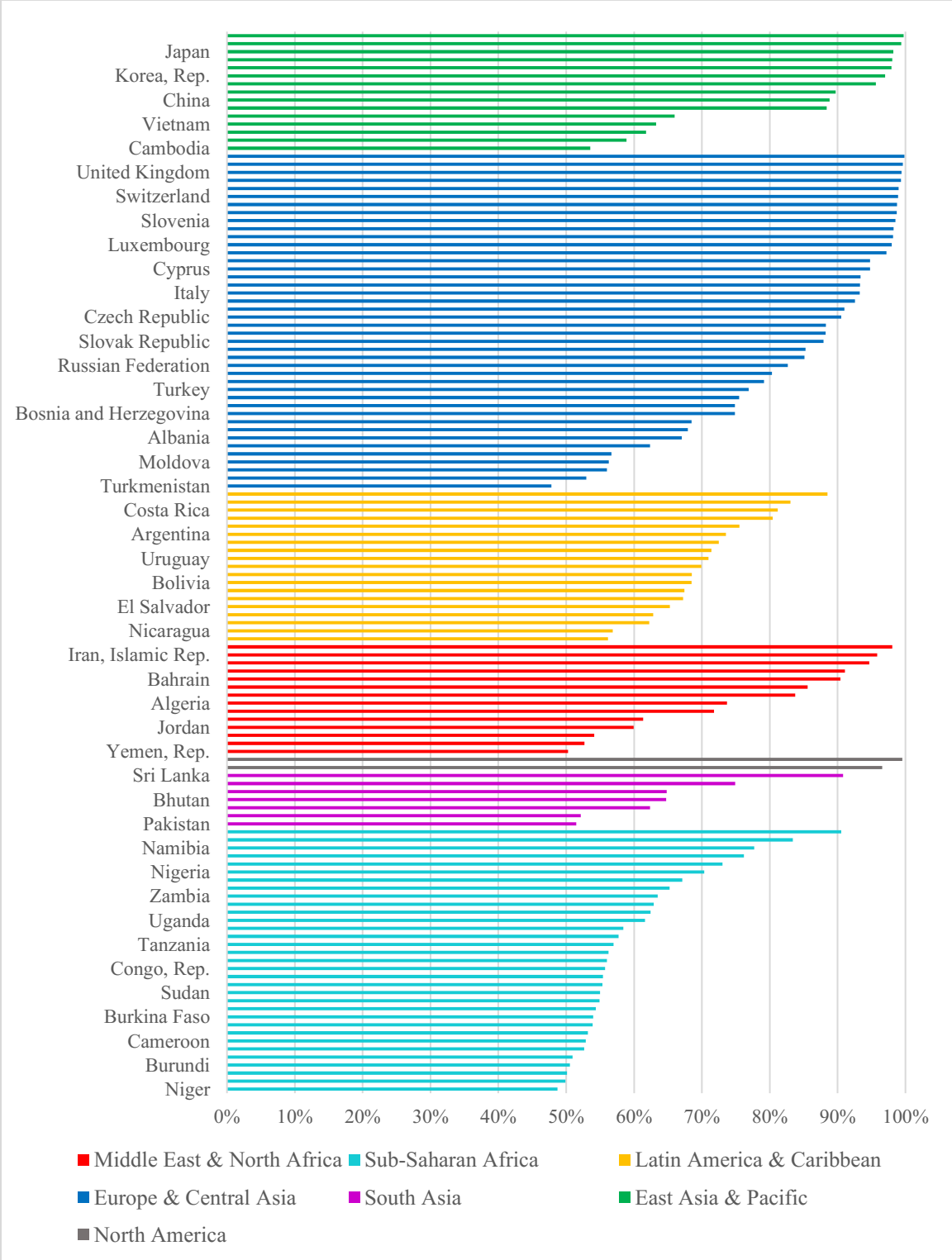


Figure 9: 2020 Financial Inclusion Rates by Region



While the model predicts that many nations will see material increases in the number of people who will join the formal economy due to financial inclusion, unless those people transact in a way that is captured, their contributions will remain inaccessible for the government to tax. To better understand how much of the gains from financial inclusion could be captured, we turn our attention to the analysis of digital payments.

The sample of countries with reliable digital payment data is 132 nations, of which 18 countries had rates below 10%, and 86 had rates below 50%. By 2020, the forecasted rates for these same countries suggests that remarkable progress will be made. Every country in the bottom ten could increase their digital payment rates more than seven fold. Four of the lowest 10 nations in Table 9 are projected to reach over 50% digital payment rates. In fact, Turkmenistan, which had the fourth lowest digital payment rate, is forecasted to shoot up to reach the modelled maximum digital payment rate of 90% by 2020. If adoption rates of cell phone technology even closely mirror the digital payment rates, as assumed in the methodology, digital payments could very quickly allow countries to see dramatic resources flow into the formal economy.

Table 9: Countries with the Lowest Digital Payment Rates in 2014

Rank	Country Name	2014 Digital Payment Rates	2020 Digital Payment Rates
1	Yemen, Rep.	0.67%	35.22%
2	Congo, Rep.	0.76%	51.10%
3	Bolivia	0.93%	35.95%
4	Turkmenistan	1.38%	90.00%
5	Egypt, Arab Rep.	1.38%	44.54%
6	Tanzania	1.42%	44.25%
7	Cote d'Ivoire	1.65%	56.82%
8	Congo, Dem. Rep.	2.69%	40.48%
9	Kyrgyz Republic	3.64%	56.63%
10	Burundi	5.77%	43.47%

While some of the countries with the lowest digital payment rates may not come as a surprise as they are countries in the early developing stages in 2014, some of the countries with the highest rates of digital payments may be a surprise, such as Latvia, Malta and Kenya. Singapore holds the number one spot with a digital payment rate of 91% in 2014, with Finland and Sweden rounding out the top 10 at just under 75% as shown in Table 10. An interesting point to note is that the percent spread between the top ten countries is 15.9% which is almost triple the 5.1% spread of the bottom 10 countries. This demonstrates the large variation in the use of digital payments between countries that have previously adopted it due to factors such as infrastructure and investments.

Table 10: Countries with the Highest Digital Payment Rates in 2014

Rank	Country Name	2014 Digital Payment Rates	2020 Digital Payment Rates
1	Singapore	90.53%	86.25%
2	Latvia	87.86%	87.95%
3	United Arab Emirates	80.92%	90.00%
4	Malta	80.08%	90.00%
5	Norway	78.98%	85.99%
6	Kenya	78.97%	90.00%
7	Croatia	77.60%	71.48%
8	Cyprus	75.68%	87.26%
9	Finland	74.98%	54.78%
10	Sweden	74.62%	90.00%

While the model suggested large gains in digital payment rates for those with the lowest starting rates, it shows that some nations with higher starting rates could see their digital payment rate decline over time. This result in the data is a possibility in reality. Of the 132country sample that was analyzed, the 14 countries in Table 11 below showed negative growth in digital payment rates. The four smallest negative rates belonging to Hungary, Portugal, Ecuador and the Russian Federation could be a result of measurement error or a naturally occurring variation. Moreover, the results from countries with less than a 10% drop or small drops for the other countries could also occur in reality for a variety of reasons. Recession or hard economic times can certainly push down digital payment rates as people look to cash transactions to avoid paying taxes on income or to save taxes on purchases. Rates could also decrease due to hard economic times as people cannot afford mobile phones and subscription plans to support those phones.

However, there were also large double digit rate drops in the data which cannot be explained by the reasons above, either in the context of digital payment rates or due to the

underlying mobile subscription growth rates that were used in the model. While large drops like this are not unimaginable in future empirical data due to war, violence or a health pandemic, these reasons are not likely the case why those nations show large drops and thus there is no explanation for these outlier results.

Table 11: Countries with Negative Digital Payment Rate Changes

Country Name	2014 Digital Payment Rates	2020 Digital Payment Rates	Change in Rate
Montenegro	46.04%	-0.87%	-46.91%
Lithuania	73.01%	46.49%	-26.51%
Finland	74.98%	54.78%	-20.21%
Bulgaria	54.86%	37.42%	-17.44%
Germany	56.36%	45.69%	-10.67%
Serbia	64.60%	53.99%	-10.61%
Romania	46.25%	36.31%	-9.95%
Greece	11.13%	4.44%	-6.69%
Croatia	77.60%	71.48%	-6.12%
Italy	39.00%	33.84%	-5.16%
Honduras	28.32%	24.02%	-4.30%
Singapore	90.53%	86.25%	-4.28%
Russian Federation	62.53%	60.61%	-1.92%
Ecuador	25.61%	23.73%	-1.87%
Portugal	24.83%	24.05%	-0.77%
Hungary	68.46%	68.39%	-0.07%

From a different perspective, by 2020, 21 countries reach the model maximum digital payment rate of 90 percent. Even more encouraging is that 98 countries reach a digital payment rate of over 50% by 2020. On the whole, from an average digital payment rate of 37.6 percent in 2014, by 2020 the average almost doubles to 65.3 percent. Figure 10 and Figure 11 illustrate this point below with select countries listed for reference. The complete list of digital payment rates by country can be found in Appendix 3. These remarkable results, together with the gains in financial inclusion that

were discussed in the previous section, create a compelling case for just how dramatically nations can improve their economies in the coming years.

Figure 10: 2014 Digital Payment Rates by Country in Decreasing Order

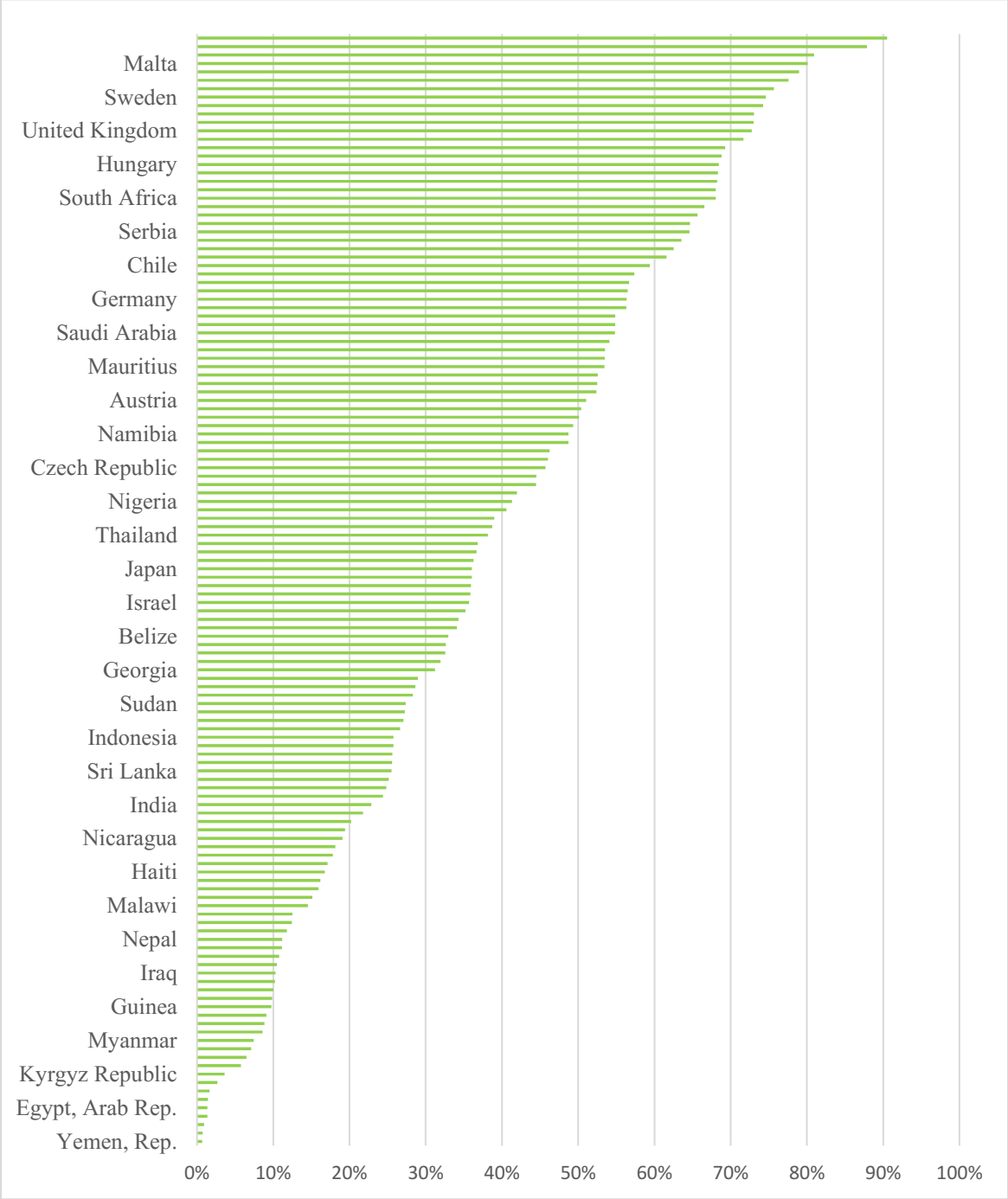
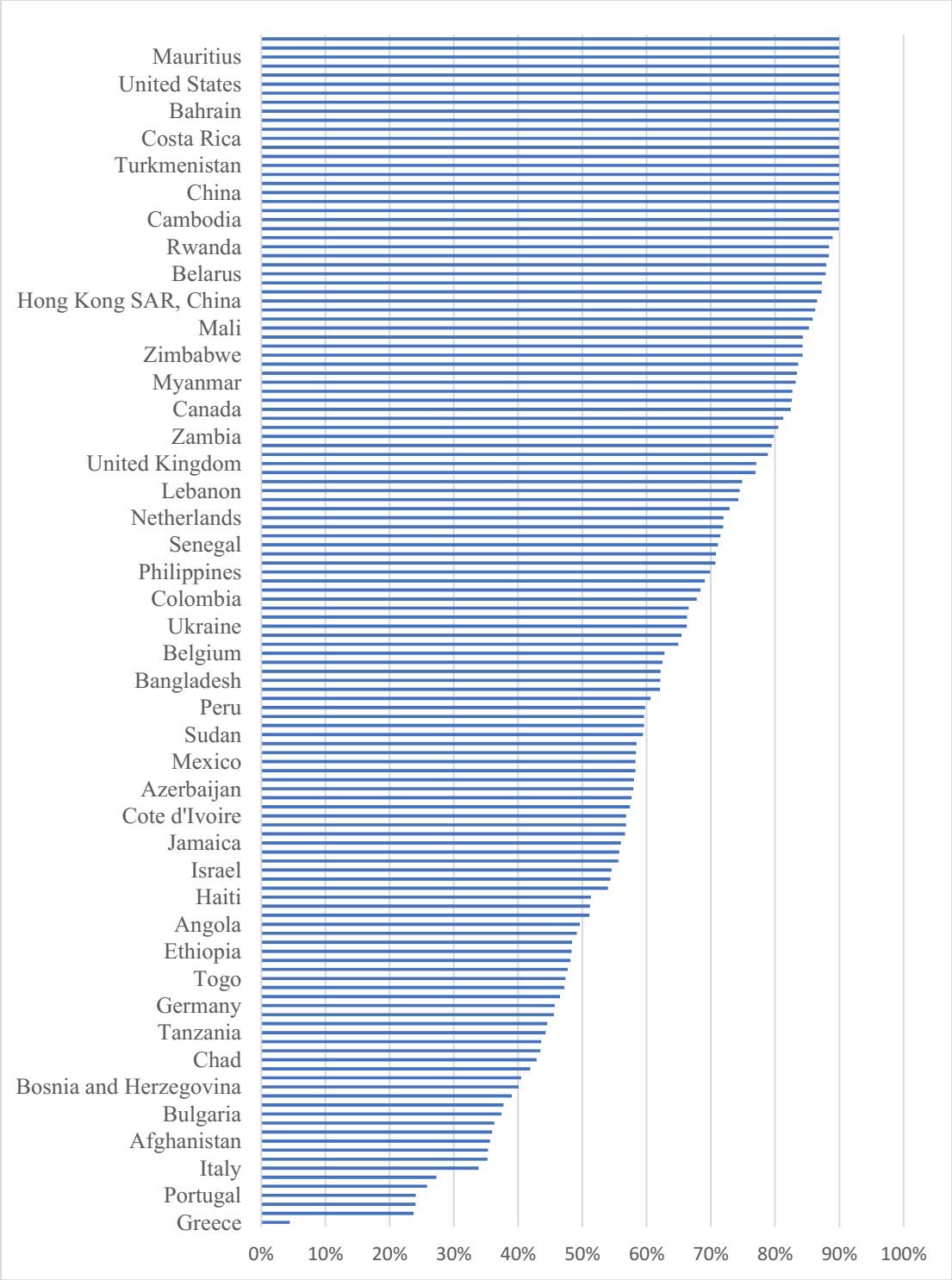


Figure 11: 2020 Digital Payment Rates by Country in Decreasing Order



In the 2014 digital payment rates, each region had a large disparity within it and there are also noticeable differences between regions. For example, all regions except South Asia have at least one country with a digital payment rate greater than 60%. The country in South Asia with the largest digital payment rate in 2014 was Sri Lanka with only 25.5% and demonstrates the very low digital payment adoption in that region. By 2020, despite the large increases in digital payment rates across all regions, there are still continued large differences within the regions. Interestingly, the model predicts that South Asia is poised to show a huge gain compared to the other regions. The East Asia & Pacific region also stands out because is expected to have every country except one with a digital payment rate above 70%, which no other region except for North America can claim. The Europe & Central Asia region is expected to improve the least, with countries making only minor gains compared to other regions. Figure 12 and 13 that follow show the digital payment levels by region with selected countries listed as reference points.

Figure 12: 2014 Digital Payment Rates by Region

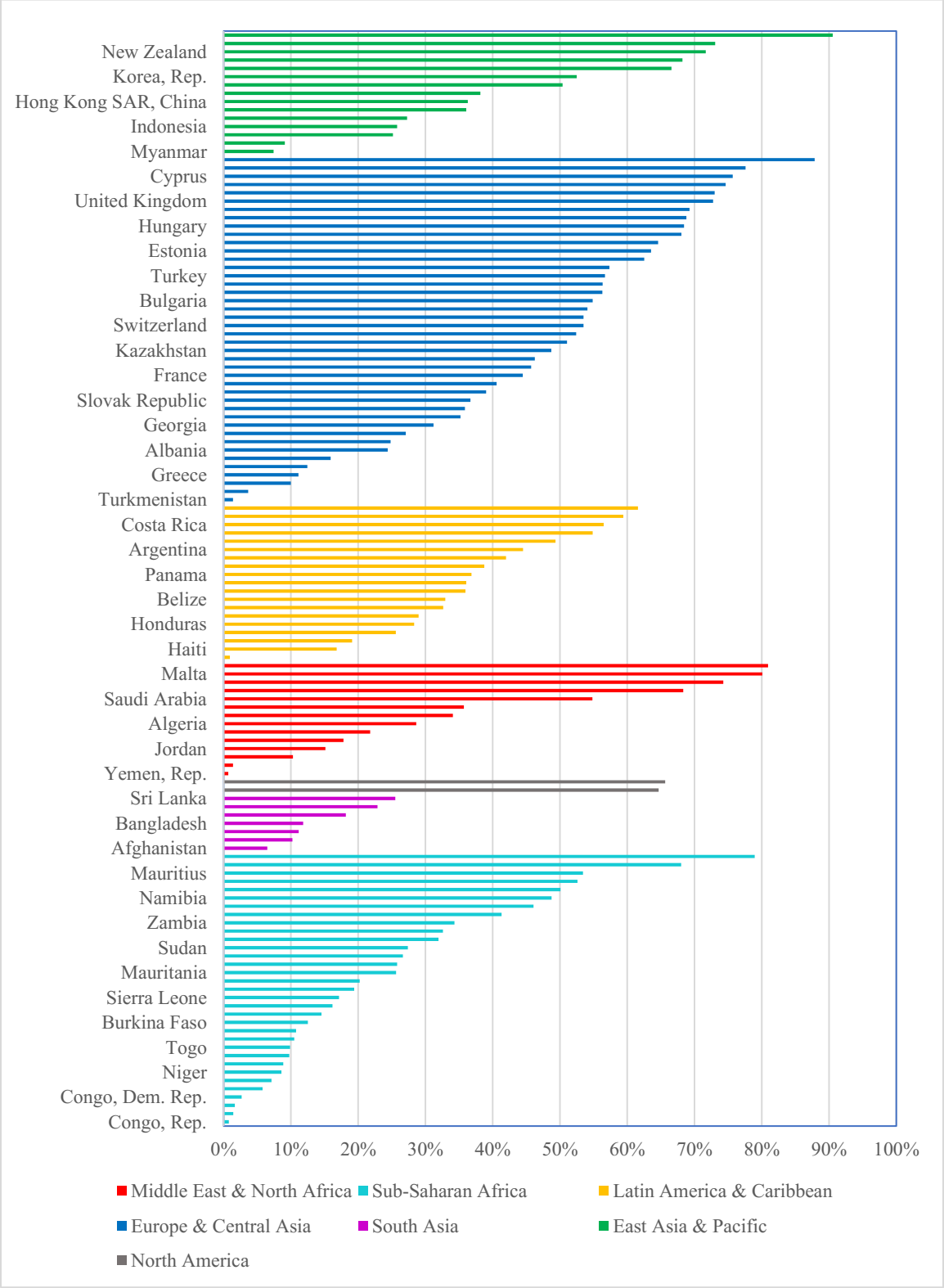
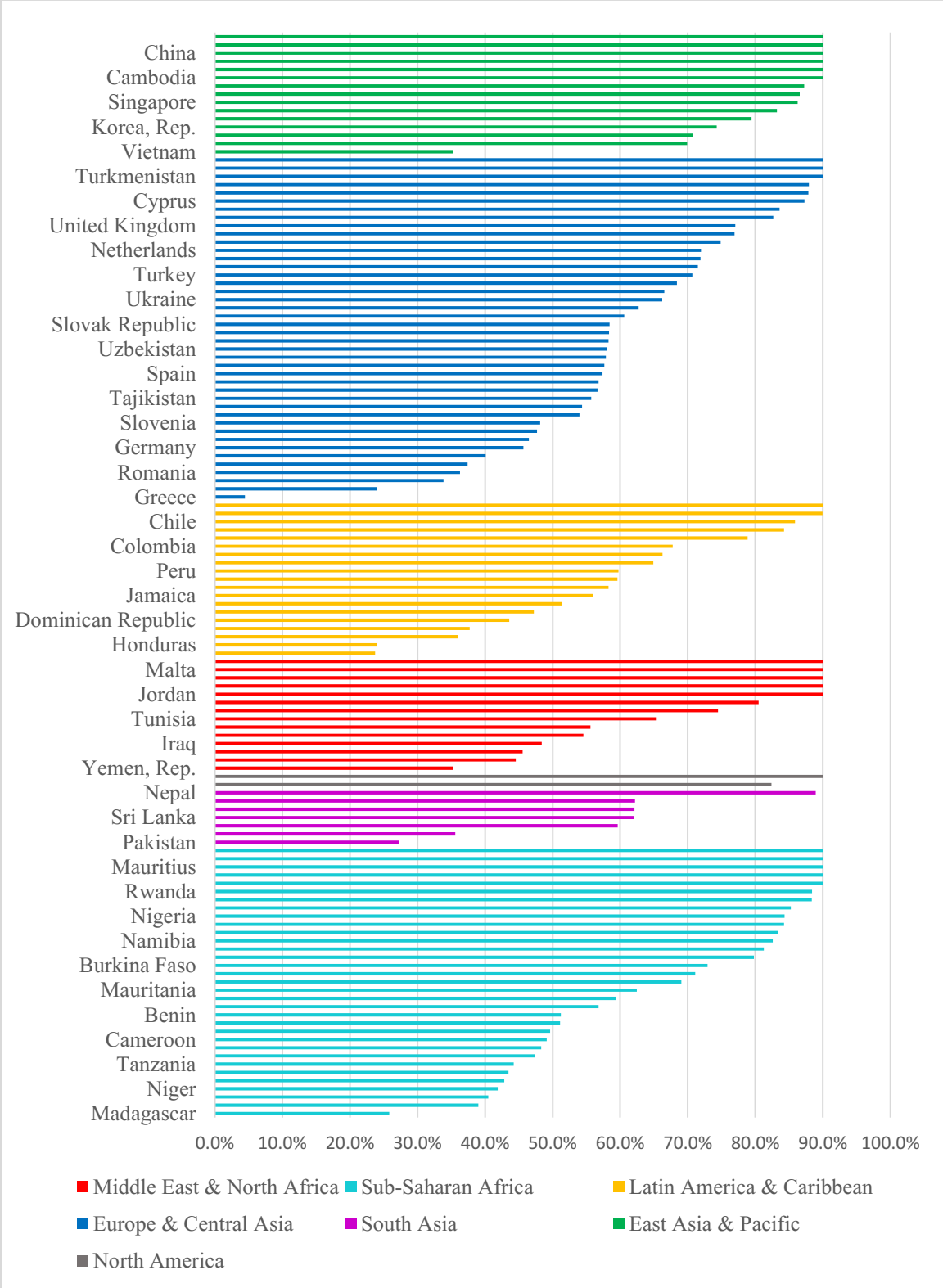


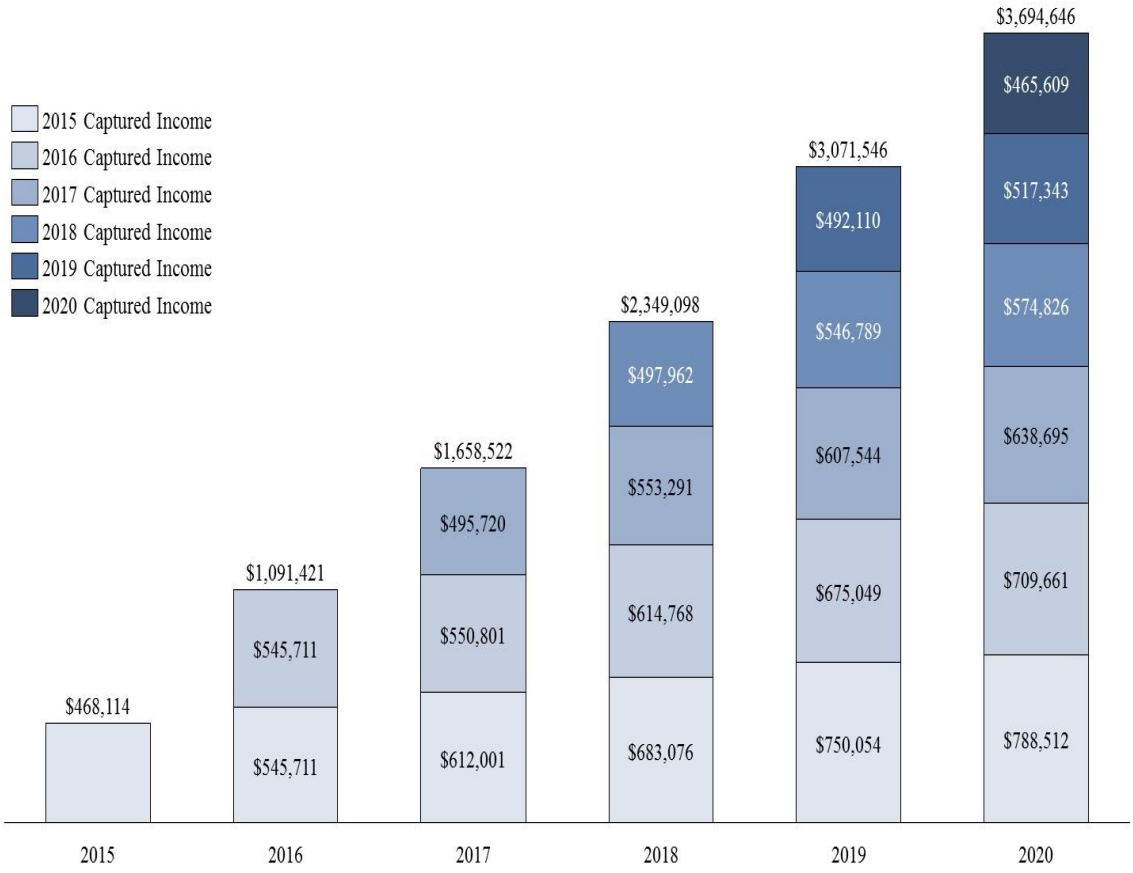
Figure 13: 2020 Digital Payment Rates by Region



To this point, we have shown the gains in financial inclusion by country which will result in a large number of people gaining a transactional account that allows them to start engaging with the formal economy. As mentioned previously, just having an account or using it to continue to operate on a cash basis that leaves no trace of their contributions to the economy is essentially worthless to government revenue. Digital payments offer a solution in capturing the income and expenditure transactions that occur in the economy. On our journey to determine the impact of financially inclusion and digital payments on individual tax revenues, our next stop is the analysis of average incomes around the world.

The income of those that become financially included is a critical factor in understanding how much tax revenue governments can collect. The amount of income captured by the formal economy represents the culmination of numerous factors. First is the number of people that are brought into the economy as a result of financial inclusion. Second, of the income each of these people earn, there will be a fraction that they transact through digital payments, which is the amount that can be considered as going through formal channels. Third, as economies grow over time, so will the incomes of the newly financially included. Forth, digital payment rates also grow concurrently thereby multiplying gains. Fifth, year after year, the collective impact of the newly financially included grows exponentially. Together, these elements combine to create phenomenal growth and economic gains. The total annual worldwide captured income is shown in Figure 14, segmented by the contributions of each year's financially included cohort.

Figure 14: Income Captured in the Formal Economy Over Time



While the aggregate gain over the years is impressive, our model shows that many individual countries stand to gain significantly over time as well. Appendix 5 lists the total income captured by each country for each year calculated. Although advanced economies may not have much to gain in terms of the number of people they have left to include in the economy or in terms of increases to their digital payment rates, the people that do become part of the formal economy in richer nations will generate a large amount of income captured per person. A table of the top ten countries with the largest absolute dollar value change in income captured follows below in Table 12. The outlier is Hong Kong, which was able to grow its digital payment rate substantially from a low start of 36.3% to 86.6%. Projections indicate that Hong Kong's rising digital payment rates and year over year economic growth will result in income captured per capita growing from $14,581 in 2014 to $40,279 in 2020. This represents the largest absolute dollar gain of any nation and a 176% increase in the income entering the formal economy and available for governments to tax.

Table 12: Top 10 Highest Dollar Change in Per Capita Income Captured 2014 to 2020

Rank	Country Name	2014 Per Capita Income Captured	2020 Per Capita Income Captured	Dollar Change in Per Capita Income Captured	Percentage Change in Per Capita Income Captured
1	Hong Kong SAR, China	$14,581	$40,279	$25,698	176%
2	Switzerland	$46,102	$71,753	$25,651	56%
3	Australia	$44,088	$68,642	$24,554	56%
4	Luxembourg	$42,762	$67,161	$24,399	57%
5	United States	$35,775	$56,131	$20,356	57%
6	Sweden	$45,331	$64,524	$19,194	42%
7	Kuwait	$34,107	$51,870	$17,763	52%
8	Norway	$83,678	$100,206	$16,528	20%
9	Ireland	$25,353	$40,780	$15,427	61%
10	Japan	$15,117	$30,544	$15,427	102%

In terms of which countries had the largest percent gains in captured income between 2014 and 2020, the results are astounding. 69 nations signaled at least a doubling of captured income. As shown in Table 13 below, every country in the top ten spots are forecasted to have tenfold increases.

Table 13: Top 10 Highest Percent Change in Income Captured

Rank	Country Name	2014 Income Captured	2020 Income Captured	Dollar Change in Income Captured	Percentage Change in Income Captured
1	Turkmenistan	$104	$9,581	$9,477	9128%
2	Congo, Rep.	$21	$1,390	$1,369	6612%
3	Yemen, Rep.	$10	$472	$462	4803%
4	Bolivia	$27	$1,292	$1,266	4721%
5	Tanzania	$13	$608	$595	4541%
6	Egypt,	$44	$1,883	$1,839	4146%
7	Cote d'Ivoire	$24	$824	$800	3337%
8	Congo,	$11	$217	$206	1917%
9	Kyrgyz Republic	$46	$886	$840	1833%
10	Myanmar	$89	$1,553	$1,463	1644%

While in absolute dollar terms, the income captured per person in growing economies are not as large as their wealthy peer nations, the volume of people that are then multiplied by the small dollar values introduces incredible wealth into the economy. Table 14 below showcases the top 20 countries with the largest total captured income in 2020, as well their respective population and income per capita amounts. For this table, 20 countries were listed instead of 10 so that the diversity in outcomes can be seen. This list includes both countries with large dollar increases as well as countries with large percentage increases, which shows that both wealthy nations and less wealthy nations stand to inject enormous economic gains into their economy.

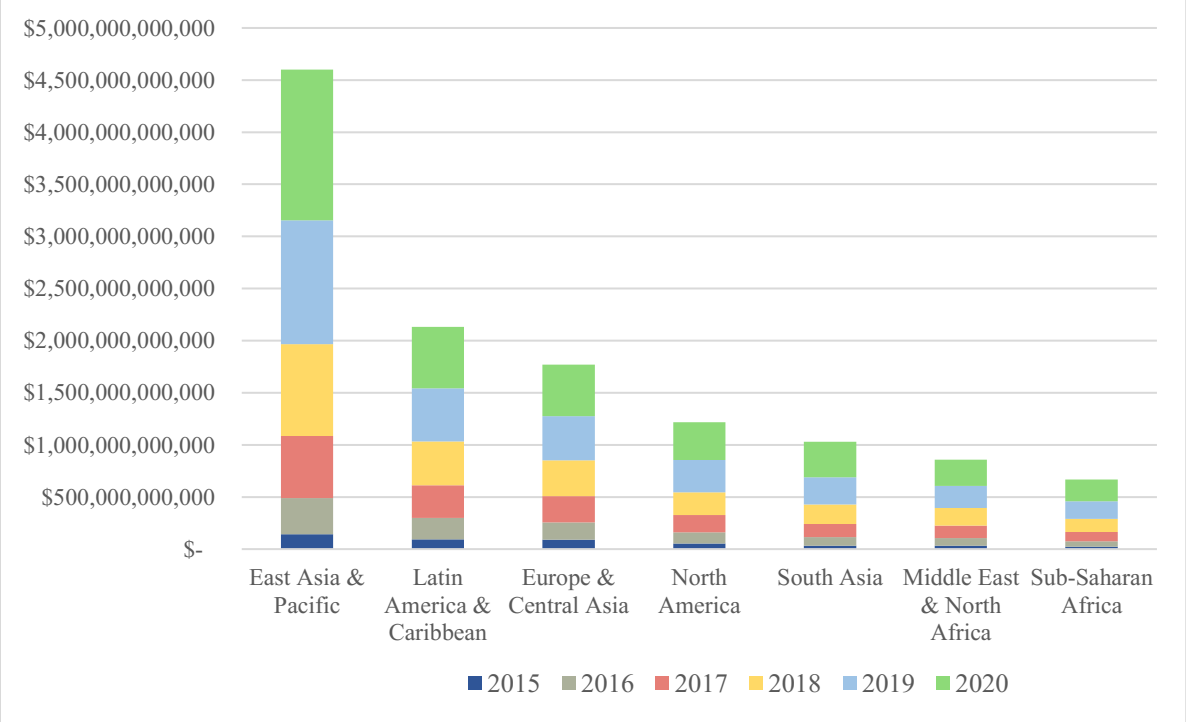
Table 14: Top 20 by Total Income Captured in 2020 by Dollar Value

Country Name	2020 Total Financially Included Population	2020 Income Captured per Capita	2020 Annual Captured Income
China	99,162,403	$ 9,745	$ 966,339,887,808
United States	6,380,781	$ 56,131	$ 358,158,732,932
India	187,242,514	$ 1,452	$ 271,863,671,262
Indonesia	51,096,831	$ 4,476	$ 228,703,203,140
Brazil	21,206,810	$ 9,174	$ 194,556,722,809
Mexico	23,636,889	$ 6,839	$ 161,652,490,553
Russian Federation	15,477,813	$ 8,756	$ 135,517,206,439
Turkey	10,531,068	$ 9,169	$ 96,561,045,002
Philippines	21,145,064	$ 3,593	$ 75,975,606,473
Saudi Arabia	3,027,274	$ 23,590	$ 71,413,035,663
Nigeria	24,688,006	$ 2,765	$ 68,253,282,063
Colombia	9,461,424	$ 6,595	$ 62,402,313,261
Argentina	6,403,360	$ 9,215	$ 59,004,595,359
Egypt, Arab Rep.	22,415,272	$ 1,883	$ 42,205,218,512
Poland	2,763,918	$ 13,835	$ 38,239,802,272
Japan	1,225,994	$ 30,544	$ 37,446,606,019
South Africa	5,177,521	$ 6,647	$ 34,413,638,793
Bangladesh	34,365,868	$ 1,001	$ 34,393,698,501
Peru	6,715,069	$ 4,706	$ 31,602,102,017
Chile	2,107,741	$ 14,902	$ 31,409,950,140

When looking at a regional view, as can be seen from Figure 15 below, the East Asia & Pacific region far surpasses the other six regions in terms of income captured from 2015 to 2020. East Asia & Pacific will capture more than double the next highest region, Latin America & Caribbean, which is projected to capture $4.5 trillion of income during that time period. The large projections for the East Asia and Pacific is mostly a result of the enormous population that lives there and the tremendous number of people from that region that will become financially included. At the other extreme, the lowest

income captured is from the two African regions, Middle East & North Africa, and Sub-Saharan Africa each with less than $1 trillion income captured. These results stem from the relatively small population of the Middle East & North Africa region and the low incomes of the Sub-Saharan African nations.

Figure 15: Captured Income by Region



In actuality, the regional analysis does not tell the whole story in this case. If we view this data in a different way, using the World Bank's income level groupings, a dramatically different phenomenon occurs. The first thing that becomes prevalent is that the upper-middle income countries far surpass the other income classes with almost $7 trillion of income captured between 2014 and 2020, as shown in Figure 16. The lower-middle income and high income countries capture a similar amount of income, while the low income countries capture very little income over this period. In 2020, the year of

their largest income captured, the low income countries only capture $0.14 trillion or 1.4% of the total income captured in 2020, as per Figure 17. This is a surprise result as it suggests continued income disparity for the low income countries despite gains from financial inclusion. This result shows that while the wealth of regions may rebalance, the income captured by low income countries will be outpaced by nations in other categories. This means that the gap between rich and poor countries will continue to widen.

Figure 16: Total Income Captured 2015 to 2020 by Income Group

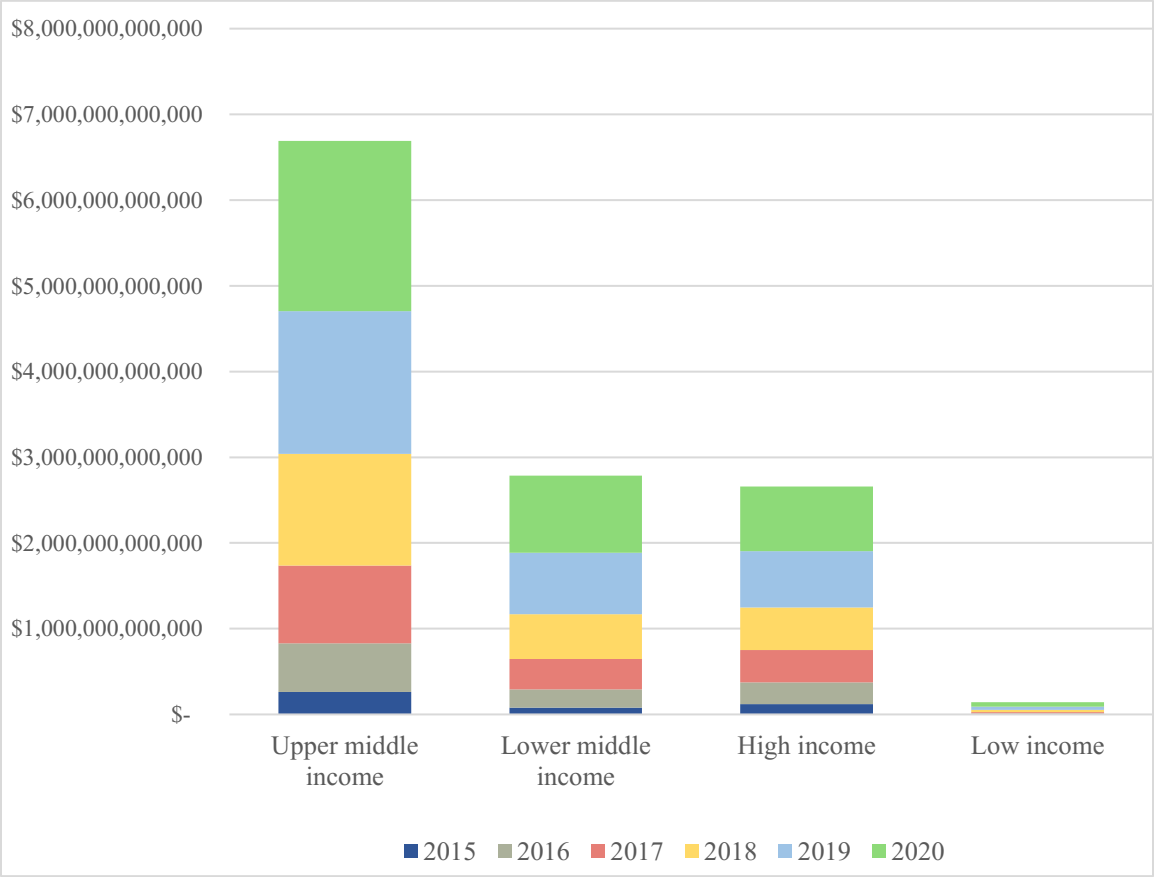
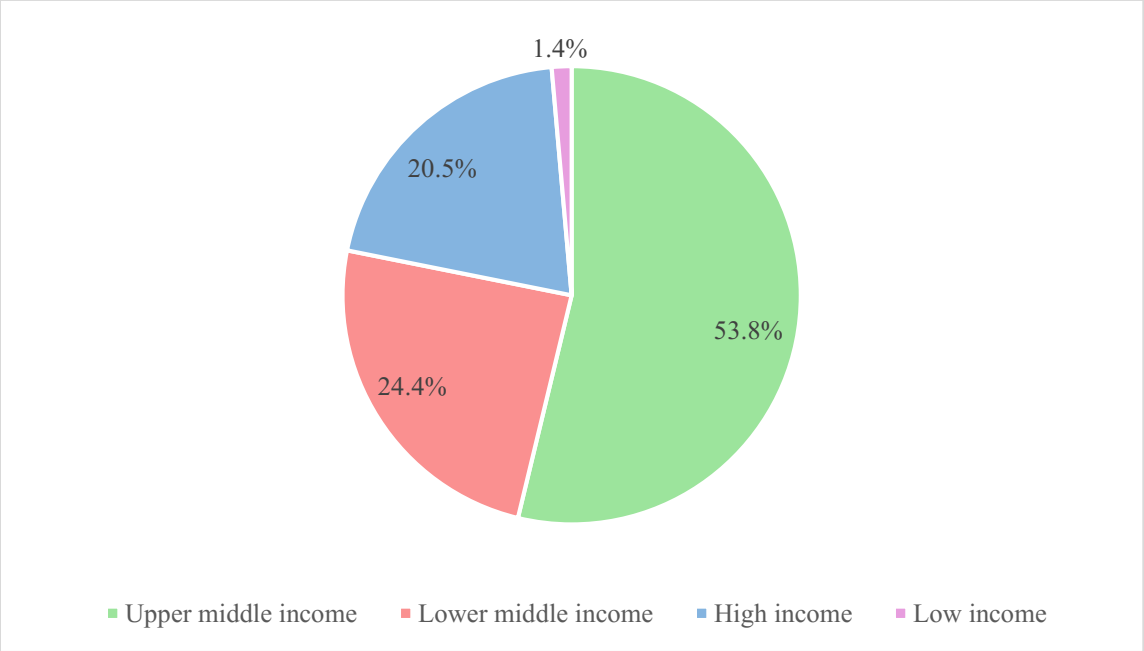
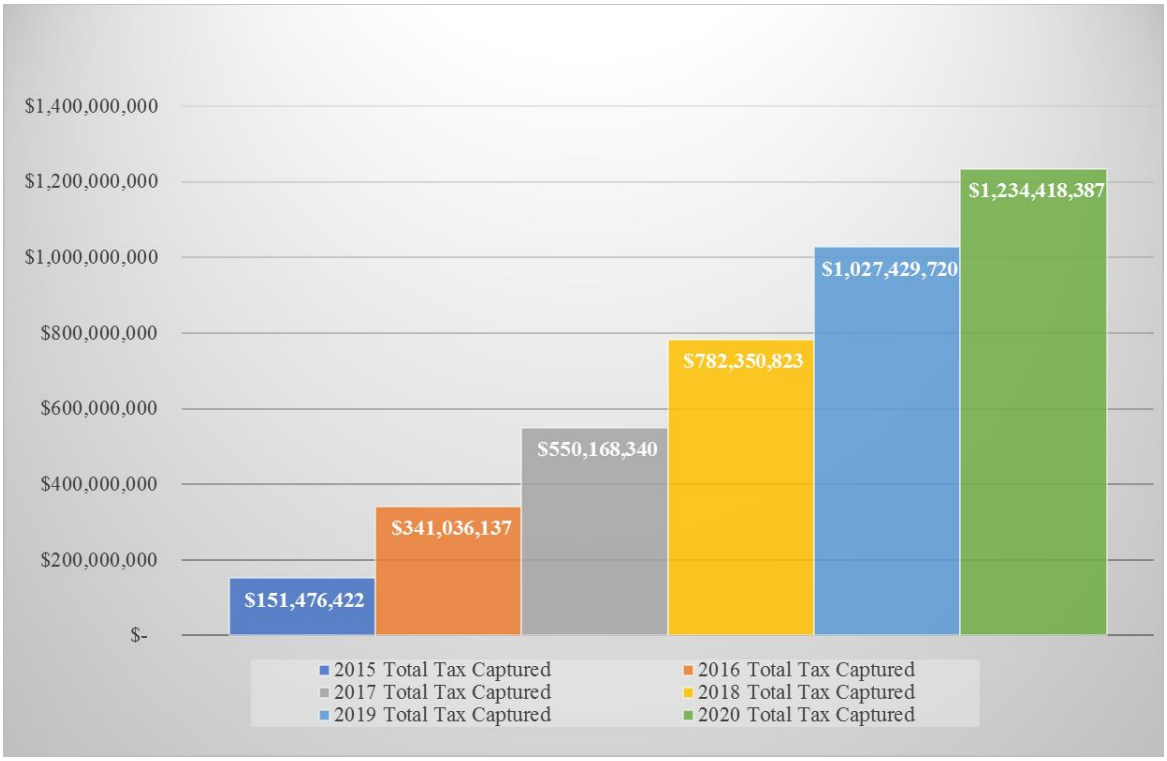


Figure 17: Total Income Captured 2015 to 2020 by Income Group and Percentage



The determination of the annual income captured by each country now allows us to answer the research question of how financial inclusion and digital payments impacts `captured income over time gives us a global picture of how much tax revenue governments will collect. Appendix 4 lists the tax rates used for each year by country. In total, for the 132 nations for which the data allowed calculations, an estimated $4.1 trillion USD will be collected as additional tax revenue between 2015 and 2020. Of that amount, governments stand to gain $1.2 trillion USD in 2020 alone. The annual figures for total taxes captured in each year follow in Figure 18.

Figure 18: Total Annual Taxes Captured in Billions of Dollars USD



Of the countries in the sample, the governments of China and the United States will be the largest dollar value gainers by 2020 with forecasts estimating additional tax revenue just from newly financially included people of $435 million and $142 million, respectively. Interestingly, the United States is the only developed nation among the top ten, while the remaining nine nations are developing economies that are forecasted to capture a windfall of taxes. The United States has a large increase tax revenue due to the high average income per person in the nation, combined with the higher than average tax rate of 40% as shown below in Table 15. Appendix 6 lists each country's total additional tax revenue from newly financially included individuals.

Table 15: Top 10 Countries by 2020 Captured Tax Revenue

Country	2020 Captured Income	2020 Tax Rate	2020 Captured Tax Revenue
China	$ 966,339,887,808	45%	$ 434,852,949,514
United States	$ 358,158,732,932	40%	$ 141,830,858,241
India	$ 271,863,671,262	31%	$ 84,005,874,420
Indonesia	$ 228,703,203,140	30%	$ 68,610,960,942
Mexico	$ 161,652,490,553	35%	$ 56,578,371,693
Brazil	$ 194,556,722,809	28%	$ 53,503,098,772
Philippines	$ 75,975,606,473	32%	$ 24,312,194,071
Argentina	$ 59,004,595,359	35%	$ 20,651,608,376
Colombia	$ 62,402,313,261	33%	$ 20,592,763,376

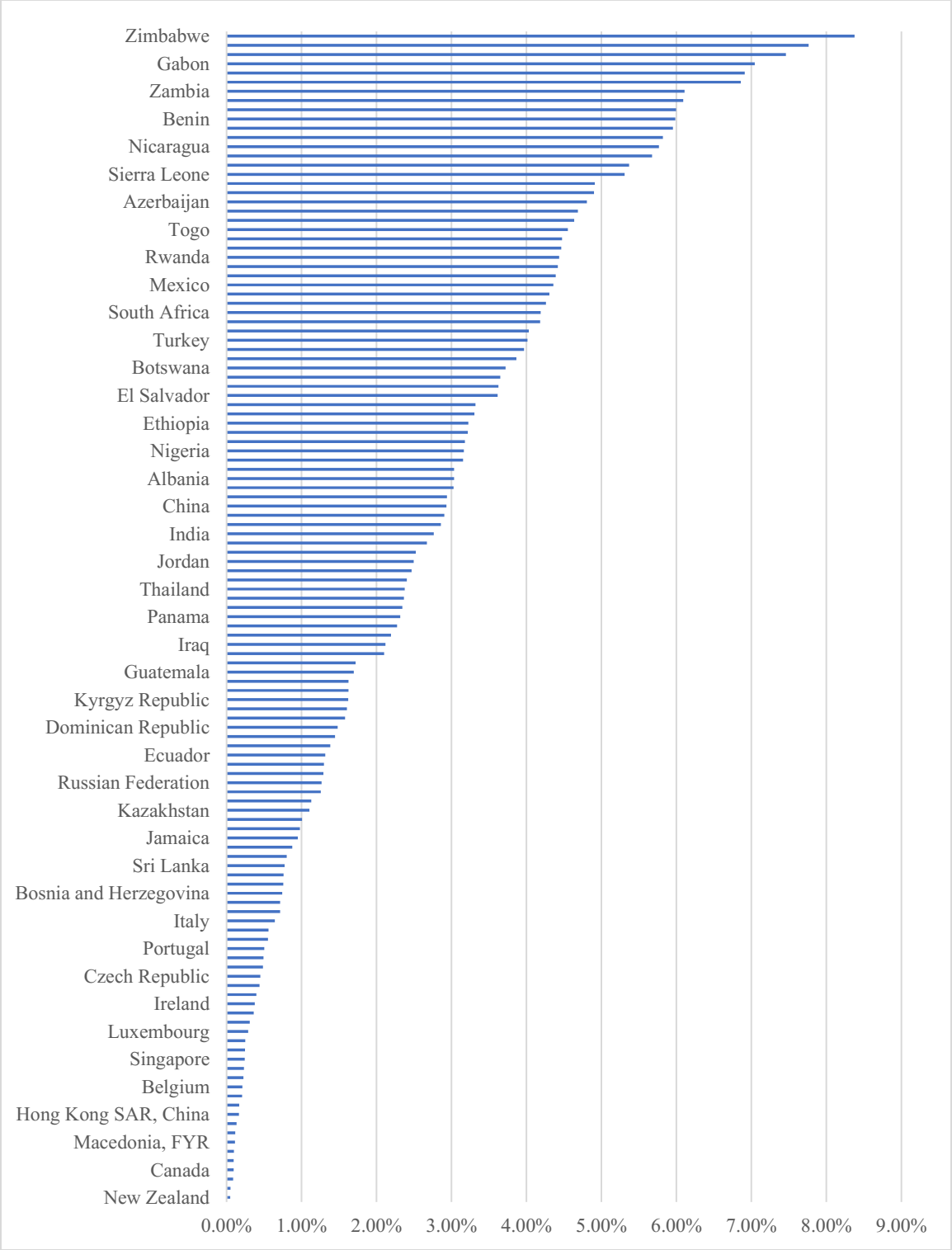
Looking at the nations with the greatest change in the average tax collected per person due to financial inclusion and digital payments, we find that Turkmenistan takes top spot. This is in large part due to the significant gains in digital payment rates previously mentioned. Although there are no advanced economies in the top ten due to the lower percentage increase in digital payment rates and income captured, the list comprises of a diverse set of countries from Africa, Asia, the Middle East and South America as shown below in Table 16. These gigantic gains are no accident but the result of growing economies, increasing digital payment rates and shrinking in the transactions that go unaccounted for.

Table 16: Top 10 Countries by Greatest Change in Captured Tax Per Person

Country	2014 Captured Tax Per Person	2020 Captured Tax Per Person	Percent Change
Turkmenistan	$ 10.38	$ 958.07	9228%
Congo, Rep.	$ 9.32	$ 625.45	6712%
Yemen, Rep.	$ 1.92	$ 94.36	4903%
Bolivia	$ 3.48	$ 168.00	4821%
Tanzania	$ 3.93	$ 182.39	4641%
Egypt, Arab Rep.	$ 11.09	$ 470.72	4246%
Cote d'Ivoire	$ 8.63	$ 296.60	3437%
Congo, Dem. Rep.	$ 3.23	$ 65.04	2017%
Kyrgyz Republic	$ 4.58	$ 88.58	1933%
Nepal	$ 20.64	$ 197.76	958%

To put in context the impact that financial inclusion and digital payments will have on government tax revenues, a comparison of the total tax revenue that can be captured in 2020 versus the forecasted GDP in 2020 was made. Figure 17 shows the results with selected countries shown for reference. The percentages represent the captured tax revenue as a percentage of GDP. Some of the notable results include Zimbabwe at 8.37% in top place which is a very large increase in tax revenue as a percentage of GDP, China at 2.93%, United States at 0.72% and Sweden tied for last at 0.05%.

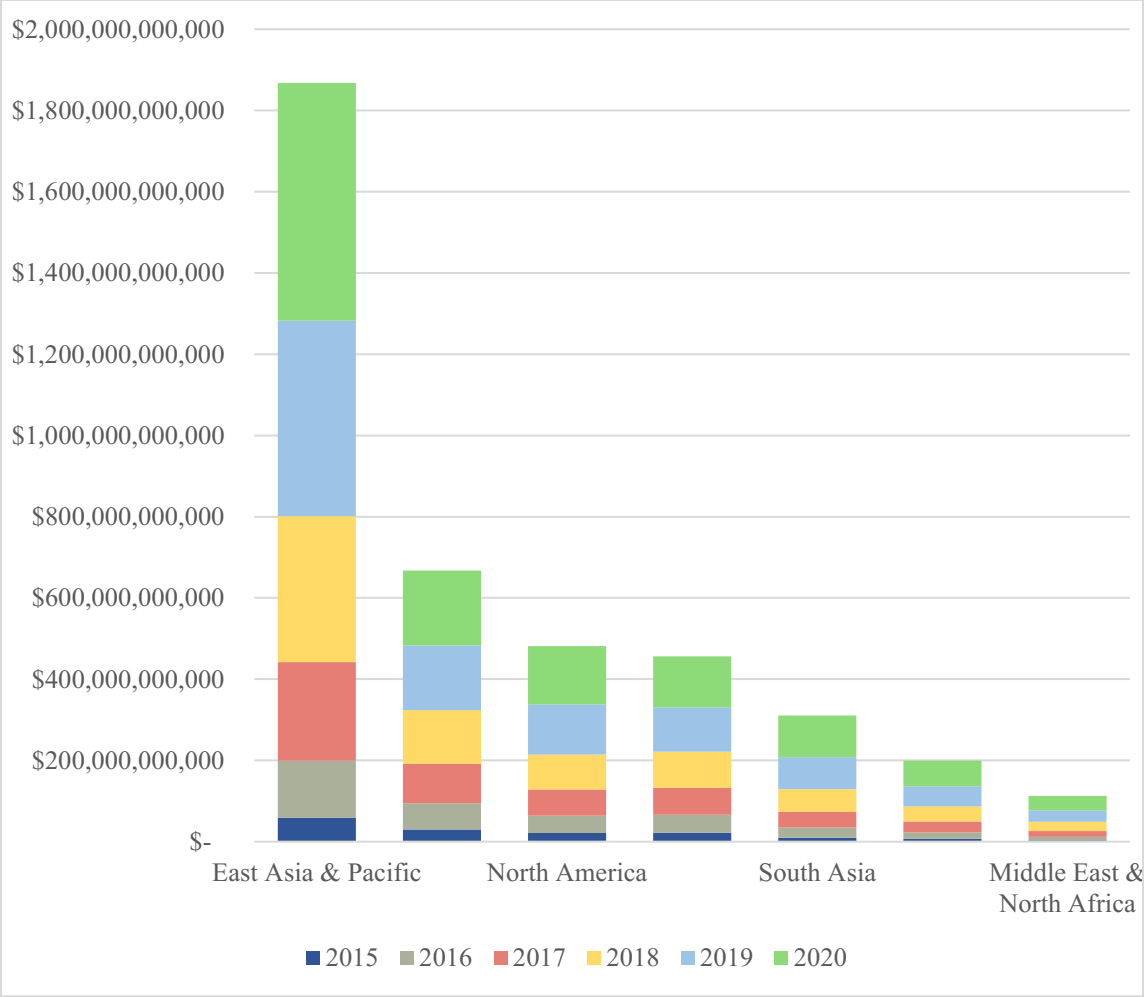
Figure 19: 2020 Captured Tax Revenue as a Percentage of 2020 GDP



In general, the tax revenue by region graph below mirrors the income captured by region graph previously showed, with a few exceptions. The countries in Europe & Central Asia get slightly less tax revenue than the North American countries despite having higher income captured due to the slightly lower tax rates in those countries. Also, the Middle East & North Africa countries will receive about half the tax revenue that the Sub-Saharan Africa countries will get despite having almost $200 billion more in income captured due to the low to no tax rates in some of those countries. The details by year follow in Figure 20.

The analysis that was done in this section showed a number of interesting results including that approximately 50% of the financially included individuals over the next 5 years will come from only 10 countries, the gains resulting from financial inclusion will decrease over time and while income captured from financial inclusion will affect both developed and developing countries, low income countries will capture a marginal amount of this increase in income. This section also answered the research question and determined that $4.1 trillion of tax revenue would be gained as a result of financial inclusion. China will have the largest dollar value gain, and Turkmenistan will have the largest percentage increase. However, in the pursuit of the research question, a number of opportunities for future research were identified and various key insights were gained. The opportunities for future research are discussed in the next section and the key insights are summarized in the section that follows.

Figure 20: Tax Revenue Captured by Region 2015 to 2020



Opportunities for Future Research

In seeking an answer to the research question, it was also the hope of this study to inspire governments and those working in the fields of financial inclusion and digital payments by what is possible in a few short years. However, before concluding this paper, it is important to note the various opportunities for future research that arose as a result of this research.

One of the greatest challenges of this study was in gathering accurate and reliable data from around the world. There are still a number of countries that do not have a full complement of data to perform the analysis. While this is partly due to the evolving technical infrastructure in many nations, the fact that so many people are outside the formal economy and therefore data is unavailable for them restricts research and studies about those countries. Therefore, one suggested area for further research is for detailed income statistics for all countries since datasets such as median income or income by quintile for every country was difficult to come by.

Given the large amount of revenue that governments stand to gain as a result of financial inclusion, another area for further research is on how governments should manage and invest those funds. Research into the most effective uses of additional tax revenue could further accelerate economic gains while limiting the effects of corruption and leakage when revenue reaches the governments. Tax policy, which was assumed to stay constant from 2017 to 2020 in this study, also plays a role in the amount of taxes people are willing to pay and thus the amounts that governments collect. With some nations forecasted to gain multiples of their current tax revenue, further research into the

best practices for tax policy and budgeting, especially geared towards developing countries, will be invaluable to prevent over taxation and inefficient management.

Opportunities for further research also exist in areas that were outside the scope of this study. The effect of financial inclusion on the shadow economy and government leakages would certainly lead to interesting data and actionable insights. Another recommendation for research is into the impact of financial inclusion and digital payments on business tax revenue. The calculation of the impact on business tax revenue can follow a similar methodology as this study and the results could be combined to gain a fuller picture of additional tax revenue governments can expect. Finally, additional research can also be done to build on this study, leverage its methodologies, revise its forecasts and compare forecasts with actualized data as time passes.

Key Insights and Conclusion

In performing the research necessary to answer the question of how financial inclusion and digital payments impact individual tax revenues, a number of key insights were revealed. A summary of these key insights is below to emphasize this important information and as a conclusion to this study.

The first key insight is that previous to 2011, there was no way to measure GDP per capita using only the people that actually contribute towards it. However, now we can calculate a more accurate number thanks to the data that is collected around financial inclusion. By calculating the GDP per capita excluding the financially included population, the findings suggest that while the change in GDP per capita for most

developed countries was not significantly different, the figures for the poorest nations more than doubled.

Another key insight is that mobile phone technology will be a key enabler of financial inclusion. This is because the large gap between the percent of people who own a cell phone and those who do not have a bank account can quickly be closed using mobile banking solutions. This in turn will cause many people to be financially included while generating digital transactions that can be officially captured and taxed.

Nations with large populations of financially excluded people, low digital payment usage rates or both have an opportunity to take advantage of the effects of exponential compounding. As both these factors amplify exponential effects, investments that fast track bringing people into the economy and increasing digital payment rates can yield compounding effects that outgrow other nations over the long run.

The data also showed that the range in financial inclusion rates and digital payment rates between the top most nations and the bottom will significantly shrink by 2020 as nations converge closer to the 100 percent maximum. Thus, as hundreds of millions of people newly enter the global economy in developing countries, developed nations will be subject to even more global competitive pressure and will need to find alternative ways to sustain their growth. Moreover, while the benefits from financial inclusion and digital payments may last for years, they will be exhausted at some point. Thus, developing nations also cannot be complacent and will need to plan for this eventuality.

In conclusion, financial inclusion and digital payments will have a large impact on the world economy. While some nations will benefit more than others, adding people into the formal economy has numerous positive economic benefits including growing incomes and shrinking the shadow economy. Based on a cumulative $12 trillion of income projected to be brought into the formal economy worldwide between 2014 and 2020, the answer to the research question of how financial inclusion and digital payments would impact individual tax revenue was found to be an additional $4.1 trillion globally. This represents a significant opportunity for governments around the globe to take note of, and it is the hope of this study that the results will inspire them to materialize the gains.

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Appendix 1: GDP per Capita Versus GDP per Capita Less Financially Excluded (FE)

	2014 Data			2020 Forecast		
Country	**GDP per Capita**	**GDP less FE**	**% Increase**	**GDP per Capita**	**GDP less FE**	**% Increase**
Afghanistan	$634	$1,206	90.3%	$649	$831	28.0%
Albania	$4,569	$7,986	74.8%	$4,701	$6,060	28.9%
Algeria	$5,484	$8,146	48.5%	$4,498	$5,337	18.7%
Angola	$5,233	$8,079	54.4%	$3,870	$4,581	18.4%
Argentina	$12,325	$18,071	46.6%	$14,100	$16,776	19.0%
Armenia	$3,862	$9,319	141.3%	$4,149	$5,996	44.5%
Australia	$61,996	$62,470	0.8%	$60,273	$60,496	0.4%
Austria	$51,323	$52,473	2.2%	$46,250	$46,788	1.2%
Azerbaijan	$7,886	$16,192	105.3%	$5,531	$7,413	34.0%
Bahrain	$24,515	$28,440	16.0%	$22,966	$24,621	7.2%
Bangladesh	$1,087	$2,017	85.5%	$1,599	$2,072	29.6%
Belarus	$8,025	$9,992	24.5%	$5,787	$6,473	11.8%
Belgium	$47,347	$47,932	1.2%	$41,956	$42,221	0.6%
Belize	$4,884	$7,258	48.6%	$4,781	$5,649	18.2%
Benin	$916	$1,693	84.9%	$868	$1,098	26.5%
Bhutan	$2,561	$4,643	81.3%	$3,908	$5,030	28.7%
Bolivia	$3,124	$4,884	56.3%	$3,413	$4,138	21.2%
Bosnia and Herzegovina	$4,852	$7,327	51.0%	$5,132	$6,276	22.3%
Botswana	$7,153	$10,617	48.4%	$7,162	$8,490	18.5%
Brazil	$11,729	$15,030	28.1%	$8,430	$9,486	12.5%
Bulgaria	$7,853	$10,407	32.5%	$8,314	$9,633	15.9%
Burkina Faso	$697	$1,263	81.3%	$681	$852	25.1%
Burundi	$286	$563	96.9%	$273	$348	27.5%
Cambodia	$1,095	$2,495	127.9%	$1,492	$2,049	37.4%
Cameroon	$1,407	$2,701	91.9%	$1,342	$1,721	28.2%
Canada	$50,185	$50,495	0.6%	$45,009	$45,148	0.3%
Chad	$1,025	$1,888	84.3%	$785	$982	25.2%
Chile	$14,566	$19,506	33.9%	$14,473	$16,576	14.5%
China	$7,684	$9,094	18.4%	$10,569	$11,490	8.7%
Colombia	$7,918	$13,711	73.2%	$6,886	$8,757	27.2%
Congo, Dem. Rep.	$438	$801	82.9%	$489	$612	25.0%
Congo, Rep.	$3,147	$5,699	81.1%	$1,625	$2,041	25.6%
Costa Rica	$10,545	$13,939	32.2%	$13,204	$15,040	13.9%
Cote d'Ivoire	$1,544	$2,861	85.3%	$1,242	$1,577	26.9%

	2014 Data			2020 Forecast		
Country	**GDP per Capita**	**GDP less FE**	**% Increase**	**GDP per Capita**	**GDP less FE**	**% Increase**
Croatia	$13,481	$14,860	10.2%	$13,028	$13,717	5.3%
Cyprus	$20,204	$21,716	7.5%	$17,961	$18,613	3.6%
Czech Republic	$19,745	$22,450	13.7%	$19,700	$21,041	6.8%
Dominican Republic	$6,269	$8,841	41.0%	$7,744	$9,056	16.9%
Ecuador	$6,432	$9,819	52.7%	$5,383	$6,471	20.2%
Egypt, Arab Rep.	$3,366	$7,223	114.6%	$4,159	$5,567	33.9%
El Salvador	$4,102	$7,084	72.7%	$4,635	$5,936	28.1%
Estonia	$19,941	$20,251	1.6%	$19,755	$19,919	0.8%
Ethiopia	$574	$999	74.2%	$781	$972	24.4%
France	$42,697	$43,634	2.2%	$39,748	$40,212	1.2%
Gabon	$10,772	$18,013	67.2%	$9,250	$11,392	23.2%
Georgia	$4,430	$7,563	70.7%	$4,423	$5,573	26.0%
Germany	$47,903	$48,298	0.8%	$44,903	$45,100	0.4%
Ghana	$1,442	$2,314	60.5%	$1,665	$2,020	21.3%
Greece	$21,674	$23,571	8.8%	$20,091	$20,994	4.5%
Guatemala	$3,667	$5,590	52.5%	$4,255	$5,081	19.4%
Guinea	$540	$1,098	103.5%	$582	$757	30.1%
Haiti	$832	$1,682	102.2%	$895	$1,193	33.3%
Honduras	$2,434	$4,338	78.2%	$2,836	$3,612	27.3%
Hong Kong SAR, China	$40,215	$41,389	2.9%	$46,248	$46,925	1.5%
Hungary	$14,118	$17,396	23.2%	$14,033	$15,627	11.4%
India	$1,577	$2,280	44.6%	$2,190	$2,585	18.1%
Indonesia	$3,500	$6,124	75.0%	$4,145	$5,268	27.1%
Iraq	$6,485	$12,885	98.7%	$4,979	$6,399	28.5%
Ireland	$55,503	$57,500	3.6%	$68,706	$69,928	1.8%
Israel	$37,583	$40,045	6.6%	$39,622	$40,881	3.2%
Italy	$35,365	$38,495	8.9%	$31,901	$33,369	4.6%
Jamaica	$5,108	$5,974	16.9%	$5,620	$6,067	8.0%
Japan	$36,153	$36,912	2.1%	$33,747	$34,127	1.1%
Jordan	$4,831	$8,866	83.5%	$5,469	$7,008	28.1%
Kazakhstan	$12,807	$18,546	44.8%	$10,490	$12,381	18.0%
Kenya	$1,368	$1,817	32.8%	$1,650	$1,860	12.7%
Korea, Rep.	$27,989	$29,191	4.3%	$31,113	$31,798	2.2%
Kuwait	$43,332	$54,489	25.7%	$30,165	$33,317	10.4%

	2014 Data			2020 Forecast		
Country	**GDP per Capita**	**GDP less FE**	**% Increase**	**GDP per Capita**	**GDP less FE**	**% Increase**
Kyrgyz Republic	$1,280	$2,709	111.7%	$1,235	$1,661	34.5%
Latvia	$15,710	$16,796	6.9%	$16,690	$17,308	3.7%
Lebanon	$8,149	$12,730	56.2%	$8,953	$10,948	22.3%
Lithuania	$16,490	$19,352	17.4%	$17,243	$18,792	9.0%
Luxembourg	$116,613	$119,798	2.7%	$112,021	$113,495	1.3%
Madagascar	$453	$943	108.3%	$440	$575	30.6%
Malawi	$363	$636	75.3%	$401	$495	23.5%
Malaysia	$11,306	$13,044	15.4%	$11,514	$12,320	7.0%
Mali	$820	$1,445	76.3%	$793	$981	23.8%
Malta	$25,125	$25,755	2.5%	$27,139	$27,500	1.3%
Mauritius	$10,154	$11,623	14.5%	$10,926	$11,692	7.0%
Mexico	$10,353	$17,323	67.3%	$9,629	$12,018	24.8%
Moldova	$2,245	$5,774	157.2%	$1,914	$2,685	40.3%
Mongolia	$4,202	$4,450	5.9%	$4,406	$4,529	2.8%
Montenegro	$7,378	$10,139	37.4%	$7,594	$8,869	16.8%
Myanmar	$1,227	$2,536	106.7%	$1,617	$2,187	35.2%
Namibia	$5,349	$7,131	33.3%	$5,301	$6,002	13.2%
Nepal	$703	$1,181	67.9%	$821	$1,028	25.1%
Netherlands	$52,157	$52,400	0.5%	$47,555	$47,670	0.2%
New Zealand	$44,380	$44,518	0.3%	$41,808	$41,874	0.2%
Nicaragua	$1,960	$4,115	109.9%	$2,425	$3,280	35.3%
Niger	$431	$790	83.1%	$395	$488	23.4%
Nigeria	$3,203	$4,556	42.2%	$2,501	$2,893	15.7%
Pakistan	$1,321	$2,939	122.6%	$1,674	$2,262	35.1%
Panama	$12,712	$20,125	58.3%	$16,411	$19,987	21.8%
Peru	$6,490	$12,079	86.1%	$6,805	$8,822	29.6%
Philippines	$2,873	$5,274	83.6%	$3,740	$4,802	28.4%
Poland	$14,342	$16,976	18.4%	$14,520	$15,811	8.9%
Portugal	$22,124	$24,114	9.0%	$20,691	$21,663	4.7%
Romania	$10,020	$13,626	36.0%	$11,322	$13,297	17.4%
Russian Federation	$14,273	$18,529	29.8%	$9,742	$11,106	14.0%
Rwanda	$698	$1,066	52.8%	$863	$1,028	19.1%
Saudi Arabia	$24,406	$30,862	26.5%	$20,872	$23,189	11.1%
Senegal	$1,042	$1,962	88.3%	$1,088	$1,375	26.4%
Serbia	$6,200	$6,991	12.8%	$5,029	$5,291	5.2%
Sierra Leone	$794	$1,496	88.4%	$772	$990	28.2%

	2014 Data			2020 Forecast		
Country	**GDP per Capita**	**GDP less FE**	**% Increase**	**GDP per Capita**	**GDP less FE**	**% Increase**
Singapore	$56,007	$57,541	2.7%	$54,782	$55,498	1.3%
Slovak Republic	$18,595	$22,208	19.4%	$19,147	$20,953	9.4%
Slovenia	$24,021	$24,478	1.9%	$22,540	$22,764	1.0%
Somalia	$537	$1,000	86.3%	$477	$603	26.3%
South Africa	$6,499	$8,168	25.7%	$5,945	$6,632	11.6%
Spain	$29,719	$30,207	1.6%	$28,883	$29,135	0.9%
Sri Lanka	$3,853	$4,352	13.0%	$4,994	$5,312	6.4%
Sudan	$2,088	$3,963	89.8%	$2,536	$3,244	27.9%
Sweden	$59,180	$59,285	0.2%	$55,472	$55,522	0.1%
Switzerland	$85,815	$86,996	1.4%	$83,181	$83,753	0.7%
Tajikistan	$1,113	$2,469	121.8%	$1,084	$1,460	34.6%
Tanzania	$930	$1,597	71.7%	$1,023	$1,255	22.6%
Thailand	$5,970	$7,084	18.7%	$6,724	$7,329	9.0%
Togo	$630	$1,149	82.3%	$622	$783	25.9%
Tunisia	$4,329	$8,718	101.4%	$4,270	$5,682	33.1%
Turkey	$10,304	$14,511	40.8%	$10,241	$11,980	17.0%
Turkmenistan	$8,199	$24,318	196.6%	$8,371	$12,473	49.0%
Uganda	$735	$1,139	55.1%	$794	$940	18.4%
Ukraine	$2,943	$4,403	49.6%	$2,395	$2,931	22.4%
United Arab Emirates	$44,239	$51,619	16.7%	$43,665	$46,966	7.6%
United Kingdom	$46,412	$46,736	0.7%	$46,499	$46,665	0.4%
United States	$54,540	$56,972	4.5%	$59,422	$60,740	2.2%
Uruguay	$16,738	$25,751	53.9%	$17,059	$20,855	22.3%
Uzbekistan	$2,037	$3,374	65.7%	$2,811	$3,532	25.6%
Vietnam	$2,052	$3,992	94.5%	$2,662	$3,496	31.3%
Yemen, Rep.	$1,651	$3,510	112.6%	$1,626	$2,155	32.5%
Zambia	$1,727	$2,658	53.9%	$1,401	$1,658	18.3%
Zimbabwe	$931	$1,721	84.8%	$824	$1,047	27.0%

Appendix 2: Newly Financially Included (FI) Population (Pop.) by Country

Country	2015 Newly FI Population	2016 Newly FI Population	2017 Newly FI Population	2018 Newly FI Population	2019 Newly FI Population	2020 Newly FI Population	Total Newly FI Population
Afghanistan	1,500,581	1,350,523	1,215,471	1,093,923	984,531	886,078	7,031,107
Albania	123,831	111,448	100,303	90,273	81,245	73,121	580,221
Algeria	1,272,426	1,145,184	1,030,665	927,599	834,839	751,355	5,962,069
Angola	853,502	768,152	691,337	622,203	559,983	503,985	3,999,161
Argentina	1,366,607	1,229,946	1,106,952	996,257	896,631	806,968	6,403,360
Armenia	176,035	158,432	142,589	128,330	115,497	103,947	824,829
Australia	17,812	16,031	14,428	12,985	11,686	10,518	83,460
Austria	18,725	16,852	15,167	13,651	12,285	11,057	87,738
Azerbaijan	489,104	440,193	396,174	356,557	320,901	288,811	2,291,740
Bahrain	18,797	16,917	15,226	13,703	12,333	11,099	88,075
Bangladesh	7,334,374	6,600,936	5,940,843	5,346,758	4,812,083	4,330,874	34,365,868
Belarus	186,634	167,971	151,174	136,056	122,451	110,206	874,492
Belgium	13,705	12,334	11,101	9,991	8,992	8,093	64,216
Belize	11,503	10,353	9,318	8,386	7,547	6,793	53,900
Benin	486,568	437,911	394,120	354,708	319,237	287,314	2,279,859
Bhutan	34,309	30,878	27,790	25,011	22,510	20,259	160,757
Bolivia	380,541	342,487	308,239	277,415	249,673	224,706	1,783,061
Bosnia and Herzegovina	128,937	116,043	104,439	93,995	84,595	76,136	604,145
Botswana	72,414	65,172	58,655	52,790	47,511	42,760	339,301
Brazil	4,525,964	4,073,367	3,666,030	3,299,427	2,969,485	2,672,536	21,206,810
Bulgaria	177,253	159,527	143,575	129,217	116,295	104,666	830,533
Burkina Faso	788,736	709,863	638,876	574,989	517,490	465,741	3,695,694
Burundi	532,370	479,133	431,220	388,098	349,288	314,359	2,494,468
Cambodia	860,246	774,222	696,800	627,120	564,408	507,967	4,030,762
Cameroon	1,090,582	981,524	883,372	795,034	715,531	643,978	5,110,021

Country	2015 Newly FI Population	2016 Newly FI Population	2017 Newly FI Population	2018 Newly FI Population	2019 Newly FI Population	2020 Newly FI Population	Total Newly FI Population
Canada	21,759	19,583	17,625	15,862	14,276	12,849	101,955
Chad	621,450	559,305	503,375	453,037	407,733	366,960	2,911,861
Chile	449,835	404,851	364,366	327,930	295,137	265,623	2,107,741
China	21,163,269	19,046,942	17,142,248	15,428,023	13,885,221	12,496,699	99,162,403
Colombia	2,019,260	1,817,334	1,635,601	1,472,040	1,324,836	1,192,353	9,461,424
Congo, Dem. Rep.	3,393,768	3,054,392	2,748,952	2,474,057	2,226,652	2,003,986	15,901,808
Congo, Rep.	201,711	181,540	163,386	147,047	132,342	119,108	945,134
Costa Rica	115,860	104,274	93,846	84,462	76,015	68,414	542,871
Cote d'Ivoire	1,019,897	917,907	826,116	743,505	669,154	602,239	4,778,818
Croatia	39,345	35,410	31,869	28,682	25,814	23,233	184,353
Cyprus	8,033	7,230	6,507	5,856	5,271	4,743	37,640
Czech Republic	126,821	114,139	102,725	92,452	83,207	74,887	594,231
Dominican Republic	302,774	272,497	245,247	220,722	198,650	178,785	1,418,675
Ecuador	548,504	493,653	444,288	399,859	359,873	323,886	2,570,063
Egypt, Arab Rep.	4,783,874	4,305,487	3,874,938	3,487,444	3,138,700	2,824,830	22,415,272
El Salvador	257,080	231,372	208,235	187,411	168,670	151,803	1,204,571
Estonia	2,009	1,808	1,628	1,465	1,318	1,186	9,415
Ethiopia	4,130,885	3,717,796	3,346,017	3,011,415	2,710,273	2,439,246	19,355,632
France	142,758	128,482	115,634	104,070	93,663	84,297	668,904
Gabon	67,842	61,057	54,952	49,456	44,511	40,060	317,878
Georgia	154,420	138,978	125,081	112,572	101,315	91,184	723,551
Germany	66,206	59,586	53,627	48,265	43,438	39,094	310,216
Ghana	1,009,809	908,828	817,945	736,151	662,535	596,282	4,731,549
Greece	87,679	78,911	71,020	63,918	57,526	51,774	410,829
Guatemala	551,131	496,018	446,416	401,775	361,597	325,437	2,582,374
Guinea	624,245	561,821	505,639	455,075	409,567	368,611	2,924,958
Haiti	534,377	480,939	432,845	389,561	350,605	315,544	2,503,870

Country	2015 Newly FI Population	2016 Newly FI Population	2017 Newly FI Population	2018 Newly FI Population	2019 Newly FI Population	2020 Newly FI Population	Total Newly FI Population
Honduras	349,414	314,473	283,026	254,723	229,251	206,326	1,637,213
Hong Kong SAR, China	20,528	18,475	16,627	14,965	13,468	12,121	96,185
Hungary	185,926	167,333	150,600	135,540	121,986	109,787	871,171
India	39,961,353	35,965,217	32,368,696	29,131,826	26,218,643	23,596,779	187,242,514
Indonesia	10,905,101	9,814,591	8,833,132	7,949,818	7,154,837	6,439,353	51,096,831
Iran, Islamic Rep.	437,263	393,536	354,183	318,765	286,888	258,199	2,048,834
Iraq	1,752,115	1,576,904	1,419,213	1,277,292	1,149,563	1,034,607	8,209,694
Ireland	16,034	14,431	12,988	11,689	10,520	9,468	75,131
Israel	50,513	45,462	40,916	36,824	33,142	29,828	236,684
Italy	494,290	444,861	400,375	360,337	324,303	291,873	2,316,039
Jamaica	39,406	35,465	31,919	28,727	25,854	23,269	184,640
Japan	261,652	235,487	211,938	190,744	171,670	154,503	1,225,994
Jordan	337,537	303,783	273,405	246,065	221,458	199,312	1,581,561
Kazakhstan	535,019	481,517	433,365	390,029	351,026	315,923	2,506,880
Kenya	1,107,678	996,910	897,219	807,497	726,748	654,073	5,190,126
Korea, Rep.	207,607	186,846	168,161	151,345	136,211	122,590	972,760
Kuwait	76,843	69,158	62,242	56,018	50,416	45,375	360,053
Kyrgyz Republic	307,906	277,116	249,404	224,464	202,017	181,816	1,442,723
Latvia	12,893	11,604	10,444	9,399	8,459	7,613	60,413
Lebanon	201,974	181,776	163,599	147,239	132,515	119,263	946,365
Lithuania	43,369	39,032	35,129	31,616	28,455	25,609	203,211
Luxembourg	1,479	1,331	1,198	1,078	970	873	6,929
Madagascar	1,225,284	1,102,756	992,480	893,232	803,909	723,518	5,741,180
Malawi	717,205	645,485	580,936	522,842	470,558	423,502	3,360,529
Malaysia	398,469	358,622	322,760	290,484	261,436	235,292	1,867,064
Mali	739,644	665,680	599,112	539,201	485,281	436,753	3,465,670

Country	2015 Newly FI Population	2016 Newly FI Population	2017 Newly FI Population	2018 Newly FI Population	2019 Newly FI Population	2020 Newly FI Population	Total Newly FI Population
Malta	1,045	940	846	762	685	617	4,895
Mauritania	178,579	160,721	144,649	130,184	117,166	105,449	836,750
Mauritius	15,934	14,340	12,906	11,616	10,454	9,409	74,660
Mexico	5,044,592	4,540,133	4,086,119	3,677,507	3,309,757	2,978,781	23,636,889
Moldova	217,384	195,645	176,081	158,473	142,626	128,363	1,018,571
Mongolia	16,210	14,589	13,130	11,817	10,636	9,572	75,955
Myanmar	2,758,043	2,482,239	2,234,015	2,010,614	1,809,552	1,628,597	12,923,061
Namibia	60,036	54,033	48,629	43,766	39,390	35,451	281,305
Nepal	1,139,531	1,025,578	923,020	830,718	747,646	672,881	5,339,373
Netherlands	7,792	7,013	6,312	5,681	5,113	4,601	36,512
New Zealand	1,396	1,257	1,131	1,018	916	825	6,543
Nicaragua	314,839	283,355	255,019	229,517	206,566	185,909	1,475,204
Niger	867,331	780,598	702,538	632,284	569,056	512,150	4,063,958
Nigeria	5,268,921	4,742,029	4,267,826	3,841,044	3,456,939	3,111,245	24,688,006
Pakistan	10,190,128	9,171,115	8,254,003	7,428,603	6,685,743	6,017,168	47,746,760
Panama	142,454	128,209	115,388	103,849	93,464	84,118	667,481
Peru	1,433,132	1,289,819	1,160,837	1,044,753	940,278	846,250	6,715,069
Philippines	4,512,786	4,061,507	3,655,356	3,289,821	2,960,839	2,664,755	21,145,064
Poland	589,876	530,889	477,800	430,020	387,018	348,316	2,763,918
Portugal	85,803	77,223	69,501	62,550	56,295	50,666	402,038
Romania	526,824	474,141	426,727	384,054	345,649	311,084	2,468,479
Russian Federation	3,303,279	2,972,951	2,675,656	2,408,091	2,167,282	1,950,553	15,477,813
Rwanda	391,709	352,538	317,285	285,556	257,001	231,300	1,835,389
Saudi Arabia	646,082	581,474	523,326	470,994	423,894	381,505	3,027,274
Senegal	688,110	619,299	557,369	501,632	451,469	406,322	3,224,200
Serbia	80,648	72,584	65,325	58,793	52,913	47,622	377,886
Sierra Leone	296,408	266,767	240,090	216,081	194,473	175,026	1,388,845

Country	2015 Newly FI Population	2016 Newly FI Population	2017 Newly FI Population	2018 Newly FI Population	2019 Newly FI Population	2020 Newly FI Population	Total Newly FI Population
Singapore	14,577	13,120	11,808	10,627	9,564	8,608	68,303
Slovak Republic	88,150	79,335	71,401	64,261	57,835	52,052	413,034
Slovenia	3,852	3,467	3,120	2,808	2,527	2,275	18,050
South Africa	1,104,988	994,489	895,040	805,536	724,983	652,484	5,177,521
Spain	75,156	67,640	60,876	54,789	49,310	44,379	352,149
Sri Lanka	238,375	214,538	193,084	173,776	156,398	140,758	1,116,929
Sudan	1,862,296	1,676,066	1,508,459	1,357,613	1,221,852	1,099,667	8,725,954
Sweden	1,719	1,547	1,393	1,253	1,128	1,015	8,055
Switzerland	11,117	10,006	9,005	8,105	7,294	6,565	52,092
Tajikistan	455,536	409,982	368,984	332,086	298,877	268,989	2,134,454
Tanzania	2,163,471	1,947,124	1,752,411	1,577,170	1,419,453	1,277,508	10,137,138
Thailand	1,065,331	958,798	862,918	776,626	698,963	629,067	4,991,703
Togo	321,318	289,186	260,268	234,241	210,817	189,735	1,505,565
Tunisia	553,622	498,260	448,434	403,591	363,232	326,908	2,594,047
Turkey	2,247,544	2,022,789	1,820,510	1,638,459	1,474,613	1,327,152	10,531,068
Turkmenistan	351,786	316,608	284,947	256,452	230,807	207,726	1,648,326
Uganda	1,341,783	1,207,605	1,086,844	978,160	880,344	792,309	6,287,045
Ukraine	1,504,159	1,353,743	1,218,369	1,096,532	986,879	888,191	7,047,874
United Arab Emirates	129,910	116,919	105,227	94,705	85,234	76,711	608,707
United Kingdom	44,756	40,280	36,252	32,627	29,364	26,428	209,706
United States	1,361,788	1,225,609	1,103,048	992,744	893,469	804,122	6,380,781
Uruguay	119,689	107,720	96,948	87,253	78,528	70,675	560,814
Uzbekistan	1,219,019	1,097,117	987,406	888,665	799,798	719,819	5,711,824
Vietnam	4,407,866	3,967,080	3,570,372	3,213,335	2,892,001	2,602,801	20,653,455
Yemen, Rep.	1,386,698	1,248,028	1,123,225	1,010,903	909,813	818,831	6,497,499
Zambia	550,767	495,690	446,121	401,509	361,358	325,222	2,580,667

Appendix 3: Digital Payment Rates by Country

Country	2014 Digital Payment Rate	2015 Digital Payment Rate	2016 Digital Payment Rate	2017 Digital Payment Rate	2018 Digital Payment Rate	2019 Digital Payment Rate	2020 Digital Payment Rate
Afghanistan	6.5%	5.6%	16.9%	21.8%	26.4%	31.5%	35.6%
Albania	24.4%	32.3%	46.4%	60.2%	66.6%	55.4%	56.8%
Algeria	28.6%	28.8%	36.0%	41.0%	46.1%	55.8%	55.6%
Angola	25.8%	31.1%	42.1%	45.1%	47.1%	50.3%	49.6%
Argentina	44.5%	55.2%	63.7%	72.1%	79.1%	64.9%	66.3%
Armenia	15.9%	71.6%	49.8%	53.5%	54.3%	58.1%	58.3%
Australia	68.2%	69.5%	75.0%	77.3%	79.9%	90.0%	90.0%
Austria	51.0%	60.5%	69.6%	76.3%	72.6%	68.8%	74.9%
Azerbaijan	27.1%	41.2%	51.9%	51.9%	52.0%	56.4%	57.9%
Bahrain	74.3%	86.4%	90.0%	90.0%	90.0%	90.0%	90.0%
Bangladesh	11.8%	22.2%	32.6%	40.6%	52.8%	59.3%	62.1%
Belarus	69.3%	76.1%	79.9%	79.7%	84.3%	87.4%	87.9%
Belgium	52.4%	55.8%	58.8%	57.2%	57.2%	60.9%	62.8%
Belize	32.9%	42.2%	50.2%	36.0%	36.6%	35.9%	47.2%
Benin	10.8%	30.0%	36.6%	42.6%	54.1%	45.0%	51.2%
Bhutan	18.2%	25.4%	37.1%	47.2%	45.0%	55.5%	62.2%
Bolivia	0.9%	7.7%	18.8%	29.6%	38.4%	38.7%	36.0%
Bosnia and Herzegovina	35.2%	31.4%	33.0%	37.8%	41.3%	41.3%	40.1%
Botswana	50.1%	72.1%	90.0%	90.0%	90.0%	90.0%	90.0%
Brazil	61.6%	74.9%	90.0%	90.0%	90.0%	90.0%	78.9%
Bulgaria	54.9%	51.3%	55.1%	59.4%	55.3%	41.5%	37.4%
Burkina Faso	12.5%	23.2%	34.5%	47.5%	54.7%	61.8%	72.9%
Burundi	5.8%	12.8%	15.0%	18.0%	20.7%	26.8%	43.5%
Cambodia	25.2%	37.4%	74.0%	90.0%	90.0%	90.0%	90.0%
Cameroon	10.5%	13.3%	21.4%	32.9%	44.1%	51.2%	49.1%
Canada	65.7%	71.3%	74.2%	76.7%	78.5%	79.7%	82.4%
Chad	19.4%	23.8%	29.6%	35.0%	36.2%	41.3%	42.9%
Chile	59.4%	78.6%	90.0%	90.0%	88.4%	88.5%	85.9%
China	50.4%	58.6%	67.9%	77.1%	85.7%	89.9%	90.0%
Colombia	36.1%	40.9%	44.5%	50.5%	53.1%	63.6%	67.8%
Congo, Dem. Rep.	2.7%	5.8%	10.9%	16.9%	27.8%	39.6%	40.5%

Country	2014 Digital Payment Rate	2015 Digital Payment Rate	2016 Digital Payment Rate	2017 Digital Payment Rate	2018 Digital Payment Rate	2019 Digital Payment Rate	2020 Digital Payment Rate
Congo, Rep.	0.8%	17.9%	21.5%	30.4%	38.8%	44.8%	51.1%
Costa Rica	56.5%	81.2%	90.0%	90.0%	90.0%	88.1%	90.0%
Cote d'Ivoire	1.7%	12.6%	20.4%	23.8%	29.7%	41.9%	56.8%
Croatia	77.6%	83.6%	88.0%	84.6%	78.7%	72.6%	71.5%
Cyprus	75.7%	80.6%	85.5%	87.2%	86.3%	87.2%	87.3%
Czech Republic	45.7%	44.5%	46.7%	50.1%	51.9%	53.8%	47.7%
Dominican Republic	42.0%	44.5%	43.3%	44.9%	47.5%	38.8%	43.6%
Ecuador	25.6%	35.3%	38.8%	45.8%	46.9%	46.8%	23.7%
Egypt, Arab Rep.	1.4%	18.5%	32.7%	47.6%	50.9%	46.0%	44.5%
El Salvador	36.0%	38.1%	48.2%	53.7%	59.3%	62.6%	64.9%
Estonia	63.6%	69.8%	81.5%	90.0%	84.5%	82.2%	82.7%
Ethiopia	8.8%	11.7%	19.2%	25.8%	31.1%	36.1%	48.3%
France	44.5%	44.3%	47.3%	51.0%	52.6%	55.8%	57.7%
Gabon	26.6%	36.1%	81.2%	90.0%	90.0%	90.0%	83.4%
Georgia	31.2%	61.8%	74.0%	81.2%	89.1%	90.0%	90.0%
Germany	56.4%	35.9%	38.9%	40.8%	50.2%	49.6%	45.7%
Ghana	31.9%	40.6%	54.6%	71.2%	80.2%	88.9%	90.0%
Greece	11.1%	1.9%	0.4%	11.7%	4.0%	0.6%	4.4%
Guatemala	32.6%	37.4%	46.2%	54.4%	60.2%	30.2%	37.7%
Guinea	9.8%	13.9%	20.9%	26.8%	41.9%	52.1%	69.0%
Haiti	16.8%	20.1%	22.0%	39.9%	50.0%	46.3%	51.3%
Honduras	28.3%	42.3%	24.2%	15.5%	20.5%	20.0%	24.0%
Hong Kong SAR, China	36.3%	52.8%	73.5%	88.6%	90.0%	89.8%	86.6%
Hungary	68.5%	70.7%	67.4%	66.3%	66.4%	67.8%	68.4%
India	22.9%	40.4%	51.3%	49.1%	50.8%	55.2%	59.6%
Indonesia	25.8%	44.5%	59.6%	72.3%	84.5%	89.4%	90.0%
Iran, Islamic Rep.	17.8%	19.7%	22.3%	25.0%	34.1%	38.7%	45.5%
Iraq	10.3%	19.2%	25.6%	29.1%	45.3%	46.8%	48.4%
Ireland	54.1%	54.0%	58.5%	60.8%	57.9%	58.6%	58.4%
Israel	35.7%	36.8%	37.9%	38.2%	41.5%	41.5%	54.5%
Italy	39.0%	45.0%	48.9%	50.8%	50.2%	45.9%	33.8%
Jamaica	49.3%	57.6%	48.9%	40.5%	45.3%	51.2%	56.0%
Japan	36.1%	41.6%	49.0%	55.6%	60.9%	66.6%	70.8%
Jordan	15.1%	23.3%	34.9%	55.2%	73.1%	83.6%	90.0%

Country	2014 Digital Payment Rate	2015 Digital Payment Rate	2016 Digital Payment Rate	2017 Digital Payment Rate	2018 Digital Payment Rate	2019 Digital Payment Rate	2020 Digital Payment Rate
Kazakhstan	48.7%	62.2%	90.0%	90.0%	90.0%	79.8%	66.5%
Kenya	79.0%	91.5%	90.0%	90.0%	90.0%	90.0%	90.0%
Korea, Rep.	52.5%	58.1%	61.5%	63.8%	65.9%	71.0%	74.3%
Kuwait	68.3%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%
Kyrgyz Republic	3.6%	17.1%	34.3%	43.2%	42.2%	56.4%	56.6%
Latvia	87.9%	88.0%	88.1%	90.0%	86.3%	77.6%	87.9%
Lebanon	34.1%	42.5%	53.1%	58.4%	60.7%	69.7%	74.5%
Lithuania	73.0%	70.6%	72.2%	74.2%	59.5%	49.3%	46.5%
Luxembourg	56.3%	57.6%	64.4%	63.7%	68.6%	71.1%	71.9%
Madagascar	7.1%	13.2%	17.3%	17.7%	16.4%	21.7%	25.8%
Malawi	14.6%	18.3%	23.3%	27.5%	31.4%	33.4%	39.0%
Malaysia	66.6%	79.0%	88.4%	90.0%	90.0%	90.0%	87.2%
Mali	20.2%	37.7%	57.4%	79.6%	90.0%	90.0%	85.3%
Malta	80.1%	87.9%	90.0%	90.0%	90.0%	87.6%	90.0%
Mauritania	25.6%	40.6%	54.2%	72.1%	71.1%	65.2%	62.5%
Mauritius	53.4%	61.7%	69.9%	85.1%	88.9%	90.0%	90.0%
Mexico	38.7%	45.3%	47.8%	52.7%	57.5%	56.0%	58.3%
Moldova	10.0%	21.7%	40.4%	50.7%	53.9%	55.0%	54.3%
Mongolia	73.1%	82.0%	90.0%	90.0%	72.9%	78.0%	79.4%
Myanmar	7.4%	7.6%	8.8%	13.5%	19.3%	60.8%	83.2%
Namibia	48.7%	62.0%	72.2%	70.2%	90.0%	87.6%	82.6%
Nepal	11.2%	23.9%	38.7%	50.2%	67.1%	73.0%	88.9%
Netherlands	68.1%	62.3%	66.2%	65.5%	64.0%	64.6%	72.0%
New Zealand	71.7%	71.9%	74.3%	76.6%	73.1%	80.5%	90.0%
Nicaragua	19.1%	29.4%	43.7%	60.8%	76.7%	81.0%	84.3%
Niger	8.6%	14.2%	19.8%	23.2%	31.7%	38.1%	41.9%
Nigeria	41.3%	48.5%	53.0%	62.9%	71.0%	77.6%	84.3%
Pakistan	10.2%	12.8%	18.1%	24.2%	28.3%	32.6%	27.3%
Panama	36.8%	51.8%	54.1%	40.6%	40.4%	40.4%	59.6%
Peru	29.0%	43.2%	54.0%	44.1%	45.4%	52.2%	59.8%
Philippines	27.3%	34.9%	46.0%	53.9%	54.8%	63.3%	69.9%
Poland	68.8%	74.5%	82.9%	90.0%	90.0%	89.8%	83.6%
Portugal	24.8%	28.8%	30.0%	26.0%	26.7%	25.8%	24.1%
Romania	46.3%	42.5%	37.8%	34.9%	35.3%	35.3%	36.3%

Country	2014 Digital Payment Rate	2015 Digital Payment Rate	2016 Digital Payment Rate	2017 Digital Payment Rate	2018 Digital Payment Rate	2019 Digital Payment Rate	2020 Digital Payment Rate
Russian Federation	62.5%	67.8%	44.2%	47.2%	54.4%	56.3%	60.6%
Rwanda	32.6%	42.5%	50.4%	61.3%	70.1%	79.5%	88.4%
Saudi Arabia	54.8%	76.5%	84.4%	81.2%	81.5%	80.3%	80.5%
Senegal	16.2%	26.0%	32.9%	47.3%	58.7%	67.1%	71.1%
Serbia	64.6%	64.6%	68.4%	53.7%	54.6%	56.6%	54.0%
Sierra Leone	17.1%	30.4%	32.6%	33.8%	62.1%	74.1%	88.3%
Singapore	90.5%	90.0%	90.0%	90.0%	90.0%	83.9%	86.3%
Slovak Republic	36.7%	44.6%	45.6%	47.7%	49.8%	52.9%	58.4%
Slovenia	35.9%	36.9%	39.2%	42.7%	44.7%	46.8%	48.2%
South Africa	68.0%	75.3%	90.0%	90.0%	90.0%	90.0%	90.0%
Spain	57.4%	58.1%	60.7%	56.5%	55.4%	56.8%	57.4%
Sri Lanka	25.5%	30.6%	35.2%	40.1%	44.8%	53.5%	62.1%
Sudan	27.4%	34.4%	52.1%	58.7%	58.7%	59.0%	59.4%
Sweden	74.6%	80.3%	85.1%	89.1%	90.0%	90.0%	90.0%
Switzerland	53.5%	57.4%	62.8%	68.6%	74.6%	75.8%	76.9%
Tajikistan	12.4%	25.0%	29.6%	32.1%	44.2%	49.8%	55.7%
Tanzania	1.4%	8.2%	17.2%	20.2%	20.7%	29.2%	44.3%
Thailand	38.2%	46.7%	55.1%	66.3%	79.4%	84.2%	90.0%
Togo	9.9%	15.7%	17.0%	25.7%	39.0%	42.6%	47.4%
Tunisia	21.8%	33.8%	45.3%	49.5%	48.3%	62.6%	65.4%
Turkey	56.7%	55.4%	60.0%	63.0%	65.6%	68.4%	70.7%
Turkmenistan	1.4%	21.4%	61.1%	72.4%	76.6%	90.0%	90.0%
Uganda	52.6%	61.7%	71.9%	71.0%	75.6%	81.7%	81.3%
Ukraine	53.5%	51.3%	54.9%	63.2%	70.1%	67.2%	66.2%
United Arab Emirates	80.9%	83.7%	90.0%	90.0%	90.0%	90.0%	90.0%
United Kingdom	72.8%	73.2%	73.8%	75.6%	76.2%	75.8%	77.1%
United States	64.7%	68.1%	71.9%	74.2%	76.1%	90.0%	90.0%
Uruguay	54.9%	64.4%	73.8%	80.7%	88.7%	90.0%	89.9%
Uzbekistan	40.6%	55.3%	69.9%	53.1%	57.1%	57.6%	58.0%
Vietnam	9.1%	23.8%	41.2%	46.0%	37.2%	50.9%	35.3%
Yemen, Rep.	0.7%	11.3%	13.5%	22.0%	33.3%	34.2%	35.2%
Zambia	34.3%	40.9%	58.2%	73.2%	72.4%	70.6%	79.8%
Zimbabwe	46.0%	70.4%	80.2%	90.0%	90.0%	78.0%	84.3%

Appendix 4: Tax Rates Used by Country

Country	2014 Tax Rate	2015 Tax Rate	2016 Tax Rate	2017 Tax Rate	2018 Tax Rate	2019 Tax Rate	2020 Tax Rate
Singapore	20.0%	20.0%	20.0%	22.0%	22.0%	22.0%	22.0%
Latvia	24.0%	24.0%	23.0%	23.0%	23.0%	23.0%	23.0%
United States	39.6%	39.6%	39.6%	39.6%	39.6%	39.6%	39.6%
Iran, Islamic Rep.	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Congo, Dem. Rep.	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Tanzania	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Korea, Rep.	38.5%	38.0%	38.0%	38.0%	38.0%	38.0%	38.0%
Cote d'Ivoire	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%
Bolivia	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%
Kyrgyz Republic	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Slovak Republic	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Mauritania	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Moldova	18.0%	18.0%	18.0%	18.0%	18.0%	18.0%	18.0%
United Arab Emirates	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Malta	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Kenya	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Croatia	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Cyprus	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Bahrain	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mongolia	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Lithuania	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Japan	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%
Germany	47.5%	47.5%	47.5%	47.5%	47.5%	47.5%	47.5%
Belarus	12.0%	12.0%	13.0%	13.0%	13.0%	13.0%	13.0%
Poland	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%
Hungary	16.0%	16.0%	16.0%	15.0%	15.0%	15.0%	15.0%
Kuwait	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
United Kingdom	50.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
France	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
South Africa	40.0%	40.0%	40.0%	41.0%	41.0%	41.0%	41.0%

Country	2014 Tax Rate	2015 Tax Rate	2016 Tax Rate	2017 Tax Rate	2018 Tax Rate	2019 Tax Rate	2020 Tax Rate
Malaysia	26.0%	26.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Italy	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%	43.0%
Canada	29.0%	29.0%	29.0%	33.0%	33.0%	33.0%	33.0%
Serbia	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Russian Federation	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%
Brazil	27.5%	27.5%	27.5%	27.5%	27.5%	27.5%	27.5%
Chile	40.0%	40.0%	40.0%	35.0%	35.0%	35.0%	35.0%
Australia	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Turkey	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Costa Rica	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Spain	52.0%	52.0%	47.0%	45.0%	45.0%	45.0%	45.0%
Netherlands	52.0%	52.0%	52.0%	52.0%	52.0%	52.0%	52.0%
Uruguay	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Bulgaria	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Saudi Arabia	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Switzerland	41.5%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Ukraine	17.0%	17.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Sweden	57.0%	57.0%	57.0%	57.0%	57.0%	57.0%	57.0%
Mauritius	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Uganda	30.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Belgium	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Austria	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Egypt, Arab Rep.	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
China	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Botswana	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Jamaica	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Namibia	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Kazakhstan	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Romania	16.0%	16.0%	16.0%	16.0%	16.0%	16.0%	16.0%
Zimbabwe	46.4%	45.0%	51.5%	51.5%	51.5%	51.5%	51.5%
Argentina	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Israel	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Dominican Republic	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Nigeria	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%

Country	2014 Tax Rate	2015 Tax Rate	2016 Tax Rate	2017 Tax Rate	2018 Tax Rate	2019 Tax Rate	2020 Tax Rate
Uzbekistan	22.0%	22.0%	22.0%	22.0%	22.0%	22.0%	22.0%
Ireland	41.0%	41.0%	41.0%	41.0%	41.0%	41.0%	41.0%
Mexico	30.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Thailand	37.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Panama	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Portugal	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Greece	42.0%	42.0%	42.0%	42.0%	42.0%	42.0%	42.0%
Vietnam	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Colombia	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%
El Salvador	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Czech Republic	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
New Zealand	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Bosnia and Herzegovina	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Zambia	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Lebanon	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Belize	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Guatemala	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%	31.0%
Rwanda	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Ghana	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Georgia	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Peru	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Algeria	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Honduras	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Sudan	15.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Philippines	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%
Azerbaijan	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Gabon	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Indonesia	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Angola	17.0%	17.0%	17.0%	17.0%	17.0%	17.0%	17.0%
Ecuador	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Sri Lanka	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%
Cambodia	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Albania	10.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%
India	30.9%	30.9%	30.9%	30.9%	30.9%	30.9%	30.9%
Tunisia	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%

Country	2014 Tax Rate	2015 Tax Rate	2016 Tax Rate	2017 Tax Rate	2018 Tax Rate	2019 Tax Rate	2020 Tax Rate
Mali	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Chad	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Nicaragua	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Bhutan	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Luxembourg	43.6%	43.6%	43.6%	42.0%	42.0%	42.0%	42.0%
Sierra Leone	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Haiti	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Senegal	50.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Armenia	26.0%	26.0%	26.0%	26.0%	26.0%	26.0%	26.0%
Jordan	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%
Malawi	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Burkina Faso	27.5%	27.5%	27.5%	27.5%	27.5%	27.5%	27.5%
Tajikistan	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%
Bangladesh	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Nepal	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Benin	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Cameroon	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Iraq	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Pakistan	25.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Slovenia	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Togo	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Yemen, Rep.	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Guinea	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%	40.0%
Ethiopia	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Niger	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Myanmar	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Madagascar	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Afghanistan	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Burundi	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Estonia	21.0%	21.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Congo, Rep.	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Turkmenistan	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Hong Kong SAR, China	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%

Appendix 5: Total Additional Captured Income from Newly Financially Included Persons in $1000's USD

Country	2015	2016	2017	2018	2019	2020
Afghanistan	$55,771	$327,114	$621,510	$997,956	$1,489,903	$2,036,438
Albania	$182,493	$514,911	$988,551	$1,445,413	$1,489,061	$1,820,093
Algeria	$2,087,604	$5,148,517	$8,586,714	$12,578,424	$18,646,375	$21,921,194
Angola	$1,312,944	$3,378,170	$5,229,937	$7,108,588	$9,286,075	$10,818,717
Argentina	$9,530,993	$20,519,473	$34,026,949	$48,721,808	$48,941,449	$59,004,595
Armenia	$520,625	$710,798	$1,126,400	$1,503,877	$1,991,128	$2,376,630
Australia	$819,557	$1,728,455	$2,609,986	$3,520,954	$4,863,679	$5,728,827
Austria	$572,938	$1,270,218	$2,007,356	$2,453,820	$2,802,980	$3,529,557
Azerbaijan	$1,546,631	$3,613,858	$5,233,136	$6,800,736	$9,043,479	$10,887,312
Bahrain	$344,219	$695,753	$1,009,909	$1,302,276	$1,577,120	$1,842,697
Bangladesh	$1,879,978	$5,596,099	$10,643,465	$18,785,905	$26,875,339	$34,393,699
Belarus	$1,001,906	$1,939,142	$2,745,308	$3,704,066	$4,614,978	$5,379,004
Belgium	$366,250	$744,463	$1,046,607	$1,346,968	$1,732,685	$2,071,165
Belize	$21,713	$49,106	$51,490	$67,963	$80,863	$123,623
Benin	$138,083	$333,927	$585,321	$994,274	$1,038,518	$1,427,800
Bhutan	$21,721	$64,005	$123,369	$166,316	$278,070	$386,868
Bolivia	$88,203	$424,568	$990,051	$1,688,071	$2,093,104	$2,304,263
Bosnia and Herzegovina	$201,019	$413,458	$698,696	$1,002,708	$1,242,833	$1,434,248
Botswana	$366,238	$895,325	$1,328,416	$1,758,860	$2,197,318	$2,621,966
Brazil	$38,453,110	$84,864,686	$121,641,798	$156,660,825	$190,218,340	$194,556,723
Bulgaria	$723,323	$1,520,566	$2,400,599	$2,908,566	$2,661,600	$2,816,926
Burkina Faso	$129,623	$384,265	$800,113	$1,240,391	$1,773,066	$2,536,647
Burundi	$17,638	$39,046	$68,478	$104,293	$167,797	$325,592
Cambodia	$351,647	$1,413,141	$2,620,224	$3,551,012	$4,514,201	$5,501,837
Cameroon	$206,562	$663,287	$1,516,383	$2,701,830	$3,888,876	$4,461,623
Canada	$809,715	$1,618,545	$2,430,820	$3,217,484	$3,965,311	$4,784,445
Chad	$147,429	$344,733	$591,525	$815,741	$1,199,009	$1,473,275
Chile	$5,415,999	$11,988,766	$17,439,368	$22,330,588	$27,427,709	$31,409,950
China	$99,675,407	$233,996,278	$402,498,217	$601,755,537	$796,562,920	$966,339,888
Colombia	$6,786,238	$14,334,682	$23,824,196	$32,979,322	$49,090,005	$62,402,313
Congo, Dem. Rep.	$84,790	$313,851	$719,824	$1,575,953	$2,807,788	$3,447,563

Country	2015	2016	2017	2018	2019	2020
Congo, Rep.	$98,008	$224,630	$451,876	$731,176	$1,005,499	$1,313,636
Costa Rica	$986,678	$2,164,858	$3,219,001	$4,264,661	$5,180,893	$6,299,790
Cote d'Ivoire	$185,619	$573,990	$955,305	$1,508,696	$2,538,237	$3,937,208
Croatia	$439,857	$896,513	$1,255,223	$1,514,260	$1,701,002	$1,961,459
Cyprus	$174,161	$360,810	$536,725	$688,811	$847,670	$988,507
Czech Republic	$1,108,072	$2,264,558	$3,555,210	$4,793,097	$6,039,284	$6,262,988
Dominican Republic	$880,427	$1,724,831	$2,664,045	$3,734,123	$3,802,680	$5,102,281
Ecuador	$1,193,717	$2,434,745	$3,995,224	$5,130,058	$6,066,493	$3,505,346
Egypt, Arab Rep.	$2,955,679	$10,329,258	$22,302,935	$31,688,686	$35,989,184	$42,205,219
El Salvador	$390,851	$961,431	$1,562,883	$2,241,121	$2,876,292	$3,480,484
Estonia	$26,964	$60,698	$98,033	$120,134	$143,514	$170,462
Ethiopia	$293,888	$974,621	$2,006,869	$3,297,968	$4,899,815	$8,054,923
France	$2,731,285	$5,620,975	$8,756,306	$11,641,160	$14,942,432	$17,996,169
Gabon	$265,324	$1,168,861	$1,931,835	$2,566,702	$3,207,033	$3,569,838
Georgia	$440,608	$1,035,489	$1,704,407	$2,499,564	$3,157,255	$3,785,155
Germany	$1,148,743	$2,411,903	$3,655,101	$5,788,752	$6,896,840	$7,360,300
Ghana	$677,855	$1,786,776	$3,570,398	$5,531,546	$7,806,638	$9,523,622
Greece	$36,817	$14,938	$625,572	$278,952	$48,088	$444,414
Guatemala	$738,397	$1,794,187	$3,124,315	$4,552,403	$2,821,747	$4,194,112
Guinea	$40,942	$121,421	$231,752	$480,245	$744,610	$1,185,584
Haiti	$89,164	$188,128	$502,741	$826,936	$943,785	$1,238,795
Honduras	$346,339	$389,778	$369,349	$643,105	$774,363	$1,106,793
Hong Kong SAR, China	$446,260	$1,197,298	$2,097,061	$2,778,438	$3,407,882	$3,874,250
Hungary	$1,803,219	$3,333,334	$4,789,945	$6,234,714	$7,745,200	$9,128,359
India	$27,092,107	$70,392,015	$103,305,340	$145,939,529	$203,832,668	$271,863,671
Indonesia	$18,455,548	$49,315,044	$89,765,705	$140,611,107	$187,322,475	$228,703,203
Iran, Islamic Rep.	$565,429	$1,212,980	$1,940,119	$3,355,503	$4,542,745	$6,112,720
Iraq	$2,155,767	$6,021,048	$9,809,669	$19,485,216	$24,491,798	$29,533,579
Ireland	$512,715	$1,106,219	$1,693,190	$2,110,453	$2,615,130	$3,063,844
Israel	$679,330	$1,365,709	$2,021,748	$2,871,951	$3,520,822	$5,445,355
Italy	$7,735,397	$16,094,690	$24,067,048	$30,566,292	$33,537,942	$28,530,401
Jamaica	$119,222	$195,286	$234,941	$341,687	$471,761	$607,326
Japan	$4,583,143	$10,321,741	$16,793,204	$23,454,122	$30,750,931	$37,446,606
Jordan	$369,430	$1,081,394	$2,515,979	$4,389,083	$6,215,984	$7,963,346
Kazakhstan	$4,072,813	$11,104,095	$15,927,430	$20,477,957	$21,989,005	$21,606,156
Kenya	$1,391,398	$2,757,218	$4,174,090	$5,639,541	$7,150,023	$8,716,135

Country	2015	2016	2017	2018	2019	2020
Korea, Rep.	$3,337,671	$6,900,904	$10,507,156	$14,193,027	$18,777,277	$23,145,394
Kuwait	$3,490,903	$6,798,136	$9,950,429	$12,958,846	$15,869,871	$18,676,088
Kyrgyz Republic	$68,828	$267,471	$491,836	$637,944	$1,055,803	$1,278,002
Latvia	$178,554	$348,457	$524,631	$662,431	$736,405	$991,854
Lebanon	$689,598	$1,652,174	$2,644,488	$3,575,749	$5,032,457	$6,340,971
Lithuania	$496,893	$990,537	$1,495,602	$1,572,069	$1,607,362	$1,794,693
Luxembourg	$67,788	$149,118	$217,106	$306,319	$390,132	$465,389
Madagascar	$73,269	$190,193	$290,359	$356,826	$591,031	$845,864
Malawi	$48,741	$121,024	$212,584	$322,941	$432,248	$609,188
Malaysia	$3,673,954	$8,144,559	$12,376,120	$16,443,493	$20,540,069	$23,920,800
Mali	$233,167	$711,752	$1,479,819	$2,224,131	$2,772,933	$3,147,640
Malta	$23,041	$46,643	$68,766	$89,954	$107,453	$130,159
Mauritania	$100,527	$263,080	$520,984	$661,825	$751,966	$855,362
Mauritius	$99,593	$221,884	$400,379	$551,320	$691,271	$822,309
Mexico	$23,610,870	$48,380,371	$77,844,964	$110,567,682	$131,801,334	$161,652,491
Moldova	$119,900	$433,551	$799,649	$1,116,351	$1,408,764	$1,651,793
Mongolia	$57,993	$120,919	$174,152	$185,213	$248,220	$313,919
Myanmar	$268,935	$640,647	$1,503,882	$2,943,408	$11,904,862	$20,063,322
Namibia	$222,578	$513,163	$749,283	$1,280,064	$1,552,436	$1,750,547
Nepal	$207,243	$640,279	$1,233,898	$2,170,511	$2,918,790	$4,223,725
Netherlands	$254,050	$521,239	$747,816	$944,345	$1,154,814	$1,497,751
New Zealand	$43,082	$86,974	$131,288	$163,204	$219,363	$287,635
Nicaragua	$181,342	$535,719	$1,108,930	$1,846,826	$2,415,540	$2,990,234
Niger	$53,529	$149,414	$262,414	$477,850	$742,713	$995,567
Nigeria	$7,793,879	$15,879,542	$27,068,029	$39,412,714	$52,915,170	$68,253,282
Pakistan	$1,905,729	$5,340,541	$10,688,273	$16,688,965	$24,182,206	$24,419,431
Panama	$897,029	$1,872,691	$2,121,308	$2,839,925	$3,596,166	$6,436,961
Peru	$4,069,099	$10,025,939	$12,154,393	$16,449,716	$23,287,266	$31,602,102
Philippines	$5,838,931	$15,569,676	$27,737,592	$38,187,298	$56,224,973	$75,975,606
Poland	$6,218,341	$13,565,440	$21,714,144	$28,469,064	$34,873,952	$38,239,802
Portugal	$534,108	$1,067,511	$1,333,524	$1,758,349	$2,045,393	$2,207,614
Romania	$2,231,929	$3,956,935	$5,404,887	$7,153,770	$8,808,820	$10,703,736
Russian Federation	$30,958,431	$38,068,506	$58,597,846	$86,590,090	$108,311,277	$135,517,206
Rwanda	$122,669	$293,106	$539,700	$837,997	$1,211,971	$1,658,220
Saudi Arabia	$13,046,297	$27,668,923	$38,702,643	$50,575,629	$60,871,032	$71,413,036
Senegal	$198,164	$507,703	$1,113,353	$1,873,097	$2,734,754	$3,547,743

Country	2015	2016	2017	2018	2019	2020
Serbia	$306,718	$631,891	$728,116	$971,501	$1,242,322	$1,409,026
Sierra Leone	$54,832	$116,392	$180,431	$445,776	$672,393	$977,977
Singapore	$722,144	$1,395,330	$2,034,562	$2,650,080	$3,018,874	$3,645,098
Slovak Republic	$737,071	$1,483,428	$2,283,832	$3,137,929	$4,122,475	$5,398,740
Slovenia	$34,295	$70,765	$112,005	$151,432	$191,746	$229,269
South Africa	$5,738,737	$13,046,111	$18,756,178	$24,182,486	$29,429,012	$34,413,639
Spain	$1,324,286	$2,708,389	$3,677,375	$4,665,587	$5,801,413	$6,822,112
Sri Lanka	$278,918	$640,518	$1,092,161	$1,626,905	$2,433,770	$3,404,096
Sudan	$1,175,256	$3,485,286	$5,798,479	$7,615,594	$9,442,296	$11,250,247
Sweden	$87,393	$182,142	$279,382	$365,954	$445,153	$519,758
Switzerland	$554,656	$1,163,490	$1,838,077	$2,572,982	$3,164,563	$3,737,729
Tajikistan	$165,355	$394,560	$636,924	$1,170,532	$1,655,632	$2,246,111
Tanzania	$174,686	$747,405	$1,341,901	$1,857,333	$3,335,279	$6,163,167
Thailand	$2,971,504	$6,883,220	$12,192,411	$19,090,305	$24,837,140	$31,315,970
Togo	$29,244	$63,382	$143,314	$289,501	$392,696	$521,571
Tunisia	$787,409	$2,039,465	$3,264,028	$4,183,419	$6,720,249	$8,399,886
Turkey	$13,758,876	$29,233,345	$45,115,977	$61,489,082	$78,962,391	$96,561,045
Turkmenistan	$604,875	$3,448,195	$6,142,453	$8,704,890	$12,923,891	$15,792,102
Uganda	$598,785	$1,392,048	$2,069,004	$2,957,124	$4,036,784	$4,885,798
Ukraine	$2,474,203	$5,108,959	$8,601,665	$12,468,471	$14,749,045	$17,289,745
United Arab Emirates	$5,021,753	$10,489,017	$15,333,919	$20,052,682	$24,691,675	$29,296,270
United Kingdom	$1,464,872	$2,860,320	$4,223,465	$5,486,501	$6,621,479	$7,845,777
United States	$52,608,247	$107,279,706	$161,448,223	$214,317,723	$307,678,284	$358,158,733
Uruguay	$1,261,465	$2,748,174	$4,341,204	$6,240,534	$7,797,988	$9,211,138
Uzbekistan	$1,522,521	$3,875,290	$4,450,256	$6,437,566	$8,190,071	$10,014,135
Vietnam	$2,127,039	$7,414,017	$12,540,089	$13,683,191	$23,664,983	$19,945,808
Yemen, Rep.	$161,598	$352,250	$923,597	$1,910,554	$2,469,319	$3,065,438
Zambia	$404,012	$1,124,653	$2,097,529	$2,762,600	$3,384,230	$4,616,436
Zimbabwe	$417,966	$902,564	$1,407,970	$1,786,844	$1,866,638	$2,341,925

Appendix 6: Total Additional Tax Revenue from Newly Financially Included Persons by Country in $1000's USD

Country	2015	2016	2017	2018	2019	2020
Afghanistan	$11,154	$65,423	$124,302	$199,591	$297,981	$407,288
Albania	$41,973	$118,430	$227,367	$332,445	$342,484	$418,621
Algeria	$730,661	$1,801,981	$3,005,350	$4,402,448	$6,526,231	$7,672,418
Angola	$223,200	$574,289	$889,089	$1,208,460	$1,578,633	$1,839,182
Argentina	$3,335,848	$7,181,816	$11,909,432	$17,052,633	$17,129,507	$20,651,608
Armenia	$135,362	$184,807	$292,864	$391,008	$517,693	$617,924
Australia	$368,801	$777,805	$1,174,493	$1,584,429	$2,188,656	$2,577,972
Austria	$286,469	$635,109	$1,003,678	$1,226,910	$1,401,490	$1,764,778
Azerbaijan	$386,658	$903,465	$1,308,284	$1,700,184	$2,260,870	$2,721,828
Bahrain	$0	$0	$0	$0	$0	$0
Bangladesh	$469,995	$1,399,025	$2,660,866	$4,696,476	$6,718,835	$8,598,425
Belarus	$120,229	$252,089	$356,890	$481,529	$599,947	$699,270
Belgium	$183,125	$372,232	$523,303	$673,484	$866,343	$1,035,583
Belize	$5,428	$12,276	$12,872	$16,991	$20,216	$30,906
Benin	$62,137	$150,267	$263,394	$447,423	$467,333	$642,510
Bhutan	$5,430	$16,001	$30,842	$41,579	$69,517	$96,717
Bolivia	$11,466	$55,194	$128,707	$219,449	$272,103	$299,554
Bosnia and Herzegovina	$20,102	$41,346	$69,870	$100,271	$124,283	$143,425
Botswana	$91,560	$223,831	$332,104	$439,715	$549,330	$655,491
Brazil	$10,574,605	$23,337,789	$33,451,495	$43,081,727	$52,310,044	$53,503,099
Bulgaria	$72,332	$152,057	$240,060	$290,857	$266,160	$281,693
Burkina Faso	$35,646	$105,673	$220,031	$341,107	$487,593	$697,578
Burundi	$6,173	$13,666	$23,967	$36,503	$58,729	$113,957
Cambodia	$70,329	$282,628	$524,045	$710,202	$902,840	$1,100,367
Cameroon	$72,297	$232,150	$530,734	$945,640	$1,361,107	$1,561,568
Canada	$234,817	$469,378	$802,171	$1,061,770	$1,308,553	$1,578,867
Chad	$88,457	$206,840	$354,915	$489,445	$719,406	$883,965
Chile	$2,166,400	$4,795,506	$6,103,779	$7,815,706	$9,599,698	$10,993,483
China	$44,853,933	$105,298,325	$181,124,198	$270,789,992	$358,453,314	$434,852,950
Colombia	$2,239,459	$4,730,445	$7,861,985	$10,883,176	$16,199,702	$20,592,763
Congo, Dem. Rep.	$25,437	$94,155	$215,947	$472,786	$842,336	$1,034,269

Country	2015	2016	2017	2018	2019	2020
Congo, Rep.	$44,104	$101,083	$203,344	$329,029	$452,475	$591,136
Costa Rica	$246,670	$541,214	$804,750	$1,066,165	$1,295,223	$1,574,947
Cote d'Ivoire	$66,823	$206,636	$343,910	$543,131	$913,765	$1,417,395
Croatia	$175,943	$358,605	$502,089	$605,704	$680,401	$784,583
Cyprus	$60,956	$126,284	$187,854	$241,084	$296,685	$345,977
Czech Republic	$166,211	$339,684	$533,281	$718,965	$905,893	$939,448
Dominican Republic	$220,107	$431,208	$666,011	$933,531	$950,670	$1,275,570
Ecuador	$417,801	$852,161	$1,398,328	$1,795,520	$2,123,273	$1,226,871
Egypt, Arab Rep.	$738,920	$2,582,315	$5,575,734	$7,922,171	$8,997,296	$10,551,305
El Salvador	$117,255	$288,429	$468,865	$672,336	$862,888	$1,044,145
Estonia	$5,662	$12,140	$19,607	$24,027	$28,703	$34,092
Ethiopia	$102,861	$341,117	$702,404	$1,154,289	$1,714,935	$2,819,223
France	$1,229,078	$2,529,439	$3,940,338	$5,238,522	$6,724,094	$8,098,276
Gabon	$92,863	$409,101	$676,142	$898,346	$1,122,461	$1,249,443
Georgia	$88,122	$207,098	$340,881	$499,913	$631,451	$757,031
Germany	$545,653	$1,145,654	$1,736,173	$2,749,657	$3,275,999	$3,496,142
Ghana	$169,464	$446,694	$892,599	$1,382,887	$1,951,659	$2,380,906
Greece	$15,463	$6,274	$262,740	$117,160	$20,197	$186,654
Guatemala	$228,903	$556,198	$968,538	$1,411,245	$874,742	$1,300,175
Guinea	$16,377	$48,568	$92,701	$192,098	$297,844	$474,234
Haiti	$26,749	$56,438	$150,822	$248,081	$283,136	$371,639
Honduras	$86,585	$97,444	$92,337	$160,776	$193,591	$276,698
Hong Kong SAR, China	$66,939	$179,595	$314,559	$416,766	$511,182	$581,138
Hungary	$288,515	$533,333	$718,492	$935,207	$1,161,780	$1,369,254
India	$8,371,461	$21,751,133	$31,921,350	$45,095,315	$62,984,295	$84,005,874
Indonesia	$5,536,664	$14,794,513	$26,929,711	$42,183,332	$56,196,743	$68,610,961
Iran, Islamic Rep.	$197,900	$424,543	$679,041	$1,174,426	$1,589,961	$2,139,452
Iraq	$323,365	$903,157	$1,471,450	$2,922,782	$3,673,770	$4,430,037
Ireland	$210,213	$453,550	$694,208	$865,286	$1,072,203	$1,256,176
Israel	$326,078	$655,540	$970,439	$1,378,536	$1,689,995	$2,613,770
Italy	$3,326,221	$6,920,717	$10,348,831	$13,143,505	$14,421,315	$12,268,073
Jamaica	$29,805	$48,822	$58,735	$85,422	$117,940	$151,831
Japan	$1,869,923	$4,211,270	$6,851,627	$9,569,282	$12,546,380	$15,278,215
Jordan	$51,720	$151,395	$352,237	$614,472	$870,238	$1,114,868
Kazakhstan	$407,281	$1,110,409	$1,592,743	$2,047,796	$2,198,900	$2,160,616
Kenya	$417,419	$827,165	$1,252,227	$1,691,862	$2,145,007	$2,614,841

Country	2015	2016	2017	2018	2019	2020
Korea, Rep.	$1,268,315	$2,622,343	$3,992,719	$5,393,350	$7,135,365	$8,795,250
Kuwait	$0	$0	$0	$0	$0	$0
Kyrgyz Republic	$6,883	$26,747	$49,184	$63,794	$105,580	$127,800
Latvia	$42,853	$80,145	$120,665	$152,359	$169,373	$228,126
Lebanon	$137,920	$330,435	$528,898	$715,150	$1,006,491	$1,268,194
Lithuania	$74,534	$148,581	$224,340	$235,810	$241,104	$269,204
Luxembourg	$29,556	$65,015	$91,184	$128,654	$163,855	$195,463
Madagascar	$14,654	$38,039	$58,072	$71,365	$118,206	$169,173
Malawi	$14,622	$36,307	$63,775	$96,882	$129,675	$182,756
Malaysia	$955,228	$2,036,140	$3,094,030	$4,110,873	$5,135,017	$5,980,200
Mali	$93,267	$284,701	$591,928	$889,652	$1,109,173	$1,259,056
Malta	$8,064	$16,325	$24,068	$31,484	$37,609	$45,556
Mauritania	$30,158	$78,924	$156,295	$198,548	$225,590	$256,609
Mauritius	$14,939	$33,283	$60,057	$82,698	$103,691	$123,346
Mexico	$8,263,804	$16,933,130	$27,245,737	$38,698,689	$46,130,467	$56,578,372
Moldova	$21,582	$78,039	$143,937	$200,943	$253,577	$297,323
Mongolia	$5,799	$12,092	$17,415	$18,521	$24,822	$31,392
Myanmar	$53,787	$128,129	$300,776	$588,682	$2,380,972	$4,012,664
Namibia	$82,354	$189,870	$277,235	$473,624	$574,402	$647,702
Nepal	$51,811	$160,070	$308,475	$542,628	$729,697	$1,055,931
Netherlands	$132,106	$271,044	$388,865	$491,060	$600,503	$778,830
New Zealand	$14,217	$28,701	$43,325	$53,857	$72,390	$94,920
Nicaragua	$54,403	$160,716	$332,679	$554,048	$724,662	$897,070
Niger	$18,735	$52,295	$91,845	$167,247	$259,950	$348,448
Nigeria	$1,870,531	$3,811,090	$6,496,327	$9,459,051	$12,699,641	$16,380,788
Pakistan	$571,719	$1,602,162	$3,206,482	$5,006,689	$7,254,662	$7,325,829
Panama	$224,257	$468,173	$530,327	$709,981	$899,042	$1,609,240
Peru	$1,220,730	$3,007,782	$3,646,318	$4,934,915	$6,986,180	$9,480,631
Philippines	$1,868,458	$4,982,296	$8,876,029	$12,219,935	$17,991,991	$24,312,194
Poland	$1,989,869	$4,340,941	$6,948,526	$9,110,100	$11,159,665	$12,236,737
Portugal	$256,372	$512,405	$640,091	$844,008	$981,789	$1,059,655
Romania	$357,109	$633,110	$864,782	$1,144,603	$1,409,411	$1,712,598
Russian Federation	$4,024,596	$4,948,906	$7,617,720	$11,256,712	$14,080,466	$17,617,237
Rwanda	$36,801	$87,932	$161,910	$251,399	$363,591	$497,466
Saudi Arabia	$326,157	$691,723	$967,566	$1,264,391	$1,521,776	$1,785,326
Senegal	$79,266	$203,081	$445,341	$749,239	$1,093,902	$1,419,097
Serbia	$46,008	$94,784	$109,217	$145,725	$186,348	$211,354

Country	2015	2016	2017	2018	2019	2020
Sierra Leone	$16,450	$34,917	$54,129	$133,733	$201,718	$293,393
Singapore	$144,429	$279,066	$447,604	$583,018	$664,152	$801,922
Slovak Republic	$184,268	$370,857	$570,958	$784,482	$1,030,619	$1,349,685
Slovenia	$17,147	$35,383	$56,002	$75,716	$95,873	$114,634
South Africa	$2,295,495	$5,218,444	$7,690,033	$9,914,819	$12,065,895	$14,109,592
Spain	$688,629	$1,272,943	$1,654,819	$2,099,514	$2,610,636	$3,069,950
Sri Lanka	$66,940	$153,724	$262,119	$390,457	$584,105	$816,983
Sudan	$117,526	$348,529	$579,848	$761,559	$944,230	$1,125,025
Sweden	$49,814	$103,821	$159,248	$208,594	$253,737	$296,262
Switzerland	$221,862	$465,396	$735,231	$1,029,193	$1,265,825	$1,495,092
Tajikistan	$21,496	$51,293	$82,800	$152,169	$215,232	$291,994
Tanzania	$52,406	$224,222	$402,570	$557,200	$1,000,584	$1,848,950
Thailand	$1,040,026	$2,409,127	$4,267,344	$6,681,607	$8,692,999	$10,960,589
Togo	$13,160	$28,522	$64,491	$130,275	$176,713	$234,707
Tunisia	$275,593	$713,813	$1,142,410	$1,464,197	$2,352,087	$2,939,960
Turkey	$4,815,607	$10,231,671	$15,790,592	$21,521,179	$27,636,837	$33,796,366
Turkmenistan	$60,488	$344,819	$614,245	$870,489	$1,292,389	$1,579,210
Uganda	$239,514	$556,819	$827,602	$1,182,850	$1,614,714	$1,954,319
Ukraine	$420,615	$1,021,792	$1,720,333	$2,493,694	$2,949,809	$3,457,949
United Arab Emirates	$0	$0	$0	$0	$0	$0
United Kingdom	$659,193	$1,287,144	$1,900,559	$2,468,925	$2,979,666	$3,530,600
United States	$20,832,866	$42,482,764	$63,933,496	$84,869,818	$121,840,601	$141,830,858
Uruguay	$378,440	$824,452	$1,302,361	$1,872,160	$2,339,396	$2,763,341
Uzbekistan	$334,955	$852,564	$979,056	$1,416,265	$1,801,816	$2,203,110
Vietnam	$744,464	$2,594,906	$4,389,031	$4,789,117	$8,282,744	$6,981,033
Yemen, Rep.	$32,320	$70,450	$184,719	$382,111	$493,864	$613,088
Zambia	$141,404	$393,629	$734,135	$966,910	$1,184,480	$1,615,753
Zimbabwe	$188,085	$464,820	$725,104	$920,225	$961,319	$1,206,091

Appendix 7: List of Counties with Associated Region and Income Group

Country Name	Region	Income Group
Afghanistan	South Asia	Low income
Albania	Europe & Central Asia	Upper middle income
Algeria	Middle East & North Africa	Upper middle income
Angola	Sub-Saharan Africa	Upper middle income
Argentina	Latin America & Caribbean	Upper middle income
Armenia	Europe & Central Asia	Lower middle income
Australia	East Asia & Pacific	High income
Austria	Europe & Central Asia	High income
Azerbaijan	Europe & Central Asia	Upper middle income
Bahrain	Middle East & North Africa	High income
Bangladesh	South Asia	Lower middle income
Belarus	Europe & Central Asia	Upper middle income
Belgium	Europe & Central Asia	High income
Belize	Latin America & Caribbean	Upper middle income
Benin	Sub-Saharan Africa	Low income
Bhutan	South Asia	Lower middle income
Bolivia	Latin America & Caribbean	Lower middle income
Bosnia and Herzegovina	Europe & Central Asia	Upper middle income
Botswana	Sub-Saharan Africa	Upper middle income
Brazil	Latin America & Caribbean	Upper middle income
Bulgaria	Europe & Central Asia	Upper middle income
Burkina Faso	Sub-Saharan Africa	Low income
Burundi	Sub-Saharan Africa	Low income
Cambodia	East Asia & Pacific	Lower middle income
Cameroon	Sub-Saharan Africa	Lower middle income
Canada	North America	High income
Chad	Sub-Saharan Africa	Low income

Country Name	Region	Income Group
Chile	Latin America & Caribbean	High income
China	East Asia & Pacific	Upper middle income
Colombia	Latin America & Caribbean	Upper middle income
Congo, Dem. Rep.	Sub-Saharan Africa	Low income
Congo, Rep.	Sub-Saharan Africa	Lower middle income
Costa Rica	Latin America & Caribbean	Upper middle income
Cote d'Ivoire	Sub-Saharan Africa	Lower middle income
Croatia	Europe & Central Asia	High income
Cyprus	Europe & Central Asia	High income
Czech Republic	Europe & Central Asia	High income
Dominican Republic	Latin America & Caribbean	Upper middle income
Ecuador	Latin America & Caribbean	Upper middle income
Egypt, Arab Rep.	Middle East & North Africa	Lower middle income
El Salvador	Latin America & Caribbean	Lower middle income
Estonia	Europe & Central Asia	High income
Ethiopia	Sub-Saharan Africa	Low income
France	Europe & Central Asia	High income
Gabon	Sub-Saharan Africa	Upper middle income
Georgia	Europe & Central Asia	Upper middle income
Germany	Europe & Central Asia	High income
Ghana	Sub-Saharan Africa	Lower middle income
Greece	Europe & Central Asia	High income
Guatemala	Latin America & Caribbean	Lower middle income
Guinea	Sub-Saharan Africa	Low income
Haiti	Latin America & Caribbean	Low income
Honduras	Latin America & Caribbean	Lower middle income
Hong Kong SAR, China	East Asia & Pacific	High income
Hungary	Europe & Central Asia	High income
India	South Asia	Lower middle income

Country Name	Region	Income Group
Indonesia	East Asia & Pacific	Lower middle income
Iran, Islamic Rep.	Middle East & North Africa	Upper middle income
Iraq	Middle East & North Africa	Upper middle income
Ireland	Europe & Central Asia	High income
Israel	Middle East & North Africa	High income
Italy	Europe & Central Asia	High income
Jamaica	Latin America & Caribbean	Upper middle income
Japan	East Asia & Pacific	High income
Jordan	Middle East & North Africa	Upper middle income
Kazakhstan	Europe & Central Asia	Upper middle income
Kenya	Sub-Saharan Africa	Lower middle income
Korea, Rep.	East Asia & Pacific	High income
Kuwait	Middle East & North Africa	High income
Kyrgyz Republic	Europe & Central Asia	Lower middle income
Latvia	Europe & Central Asia	High income
Lebanon	Middle East & North Africa	Upper middle income
Lithuania	Europe & Central Asia	High income
Luxembourg	Europe & Central Asia	High income
Madagascar	Sub-Saharan Africa	Low income
Malawi	Sub-Saharan Africa	Low income
Malaysia	East Asia & Pacific	Upper middle income
Mali	Sub-Saharan Africa	Low income
Malta	Middle East & North Africa	High income
Mauritania	Sub-Saharan Africa	Lower middle income
Mauritius	Sub-Saharan Africa	Upper middle income
Mexico	Latin America & Caribbean	Upper middle income
Moldova	Europe & Central Asia	Lower middle income
Mongolia	East Asia & Pacific	Lower middle income
Myanmar	East Asia & Pacific	Lower middle income

Country Name	Region	Income Group
Namibia	Sub-Saharan Africa	Upper middle income
Nepal	South Asia	Low income
Netherlands	Europe & Central Asia	High income
New Zealand	East Asia & Pacific	High income
Nicaragua	Latin America & Caribbean	Lower middle income
Niger	Sub-Saharan Africa	Low income
Nigeria	Sub-Saharan Africa	Lower middle income
Pakistan	South Asia	Lower middle income
Panama	Latin America & Caribbean	Upper middle income
Peru	Latin America & Caribbean	Upper middle income
Philippines	East Asia & Pacific	Lower middle income
Poland	Europe & Central Asia	High income
Portugal	Europe & Central Asia	High income
Romania	Europe & Central Asia	Upper middle income
Russian Federation	Europe & Central Asia	Upper middle income
Rwanda	Sub-Saharan Africa	Low income
Saudi Arabia	Middle East & North Africa	High income
Senegal	Sub-Saharan Africa	Low income
Serbia	Europe & Central Asia	Upper middle income
Sierra Leone	Sub-Saharan Africa	Low income
Singapore	East Asia & Pacific	High income
Slovak Republic	Europe & Central Asia	High income
Slovenia	Europe & Central Asia	High income
South Africa	Sub-Saharan Africa	Upper middle income
Spain	Europe & Central Asia	High income
Sri Lanka	South Asia	Lower middle income
Sudan	Sub-Saharan Africa	Lower middle income
Sweden	Europe & Central Asia	High income
Switzerland	Europe & Central Asia	High income

Country Name	Region	Income Group
Tajikistan	Europe & Central Asia	Lower middle income
Tanzania	Sub-Saharan Africa	Low income
Thailand	East Asia & Pacific	Upper middle income
Togo	Sub-Saharan Africa	Low income
Tunisia	Middle East & North Africa	Lower middle income
Turkey	Europe & Central Asia	Upper middle income
Turkmenistan	Europe & Central Asia	Upper middle income
Uganda	Sub-Saharan Africa	Low income
Ukraine	Europe & Central Asia	Lower middle income
United Arab Emirates	Middle East & North Africa	High income
United Kingdom	Europe & Central Asia	High income
United States	North America	High income
Uruguay	Latin America & Caribbean	High income
Uzbekistan	Europe & Central Asia	Lower middle income
Vietnam	East Asia & Pacific	Lower middle income
Yemen, Rep.	Middle East & North Africa	Lower middle income
Zambia	Sub-Saharan Africa	Lower middle income
Zimbabwe	Sub-Saharan Africa	Low income