Citi GPS

MIGRATION AND THE ECONOMY

Economic Realities, Social Impacts & Political Choices

Citi GPS: Global Perspectives & Solutions

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Ian Goldin is the Oxford University Professor of Globalisation and Development, the Director of the Oxford Martin Programme on Technological and Economic Change and the founding Director of the Oxford Martin School. Ian previously was World Bank Vice President and the Group's Director of Policy, after serving as Chief Executive of the Development Bank of Southern Africa and Economic Advisor to President Nelson Mandela. Formerly Ian served as Principal Economist at the EBRD and Director of Programmes at the OECD Development Centre. Ian has a BA (Hons) and BSc from the University of Cape Town, an MSc from the London School of Economics, and a MA and DPhil from the University of Oxford. Ian has been knighted by the French Government and has published 21 books, including Age of Discovery: Navigating the Storms of Our Second Renaissance; The Butterfly Defect: How Globalisation Creates Systemic Risks and What to Do; and Exceptional People: How Migration Shaped our World and Will Define our Future. He has been a non-executive Director on numerous boards, the Senior Independent Director on CDC, and is an Honorary Trustee of Comic Relief and the Chair of CORE-Econ initiative to modernize the teaching of economics. See https://iangoldin.org and @ian_goldin.

Andrew Pitt has been Global Head of Citi Research since 2008 where he manages all of Citi's independent research activities across 30 countries and through around 70,000 publications per annum. Andrew joined Citi in 1996 but in total he has 27 years' experience in investment research, first as an Equity analyst covering the financial services sector and, since 2003, as a manager. Prior to investment research, Andrew started his career as a Lecturer in Modern History at Keble College, Oxford. Andrew launched the Citi GPS series in 2011 to address the major challenges and opportunities of the 21st century through publically available, inter-disciplinary analysis, often in partnership with leading academic institutions and external experts. A major focus of the Citi GPS series has been to promote an inclusive economic debate between the public and private sector on key societal issues such as the impact of technology on employment, income inequality, gender equality and attitudes to migration.

Benjamin Nabarro is a Senior Associate in the Global Strategy and Macro Group at Citi Research. He joined Citi in July 2016, previously working in Global Thematic Research and is currently based in the London office. Ben holds a degree in Politics, Philosophy and Economics from the University of Oxford and has also studied at Stanford University.

+44-20-7986-2056 | benjamin.nabarro@citi.com

Kathleen Boyle, CFA is the Global Head of Citi's Global Perspectives & Solutions thought-leadership publication product (Citi GPS). She is a member of the Citi Research Executive Committee. Prior to taking on this role in 2011, she spent six years as the Associate Director of U.S. Equity Research with primary responsibility for the Basic Materials, Energy, Healthcare, Industrials, REIT, and Utility sector teams. She joined Citi in 1999 to cover ADR Research and was promoted to Director of Global Product in 2004. Prior to that, Kathleen was with BT Alex Brown in Institutional Sales and was a Vice President at NatWest Markets in their Global Specialist Sales group. Kathleen received a BA in Economics from Franklin & Marshall College, is a CFA charterholder, and is a member of the New York Society of Security Analysts.

+1-212-816-3608 | kathleen.boyle@citi.com

MIGRATION AND THE ECONOMY

Economic Realities, Social Impacts & Political Choices

Andrew Pitt
Global Head of Citi Research

Former UN Secretary General Ban Ki-moon defined migration as "an expression of the human aspiration for dignity, safety and a better future. It is part of the social fabric, part of our very make-up as a human family". In recent years, however, and especially in the aftermath of the global financial crisis, immigration has become a toxic issue in election campaigns and the political debate in many advanced economies, with politicians and other interested parties trading insults and soundbites but leaving a proper evaluation of the real impacts of migration on the economy and society often absent from the noise.

In this report, we have sought to take a detailed and balanced perspective on the impact of immigration on advanced economies, and particularly on those in Europe and North America where the popular concerns regarding migration appear to be especially acute. This report forms part of a wider series of work in our *Citi GPS* series where we have looked at complex societal issues that have a profound impact on global growth and the performance of the wider economy. The originality of this report is both in providing fresh evidence of the implications for growth and the dynamism of economies and also in our consideration of the fiscal costs and benefits of migration in terms of taxes and expenditures. In addition, we have attempted to understand, explain and analyze the political debate around migration through reviewing much of the available literature and opinion polls to assess where and how the fault lines have occurred in the public discourse on migration.

This report is focused on economic migrants who have not been compelled to migrate either as refugees or through force.[1] Although economic migrants may come from extreme poverty, by and large they migrate as a matter of choice. Their destination countries also have a choice whether to accept them or not. In this report we use the term migrants and immigrants, or migration and immigration, interchangeably to refer to the movement of people across national borders.

To produce this report, Citi Research has partnered with Professor Ian Goldin who not only has worked with us for over five years through our research partnership with The Oxford Martin School but who is also a specialist on migration and who is an author of the highly acclaimed 2011 book *Exceptional People: How Migration Shaped our World and Will define Our Future*. Professor Goldin is currently the Oxford University Professor of Globalisation and Development. His full biography can be found in the author block of this report.

In the preparation of this report, we have conducted a very extensive literature review of the research written on migration, updated the data sets from Professor Goldin's 2011 work, and undertaken a number of new data modelling exercises. While some very clear conclusions emerge as we outline below in this introductory summary, we have also sought to highlight areas of acknowledged academic or public dispute in the narrative on migration. We have also tried to balance economic analysis with social impacts and an understanding of the drivers of the political debate.

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[1] We are grateful to Jodi Lee Nelson and her team at International Rescue Committee for sharing ideas during the preparation of this report. In the case of refugees, recipient countries have an obligation under international law to accept people whose lives are threatened. And international law also dictates that forced migration should be prohibited. There are about 26 million refugees today, with in recent years this including over 6.3 million people being forced to leave Syria and over 1 million Rohingya fleeing Myanmar, with over 95% of these refugees seeking shelter in neighboring countries.

Part of the objective of this report is to provide a more granular approach to throw light on the growing disconnect between public perceptions regarding migration and the actual trends. This disconnect is illustrated, for example, in the change in negative perceptions regarding immigration in different European countries, which suggests that there is almost no direct correlation between the number of migrants (and refugees) that a country accepts and the attitudes to migration.

We recognize, of course, that the implications for many other global regions, and not least developing countries as both the source and destination of migration, are also very significant, not least in terms of the implications of the so called 'brain drain' which suggests that the benefits migrants bring to the advanced economies may be at the cost of undermining development in their countries of origin. This need not be the case as migrants typically contribute materially to their destination country, while at the same time contributing to their dependents and countries of origin and advancing their own lives. The volume of remittances sent home by migrants to low and middle-income countries has grown rapidly in recent decades and in 2017 was estimated to exceed $466 billion, over three times foreign aid.

Key Findings of This Report

1. The stock of migrants has grown materially worldwide since 1990 but still accounts for only around 3% of the global population. The UN estimated that there were approximately 258 million migrants worldwide in 2017. For a period of approximately a century from ~1890 the share of migrants as a proportion of the world's population remained remarkably constant, hovering above two percent. Since about 1990, the end of the Cold War and the associated increase in the number of countries, together with the creation of visa free movement within Europe, has led to a new normal range of around three percent of the world's population.

2. Skilled migration is especially concentrated in certain countries and urban centers. Skilled migration is disproportionately focused within the OECD, which hosts two-thirds of high-skilled migrants despite containing only 20 percent of the global population. Within the OECD, however, skilled migrants are also heavily concentrated in four countries, with the United States, the United Kingdom, Canada and Australia constituting the destination for nearly 70 percent of all skilled migrants on recent data. The United States alone has historically hosted close to half of all high-skilled migrants to the OECD and one-third of high-skilled migrants worldwide. The concentration of migration within certain states is, in many respects, only part of the story. Within states, skilled migrants are also very heavily concentrated often in the most dynamic urban centers. This creates significant intra-country policy issues which we discuss in this report.

3. There is little evidence that migration is an unrelenting flow, which rebuts much of the nationalist rhetoric in many countries that portrays migration as an unstoppable tsunami. We show in this report that even at times of acute crisis, such as following the financial crisis when unemployment reached unsustainable highs in Greece and Spain, people do not migrate, even when they can and the welfare systems elsewhere are more generous. People migrate for jobs and in tough times tend to prefer to stay at home to be supported by family and friends. Notions of benefit scroungers and associated, excessive migration are not borne out by our analysis of the Schengen zone.

4. Migration will be essential to alleviate demographic headwinds. Migrants are on average much younger than the host country populations and this has a significant impact on the costs and benefits associated with their migration. In 2017, three quarters of migrants were of working age, compared to 57 percent of the global population, with this reflecting the fact that only 14 percent of migrants are under 20 years old, compared to 34 percent of the global population. Over half the countries in the world now have fertility rates which are below replacement. The ageing trend is global and will lead to a doubling in the number of people over 60 from 962 million today to over 2 billion in 2050. Migration will play an increasingly vital role in coping with this transition and easing the burden on care and social security systems. As countries age, the economic imperatives for migration may be expected to become more significant although, as we show in this report, there currently appears to be very little correlation with public attitudes; some of the countries with the lowest fertility rates in the world being among the most opposed to migration.

5. Economic analysis of the impact of migration must incorporate three sets of distinctions. Over time, a distinction needs to be made between the long and short term impacts of migration; between the headline GDP impact (scale), the per capita impact and the per worker impact; and between migrant characteristics, particularly differences in migrant skill levels. We review the evidence across all three of these distinct areas throughout this report. Considering the interplay of these forces is critical to a balanced understanding of the impact of migration on economic growth.

6. Our overriding conclusion is that migration is conducive to native and aggregate prosperity, especially over longer time frames. Throughout this report, we explore much of the recent literature on migration and present new estimates of some of the recent growth effects of migration. We find that migration is likely to generate greater prosperity on an aggregate, per capita and per worker basis, though the associated distributional effects of this may be uneven. As such, while the aggregate impact of migration on overall economic growth is highly material, the skewed impact within countries needs to be addressed by governments through policy (such as appropriate tax and transfer systems) and in the creation of a more positive narrative around migration itself.

The relatively young age profile of most migrants in comparison to native populations means that migration often has a strong positive impact on GDP per capita (as well as aggregate GDP), underpinning an improvement in the proportion of aggregate workers to dependents in the economy as a whole. Indirectly migrants, and especially lower-skilled migrants, also drive greater labor force participation among natives. In addition, migration contributes to improved output per worker by increasing human capital investment. These advantages are contingent on migrant skills being recognized, with short run de-skilling sometimes making it difficult to fully capture the benefits.

We have modelled the direct contribution of migration to historic growth. Our estimates suggest migration has had a substantial impact on recent aggregate economic growth. In Germany and the U.K., for example, if immigration had been frozen in 1990, real GDP in 2014 would have been around €155 billion and £175 billion lower respectively. In the U.S., too, migration has made a substantial contribution to recent economic growth, especially since the financial crisis.

Our model compares how economies have grown with migrants and natives as a whole, compared to growth in the native economies alone. We find that migration has had a substantial positive impact on recent economic development, increasing growth for the aggregate economy above that resulting from natives alone.

Some of the largest impacts are in the Southern European economies where growth between 1990 and 2014 would have been between 20-30 percentage points lower across the period as a whole in the absence of immigration. Similarly in the United States, we estimate that aggregate economic growth in the absence of migrant labor share would have been enough to cancel out the majority of post-crisis gains.

7. Making migrants a scapegoat in isolation misses vital context and other contributing factors. Our extensive review of the literature on regional migration impacts (much of it academic, specialized and based on analysis in very specific localities) is, hopefully, a significant contribution of this report. The core model for the impact of migration is, essentially, a basic supply and demand one: as the supply of migrants goes up, the price of labor (in the short term) comes down. Among certain types of labor we find evidence of this, with higher migrant supply driving lower wages and higher unemployment. But this is also offset by complementarities elsewhere and ultimately not evidenced on an aggregate scale. Across the existing literature, there are few examples of negative aggregate effects on wages and employment resulting from migration.

The impact of migration on domestic wage and employment outcomes depends on two main sets of factors. First, domestic labor market outcomes depend on how substitutable (or complementary) migrants are to domestic workers. Second, wage and employment outcomes depend on how the broader economy adjusts. This differs substantially at a local level, and also depends on wider institutional variables including the educational attainments of natives, the strength of unionization, minimum wage levels and the degree of broader welfare support.

The effect of migration on wages and labor market outcomes of natives is usually more evidently negative among lower income, less skilled natives, a reflection of the apparent greater substitutability between lower-skilled natives and migrants. This asymmetry has not obviously changed even as migration into OECD economies has become increasingly skilled. Instead, with growing aggregate migrant flows these consequences have worsened, with migration increasingly complementing high-skilled workers, and competing with less skilled workers.

Ironically, the existing workers who are consistently most exposed to further migration are migrants themselves. These workers are usually most easily substituted for new arrivals, especially if additional migrant flows contain similar skills. On the whole, we find a concentration of migrants in the lower part of the income distribution in comparison to what would be expected given their education and experience. In most cases, this reflects mismatches between migrant skills and the jobs that they are prepared to accept. In general, although not in all cases, migrants also earn less than natives. For example, in Italy the average gap between the mean earnings of both working age male and female native and migrant workers is around €10,000 per person and it is a similar story in the U.K. However, in Spain, for example, there is a similar migrant/non-migrant split in average earnings.

We do find evidence that migration has had some impact on income inequality but, building on analysis in an earlier *Citi GPS* report,[2] we find that this needs to be taken alongside many other contributing factors whereas, in the political debate, migration is too easily made the scapegoat. There are also methodological issues with measuring inequality.

[2] See *Inequality and Prosperity in the Industrialized World: Addressing a Growing Challenge*, (2017).

For example, the higher the average educational attainment of natives, the higher the impact of low-skilled immigration on income inequality. This effect is generated by the changes in median income of low-skilled workers being skewed more heavily by the influx of low-skilled migrants if the group of low-skilled workers in the economy is small to begin with.

8. Fiscal costs of migration – positive but with some short-term and localized negative variation. Taxpayers are understandably concerned about the potential fiscal costs of immigration. The overarching difficulty with fiscal analysis is that the impact of migration depends not only on a range of migrant and country specific variables, but also on the fundamental question that is being asked and the methodology and assumptions used to explore it. In a full chapter of this report we provide an overview of some of the different approaches taken and present some key conclusions.

Overall, the evidence that we have surveyed suggests that the fiscal impact of migration is either positive or, to the extent that immigrants produce fiscal costs, these costs tend to be small, short-lived and localized. To the extent that they arise, short term costs are usually compensated for by the dynamic contributions of migrants over time, particularly in those countries which are rapidly aging.

Moreover, in most cases we find that migrants consume fewer benefits and receive less from the public purse in comparison to natives in similar circumstances. In Canada, for example, non-refugee immigrants use less unemployment benefits, social security and housing support than domestic residents, despite the employment rate for migrants being lower. In Germany, Greece, Portugal, Spain, and the U.K., migrants are less or no more dependent on social services than native citizens. A major exception to this general trend appears to be the Nordic countries where in recent times the benefits consumed by migrants have been higher than by native households. This appears due in large part to a higher average age per migrant combined with more generous and accessible benefit systems.

Migration can affect the costs of providing public services on a per user basis. On the one hand, by increasing the supply of certain skills, migration can often reduce the costs of providing particularly labor intensive services, such as care services, while also allowing destination economies to reduce their training costs. For example, in the U.K. migrants make up roughly 62,000 (5.6 percent) of the English National Health Services' 1.2 million workforce and an estimated 95,000 (7 percent) of the 1.3 million workers in England's adult social care sector. On the other hand, migrants can be more intensive users of some public services, or require additional support such as linguistic assistance.

Levels of inactivity and unemployment often vary dramatically from one expatriate group to the next, driving wide differences in fiscal contribution. In the U.K., for example, 85 percent of Poles and Canadians are employed, whereas only around 50 percent of migrants from Pakistan, Iran and Bangladesh are employed, reflecting in large part the cultural constraints on many female migrants from these countries.

Overall, even assuming that all migrants stay in their destination countries until their death, we cannot find a case in which the present value of the net expected cumulative fiscal payments of the average working migrant cohort under the age of 40 is negative. To the degree that migrants leave their host country earlier, this increases the net present value further. In many cases, migrants generally return home in older age.

In particular, migrant return is greatest at the point of retirement. Without the continued attraction of higher returns to work, returning home appears more attractive. In most cases, the inclusion of these effects, and those of migrant children, tends to improve the net lifetime fiscal contribution of migrants compared to natives; most estimates exclude both.

In many studies undertaken, education seems to play a particularly important role in determining the lifetime contributions of migrants. In part, this reflects higher earnings and better old age health outcomes, but it also reflects the greater propensity of more educated migrants to return home in older age. As a result of this, a clear policy implication is that governments should aim to provide migrants with the same access to education and training as natives. Additional investments may be needed to help provide language training as well as recertification of qualifications to remove the gap that penalizes out of country experience and brings experience levels in line with national norms.

While we find that the overall national fiscal cost of immigrants tends to be low, the concentration of migrants in certain localities or regions can strain local government resources. As such, managing the fiscal costs of migration can optimally require redistributing tax receipts proactively to address the excess burden placed on particular local and regional authorities. While localities can expect to reap long-term wage benefits from immigration, in the short-term many can experience increased congestion and infrastructure overload.

9. In aggregate migration drives innovation but "brain-drain" consequences in sending countries need to be managed. Two reliable ways to generate ideas and innovation in an economy are to increase the number of highly-educated workers and to introduce diversity into the workplace. Both of these objectives are advanced through immigration, with the experience of the U.S. particularly bearing this out. While productivity growth in the U.S. has been sluggish, we show, for example, that the industries accounting for the highest economic and productivity growth have high concentrations of migrants. We identify four mechanisms in this report by which migrants drive innovation, with some of the contributions to innovation being through second-order effects.

We also show that a migration policy which restricts the supply of skilled migrants, often purportedly aimed at defending the jobs of native workers, can have the inadvertent effect of promoting the development of competitive industries overseas.

The number of highly-skilled immigrants has increased sharply, with around 30 million university educated migrants now living in advanced countries, a number which increased by 70 percent in the first decade of the current century. While the immigration of highly-skilled people to the rich countries may be vital for the dynamism of the advanced economies, a key question is whether it is good for the sending countries.

High-skilled emigration can come at a substantial financial and social cost for many sending countries and is seen as a principal risk of mobility for developing countries. While Europe and East Asia actually send the highest number of educated migrants, Africa, the Caribbean and Central America send the largest proportions of their educated population overseas – around 20 percent from sub-Saharan Africa and more than 50 percent from many Caribbean and Central American countries. For sub-Saharan African countries, this loss is particularly significant because only 4 percent of the population possess university degrees. In Asia, on the other hand, skilled migration rates are low enough and populations generally large enough that the impacts of human capital depletion are not as great.

The risks of brain drain are real for a subset of countries, but a closer look at why and how brain drain happens recasts it as a problem to be managed through migration policy rather than stopped altogether. Most brain drain originates in developing countries with high rates of unemployment, and the evidence suggests that many graduates leave because they would otherwise be unproductive at home. Organized or xenophobic attacks on particular groups have also played a role in the departure of skilled workers, as have acute concerns regarding crime and conflict. However, for originating countries brain drain can be transforming as is the case where network diasporas play a bridge role in connecting home countries with foreign expertise, finance, and contacts as well as through remittances, return of skills (e.g., India) and political support (e.g., Taiwan and Israel).

10. Migration supports the participation of native women in the economy. Among native populations, aggregate labor supply growth has often been driven by increasing female labor force participation as we have shown in our *Citi GPS* reports on Women in the Economy.[3] Migration has often substantially reduced the costs of care services that can otherwise inhibit female labor force entry. These effects have been especially extensive in cases where the supply of low-skilled native workers has been relatively small. The effect of this seems to be particularly extensive among highly-skilled women, increasing the overall economic impact.

Female migrants, however, are often found disproportionately in lower value occupations in comparison to native women of similar education levels, even among those that are employed full time. From a policy perspective, this highlights the importance of targeting better labor market integration among this group.

11. Public attitudes to migration: the telling of the tale versus the tale told. Across the OECD, we have seen the deployment of increasingly restrictive immigration policies and, in multiple recent national elections, radical right wing parties have gained increasing vote shares on the back of strongly anti-immigration platforms (among other policies). Whatever the economic case, the political viability of openness to migration as a clear policy priority is under pressure.

We argue in this report that attitudes to migration can be distilled down to two interacting factors: solidarity and scarcity. Solidarity reflects cohesion in social values, including the degree to which individuals define themselves, and those with whom they identify, in a nationalist fashion. Scarcity reflects the degree to which individuals see resources such as jobs, or public services, as under pressure. Austerity may have also played a more specific, recent role in fueling an acute sense of scarcity in public service provision, driving anti-immigrant sentiments.

The greater the nationalist outlook and the greater the belief that resources are limited, the more likely individuals are to oppose further migration even if, as we discuss throughout this report, migration is rarely a net economic drain. Resistance to migration is greatest when scarcity and exclusive nationalism coincide. This has been reflected over time in the rallying cries of traditional anti migrant parties, such as the now infamous French National Front's slogan from 1978: "Two Million Unemployed is Two Million Immigrants Too Many!".

[3] See, for example, *Women in the Economy: Global Growth Generators* (2015) and *Women in the Economy II: How Implementing a Women's Economic Empowerment Agenda Can Shape the Global Economy* (2017).

The evidence suggests that the growth of anti-migrant views (and parties) at a political level has been primarily driven by changes in elite party politics rather than broader social attitudes. Indeed, across Europe, for example, more recent opinion poll data suggests that attitudes on migration have actually grown less negative, perhaps in part as the recovery from the 2008-9 financial crisis continues to develop and as the heavy hand of austerity weakens a little.

Globally, acceptance of migration varies substantially. But there is notably little association, even among similar economies, between attitudes towards migrants, and likely or potential economic benefits to the economy in question. This reflects the complexity of the factors underlying attitudes.

Within the OECD, multiple opinion polls have shown that public perceptions are that migration is generally much larger in comparison to the population than the reality and that migrants are less productive in labor market terms than is in fact the case. Among the largest OECD economies, the perceived proportion of migrants is usually around twice that of the actual proportion of migrants in the population as a whole. Among the lowest earners and the less educated, the estimate of migrant populations is often three to four times larger than is actually the case. More generally, education sits at the center of a wider debate regarding the respective importance of values versus economic exposure in driving opposition to migration.

The importance voters attribute to a given issue is heavily guided by their ability to express a preference on it. At the same time, the emphasizing of a given issue by political parties can also lead voters to think it important. A major component of the growing political importance of migration has little to do with changes in aggregate views towards migration but rather much to do with changes in the structure of party political competition. Recent changes here have resulted in a growing focus on non-economic, cultural issues. Immigration, and a specific framing of immigration in terms of national identity, has been central in this process. This has given existing, value-orientated views associated with migration a new means of political expression.

As this report makes clear, migration is a multi-faceted issue with many different dimensions, each of which could be emphasized or de-emphasized. The fact that it has become primarily articulated as a value based issue not an economic one in the public debate is a product of choices made by political parties and the electoral incentives facing them. Many mainstream parties are also internally split and under pressure on the issue of migration, leading some of them to deemphasize migration entirely.

As we discuss throughout this report, migration has and is making an essential contribution to the economic wellbeing of many OECD economies. The growing politicization of migration on a value basis, rather than an economic one, is thus making it difficult to properly highlight the economic case for migration. Failure to discuss the economic importance of the issue is increasing the risk of destructive policy errors at a time when the benefits of high-skilled migration, in particular, are becoming less secure for those economies that have thus far been enjoying them.

To put immigration policy on a more viable footing, more must be done to share the story of growth benefits. One of the global leaders who has been prepared to defend migration, Angela Merkel, has been forced by her political coalition to retreat on this issue. However, it is noteworthy that the German government has at least made a major effort to adjust public perceptions to migration by displaying the evidence of the benefits of migration to the German economy.

In addition to building an evidence-led debate, governments must be more responsive to re-distributing the benefits of migration to those communities bearing costs, including by relieving pressure on public services. Due to the trade-offs between the local and the national, managing migration is necessarily both a community and a national responsibility which requires careful coordination between the different levels of government. National governments have a particular responsibility to support local communities as the presence of migrants is in the national interest, even if this is not always evident at the community level.

Rather than leaving a tacit (or otherwise) suspicion in the minds of voters that difficulties in worthwhile job creation or the provision of adequate public services can be blamed on migrants, mainstream political parties can employ a host of policies across tax and welfare systems, in education and through training that improve outcomes for those at actual risk from immigration independent of any connection with migration itself. For example, Denmark spends 2% of GDP annually on active labor market policies that help transition unemployed workers. This, for example, is twenty times the level of spending (relative to GDP) in the United States.

Alongside the risk that the fiscal debate around migration is skewed by other political agendas, an aging population and high public debt levels risk making fiscal missteps of scale costly. An intense global competition for talent also risks more extensive consequences of even small mistakes in migration policy. Balance and perspective needs to be returned to the debate.

Thanks to Our Authors and Contributors

In producing this report, as noted earlier, we are indebted to the contribution of Professor Ian Goldin, who has continued to be both a great partner to me and to my colleagues at Citi Research. In addition, I would like to thank Citi's Chief Economist, Catherine L. Mann, for her many suggestions and edits as well as for the detailed perspective that she brings to the debate on migration, in part from her time as the former Chief Economist at the OECD. Ben Nabarro from Citi's Research department has worked tirelessly to update data sets and to build out economic models as well as contributing materially to the body of the text.

I am also grateful to my colleague Edwina Frawley-Gangahar from Citi's Global Public Affairs team for her support and encouragement in the production of this report. And, as ever, a very big thank you goes to my colleague Kathleen Boyle for her wisdom, her judgement and her editing skills that have turned our work on migration into a finished product.

I know that you will enjoy this report. We believe that it makes an important contribution to the debate on migration and the global economy at a critical time.

Andrew Pitt

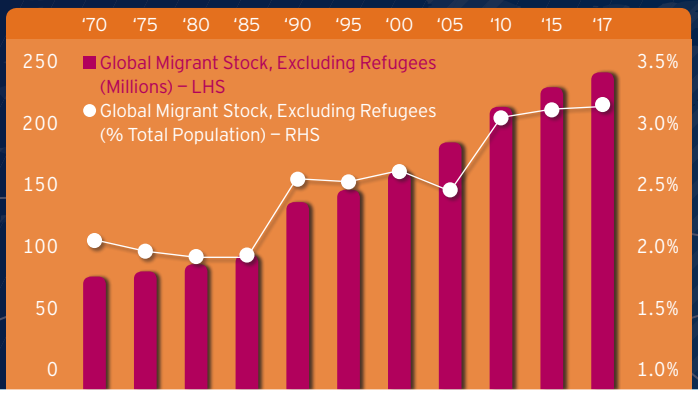
Global Head of Citi Research

The Perception Disconnect with Migration

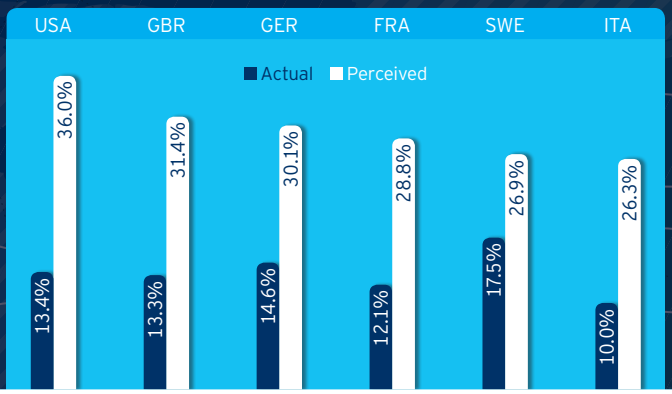
Evidence that migration is economically beneficial

HOW MANY MIGRANTS ARE THERE?

Migrants, excluding refugees, now make up just over 3% of the global population…



…but the numbers aren't as high as people think



MIGRATION IS A POSITIVE FORCE FOR ECONOMIC GROWTH

Our analysis finds from 1990 to 2014, U.S. economic growth would have been 15 percentage points lower without the benefit of migration. In the U.K. it would have been 20 ppts lower and in Sourthern Europe 20-30 ppts lower.

Three ways migration drives economic growth:

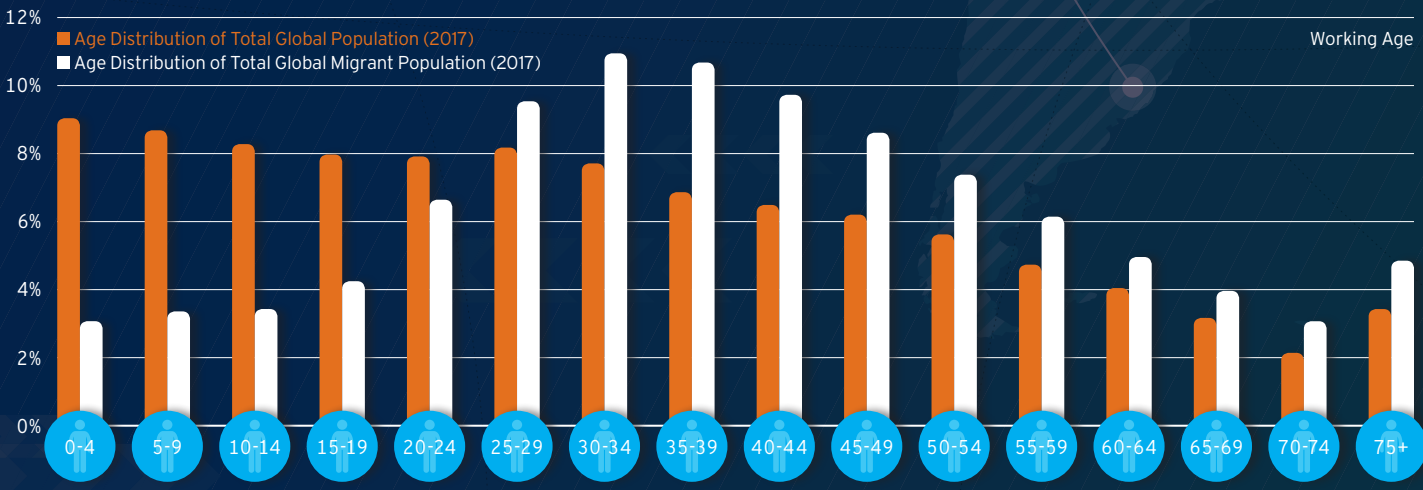
Strong positive effect on GDP per capita as **75% of migrants are working age**

Improves output per worker by increasing human capital levels - **the number of migrants with a tertiary degree rose by 130% between 1999 and 2010**.

Migration increases the rates of innovation - **over 40% of global patent applications are filed by immigrants**

Over 50% of the countries in the world now have fertility rates which are below replacement rates. Migration will help stabilize working age populations across Europe, North America and much of East Asia

Source: Citi Research; International Migration Report 2017

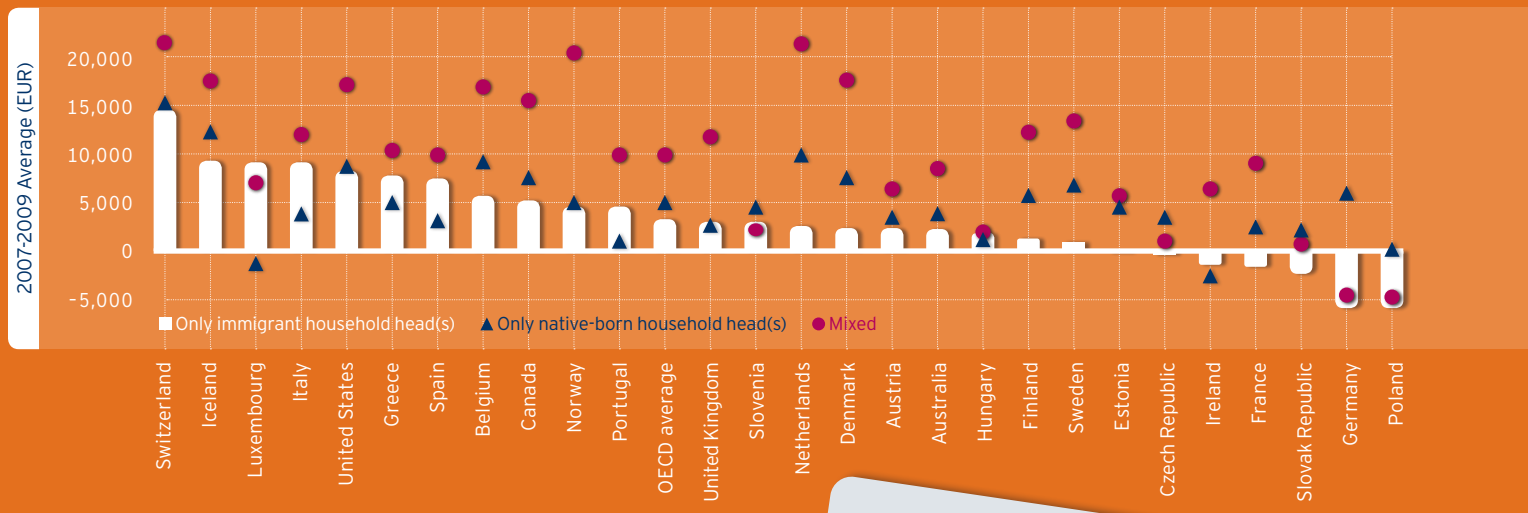


WORRIES ABOUT MIGRATION BEING A FISCAL DRAIN ARE OVERBLOWN

Source: OECD (2013)

Although generally less than households headed by natives and those that are 'mixed', the average net fiscal contribution (taxes & social security payments minus any social benefits) for households headed by immigrants is mostly positive across the OECD.

Average net direct fiscal contribution of households by migration status of the household head, 2007-2009 average



A COORDINATED EFFORT IS NEEDED TO HELP MIGRANTS CONTINUE TO MAKE A DISPROPORTIONATELY POSITIVE IMPACT ON OUR SOCIETIES

Business: Be more vocal in articulating their needs and the overall benefits of migration

Communities: Confront the needs of migrants and assist in their integration

Academics: Demonstrate the benefits as well as the costs for better analysis

Governments: Lead with a positive narrative that recognizes the vital contributions of migrants

National policymakers: Address the tradeoffs between short-term local costs and long-term national gains

Contents

About the Oxford Martin School

The Oxford Martin School at the University of Oxford is a world-leading centre of pioneering research that addresses global challenges.

The School invests in research that cuts across disciplines to tackle a wide range of issues including climate change, disease, cyber threats, and inequality. The School supports novel, high risk, and multidisciplinary projects that may not fit within conventional funding channels, but which could dramatically improve the wellbeing of this and future generations.

Established in 2005 through the generosity and vision of Dr. James Martin, the School provides academics with the time, space, and means to work collaboratively and to engage policymakers, business people, and the general public. To qualify for School support, the research must be of the highest academic caliber, tackle issues of a global scale, have a real impact beyond academia, and not be able to have been undertaken without the School's support. All research teams are based within the University of Oxford. In the School's first decade, more than 500 researchers have worked on 45 research programmes, from ageing to vaccines. For more information, please visit http://www.oxfordmartin.ox.ac.uk/

About the Oxford Martin Programme on Technology and Employment

The Oxford Martin Programme on Technology and Employment is a research programme established in January 2015 with support from Citi. It has been created to investigate the implications of a rapidly changing technological landscape for economies and societies. The programme provides an in-depth understanding of how technology is transforming the economy, to help leaders create a successful transition into new ways of working in the 21st century. The programme is part of a wider research partnership between the Oxford Martin School and Citi, analyzing some of the most pressing global challenges of the 21st Century.

About the Oxford Martin Programme on Inequality and Prosperity

The Oxford Martin Programme on Inequality and Prosperity is a research programme established in May 2017 with support from Citi. It forms a key core element of research in the Institute for New Economic Thinking at the Oxford Martin School on employment, equity, and growth. The programme focuses on four central themes in order to respond to the various drivers of economic inequality and the ways inequality impacts on growth and prosperity — Inequality and Rewarding Work; Inequality, Wealth and Opportunity; Inequality, Taxation and Social Transfers; and Inequality and the Firm: Broadening Corporate Social Responsibility. The programme directly addresses current concerns about rising inequality and its impacts; yields important insights into the drivers of increasing inequality and its effects; and identifies a coherent set of responses aimed at promoting inclusive growth and prosperity. While primarily focused on the currently rich countries, it seeks to incorporate key trends in, and implications for, those seeking to join them, most importantly China and India.

Setting the Scene

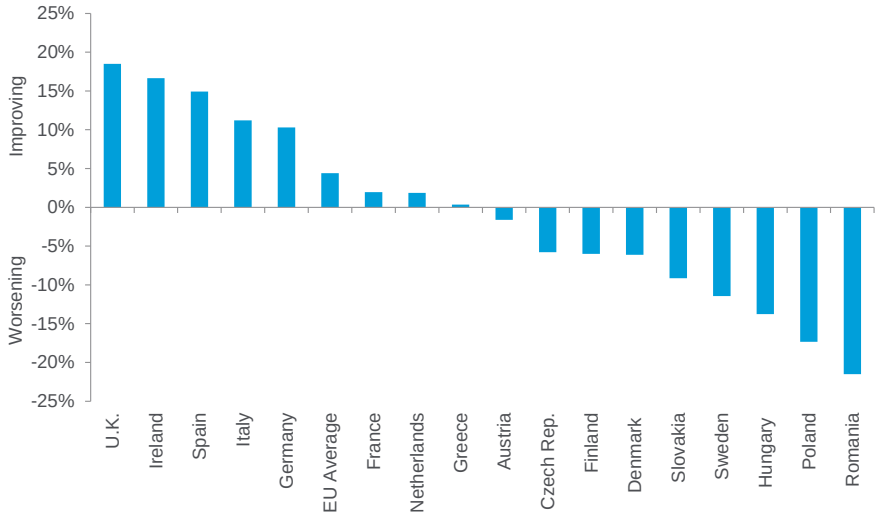
This report focuses on the economic implications of migration

This report focuses on the economic implications of migration. The originality of the report is both in providing fresh evidence of the implications for growth and the dynamism of economies and also in its careful consideration of the fiscal costs and benefits in terms of taxes and expenditures. The report summarizes the available studies and offers the latest perspectives on the labor market outcomes, weighing the evidence on the relation between migration and incomes, wages, inequality, and employment.

The report looks to throw light on the growing disconnect between perceptions regarding migration and the actual trends

While this study is not the first to highlight the overall economic benefits associated with migration, our aim has been to update and deepen our understanding of this important issue. Part of the objective is to provide a more granular approach which may throw light on the growing disconnect between perceptions regarding migration and the actual trends. This disconnect is illustrated in the change in negative perceptions regarding immigration in different European countries, which suggests that there is almost no correlation between the number of migrants and refugees a country accepts and the attitudes to migration. If anything, the experience from Germany could suggest that the opposite may be the case – attitudes have improved because of record flows. On the other hand, perceptions may have improved because these flows subsequently have been reduced. However, other countries which have similarly reduced flows, such as Denmark, Poland, and Hungary have seen increased concerns.

Figure 1. Change in Sentiment Towards Immigration, 2014-2017



Note: Measured by percentage point change in those expressing a negative sentiment towards migrants.
Source: Citi Research, Eurobarometer

Making a link between the number of migrants, their economic benefits, and perceptions regarding migrants poses numerous analytic challenges. This report, by offering fresh insights into the distributional economic impact and its interaction with inequality, seeks to provide an added dimension to this debate.

Our focus is particularly on the economic impact of migration in Europe and North America but recognize the implications for many other regions

In the pages that follow, we focus on the economic impact of migration in the advanced economies, and particularly in Europe and North America, as it is in these regions that the concerns regarding migration appear to be particularly acute. We recognize, of course, that the implications for many other regions, and not least developing countries as both the source and destination of migration, are also highly significant, especially with regard to the implications of the so called 'brain drain', which suggests the benefits migrants bring to the advanced economies may be at the cost of undermining development in their countries of origin. This, as we show in the report, need not be the case as migrants typically contribute to their destination country, while at the same time contributing to their dependents and countries of origin and advancing their own lives.

Migration Defines Humanity

Migration has defined humanity since the dawn of time but it has only been the last hundred years when controls over travel have been implemented and passports required

Migration is not a new phenomenon. Migration has defined humanity as it is our motivation and ability to migrate that has allowed our ancestors to escape famine, drought, pandemics, wars, and other disasters and by exploring new opportunities to populate our planet. By adapting, innovating, and combining and contributing ideas, migrants advance societies. Migration has shaped our economies which embody the collective contribution of diverse peoples. It is no accident that the most dynamic cities are those with a relatively high share of migrants.

National borders have existed for thousands of years, but it has only been about a hundred years since countries began requiring passports and implemented increasingly rigorous controls over travel. Over this relatively recent period, one hundred new countries have been created, so there are many more borders which are increasingly visible and inviolate. The result has been not only a growing awareness of the scale of migration but also rising control. Movements that previously had been within one territory or which transcended borders now are confronted by them. At the same time, increased communication and lower transport costs, together with financial and other integration which reduces the frictions associated with travel, have reduced the costs and risks associated with migration.

We look to provide a better understanding of the costs and benefits of migration and provide a granular analysis of the impact of migration

While in general we may all accept the progress that humanity has enjoyed is derived from past migrations, the question nevertheless remains as to how many migrants our societies should accept. What is the appropriate level and how can we better assess the balance of costs and benefits that migrants bring? This report summarizes the current evidence and goes further in providing fresh insights into the costs and benefits of migration. In order to better understand the highly differential impact of migrants on different communities, sectors, and groups of workers, the report provides a granular analysis of the impact of migration.

Although we use immigrant and migrant interchangeably, we prefer the term migrant as it encompasses both immigration and emigration

Throughout the report we use the term migrants and immigrants, or migration and immigration, interchangeably to refer to the movement of people across national borders. In the U.S., the term 'immigrant' is most commonly used, but our preference is 'migrants' as immigration only refers to people entering a country, whereas emigration is as significant — anyone arriving in one country has left another. Migration also tends to be a circular process, with many people being both immigrants and at different stages of their life cycle emigrants. The word migrant encompasses both and points to the fact that, for the most part, the movement of people is temporary, repeated, or circular. Economic migrants tend to migrate for work, returning home after years and perhaps even a lifetime of employment, whereas students tend to come for a fixed period and most, but not all, return home on completion of their studies.

Analysis on migration is less extensive than one might expect and debates are often fueled by perception versus reality

The fact that debates on migration tend to reveal much more heat and smoke than light reflects both the highly political nature of the subject and also that migration studies as a discipline have not received the scholarly attention it deserves. Many key questions are informed by speculation or anecdotal evidence rather than rigorous evidence-based analysis. There are only a handful of widely respected journal articles on the economic impact of migration, and the studies which exist are largely confined to the U.S. and the U.K. The OECD's recent work is notable, not least for its cross-country analysis, but there is a paucity of country-specific and policy-relevant work which provides for nuanced policy conclusions disaggregated by type of migrant or specific sector or geographical location or even country.

One reason for the dearth of robust analysis on migration is weakness and inconsistencies in data

The dearth of robust analysis on migration in part reflects weaknesses and inconsistencies in data. Even the U.K., which has a reasonably sophisticated statistical capacity, does not collect data on people leaving, only those arriving. As a result, even in the current era of managed migration, we still often know more about goods crossing national boarders than people in many cases.

At the aggregate level, different countries apply different definitions of migrants, with some, for example, including students and tourists and short business visitors, and others excluding them. This can create comparability issues. The same is true in the academic literature, with different studies defining migrants according to citizenship, place of birth, or by other means. In this report, we have tried to focus on data that define migrants by their place of birth, as citizenship reflects a policy decision in itself.

Attempts to reconcile immigration and emigration statistics are among the many methodological challenges facing attempts to determine the stock and flow of migrants for any country and overcome glaring inconsistencies in the data. Undocumented migrants add an additional set of complications as by their nature these people are not included in the statistics. And yet they may comprise a significant share of migrants, not least in certain types of work and locations. They also may account for a disproportionate share of the concerns regarding migrants. A further set of challenges relates to the distinction between refugees and other migrants, as in some countries and data sets these are conflated.

Refugees and Forced Migrants

The overwhelming majority of migrants today are not forced to migrate, but historically forced migration, refugees, and asylum seekers were the norm

Refugees are a special category of migrants. A refugee is defined by international agreement as any person who: "owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular group or political opinion…" is forced to take refuge in another country. An asylum seeker is an individual who has sought protection as a refugee, but whose request for sanctuary has yet to be processed. Decisions regarding the admission of refugees and asylum seekers are the subject of international law and are of a fundamental ethical nature, in which societies decide whether they are prepared to protect people who face deep persecution, harm, or even death.

Refugees and asylum seekers since the Second World War have accounted for most involuntary migrants, as the overwhelming majority of migrants today are now not forced to migrate. Historically this has not been the case. Forced migration was most horrifically evident in the capture of over 15 million Africans who were sent to the Americas as slaves in the period 1400 to 1900. As slavery was abolished in the 1800s, the colonial powers increasingly relied on indentured laborers where workers were compelled through debt and other forms of bondage to undertake many years of work, often with little or even no payment and with no rights.

It is estimated that 12 to 37 million people worked in over forty countries, including many colonies as indentured migrants in the period 1834 to 1941. While the practice of slavery and indentured labor has been outlawed in most countries, it continues to exist below the regulatory radar, reflecting the fact that although it is now the exception rather than the norm, forced labor still needs to be prevented.

Our focus for the rest of the report is on economic migrants — those where migration is a matter of choice

This report is focused on economic migrants who have not been compelled to migrate either as refugees or forced migrants. Although economic migrants may come from dire poverty, by and large economic migrants migrate as a matter of choice. Their destination countries also have a choice whether to accept them or not. In the case of refugees, recipient countries have an obligation under international law to accept people whose lives are threatened. And international law also dictates that forced migration should be prohibited. Countries who are parties to these laws, which stipulate that they should accept refugees and prevent forced migrants, too often fail to do either. They also increasingly are turning their back on economic migrants.

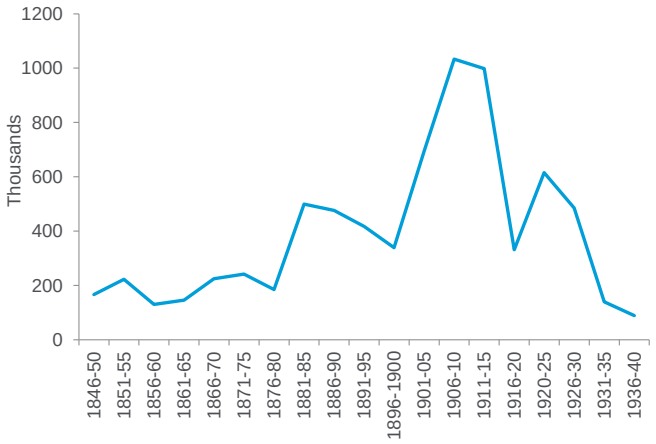
Migrants Built the Modern World[4]

The advent of steam ships helped drive the first era of globalization and mass voluntary movement of people from 1840 to 1914

Migrants for tens of thousands of years had been on the vanguard of the advancement of civilizations. The first era of globalization in the second half of the nineteenth century was associated with the first mass voluntary movement of people, as millions of people migrated internationally in search of greater security and opportunity. The advent of steam ships made long distance travel more affordable, safer and quicker, facilitating travel to the Americas, Southern Africa, and Australia. This ‘age of mass migration’ from around 1840 to the First World War in 1914, increased the working population of North America and Australia by at least a third, and Argentina by a half, with the number of Europeans migrating rising from around 300,000 per year in the 1850s to over 3 million migrants per year in the early 20th century. The peak of the industrial revolution was the main period of British and German migration to North America, and between 1800 and 1860 two-thirds of the migrants to the U.S. were from Britain and 20 percent from Germany, as displaced workers sought opportunity elsewhere. From 1860 to 1920 most of the 30 million immigrants to the U.S. came from Scandinavia, Ireland, Italy, Spain, and Eastern Europe. With many of the Irish and Eastern European migrants going first to Britain, the relative share of migrants in Britain and in the United States was higher than today.

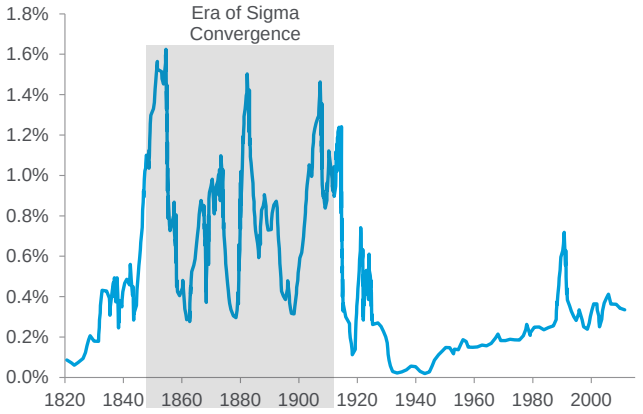
[4] Goldin (2011): Exceptional People and Hatton and Williamson (1998): The Age of Mass Migration.

Figure 2. Average Annual Migrant Inflow Into the U.S., 1846-1940



Source: Citi Research, McKeown (2004)

Figure 3. Foreign-born Inflow as Percentage of U.S. Population, 1820-2010

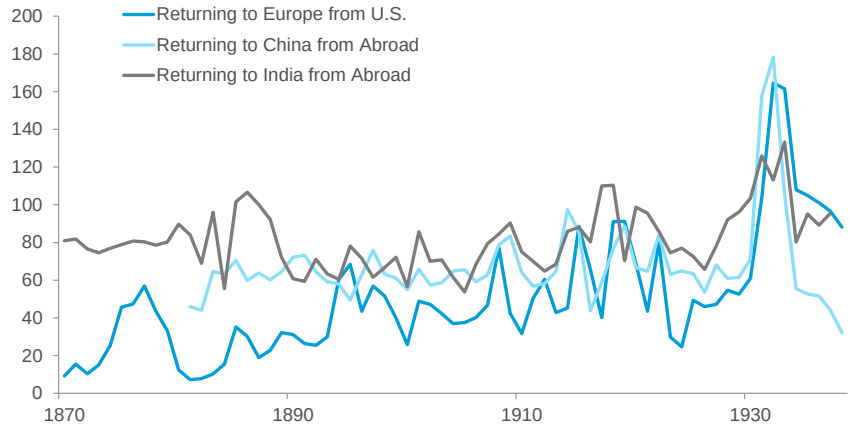


Note: Calculation based on U.S. historical statistics. Sigma convergence means the average dispersion of incomes across countries is falling. In this case, the 'era of sigma convergence' refers to sigma convergence in the transatlantic economy.
Source: Citi Research, Abramitzky and Boustan (2017)

The flow of migrants is not one way — about half of migrants historically are estimated to return to their home countries

In the nineteenth century, as today, the flow of migrants was not one way, with about half of the migrants estimated to have returned to their home countries, although the proportion that returned varied greatly by country of origin. So while about half of the Italian and Spanish migrants eventually returned home, less than 5 percent of the Russian migrants returned.

Figure 4. Total Annual Migrant Returns as a Percentage of Total Emigrants, 1846-1937



Source: Carter, et al, Historical Statistics of the United States, 1:547-8; Davis, Population of India, 100; McKeown, "Global Migrations 1846-1970".

Until the 1890s, migration within Europe was as great as the scale of the emigration from Europe. The ease of movement within Europe meant that rapidly industrializing centers were able to attract labor from across the continent. Britain and the Ruhr mining and heavy industrial region of Germany became magnets for employment, and, faced with labor shortages, actively sought workers from a growing distance.

Limiting migration flows wasn't a focus of governments until economic growth began to slow in the early twentieth century, reinforced by rising nationalism

It was not until the early twentieth century and the slowing of economic growth when governments began to focus on limiting migration flows. Rising nationalism reinforced this trend. Discrimination against certain groups of migrants was not invented in Europe. In 1882, the U.S. began to apply new regulations to keep out Chinese laborers, but such laws remained the exception until the First World War and in the subsequent years the control of migrants became central to the identity of nations and an era of open borders ended.

The demand for migrants grew following the Second World War, especially in Europe and resulted in a mini reversal of the age of mass migration, with flows back to Europe

World War Two led to the death of well over 50 million people in combat and concentration camps and the displacement of over 30 million people. As the European economy began to recover in the 1950s it experienced a growing labor shortage and the demand for migrants and for displaced people to settle increased. Mass recruitment of laborers, especially from the colonies, resulted in a mini reversal of the age of mass migration, with flows back to Europe. In response to this post-war labor shortage, the U.K. recruited from the Caribbean, bringing migrants to the U.K. in cruise ships which had served as troop carriers, such as the Empire Windrush ship which arrived back in the U.K. in 1948 with workers from Jamaica, Trinidad, Tobago, and other islands. That the now elderly remaining migrants who have been in the U.K. for seventy years still have not received British nationality has been the subject of a recent outcry in the U.K.

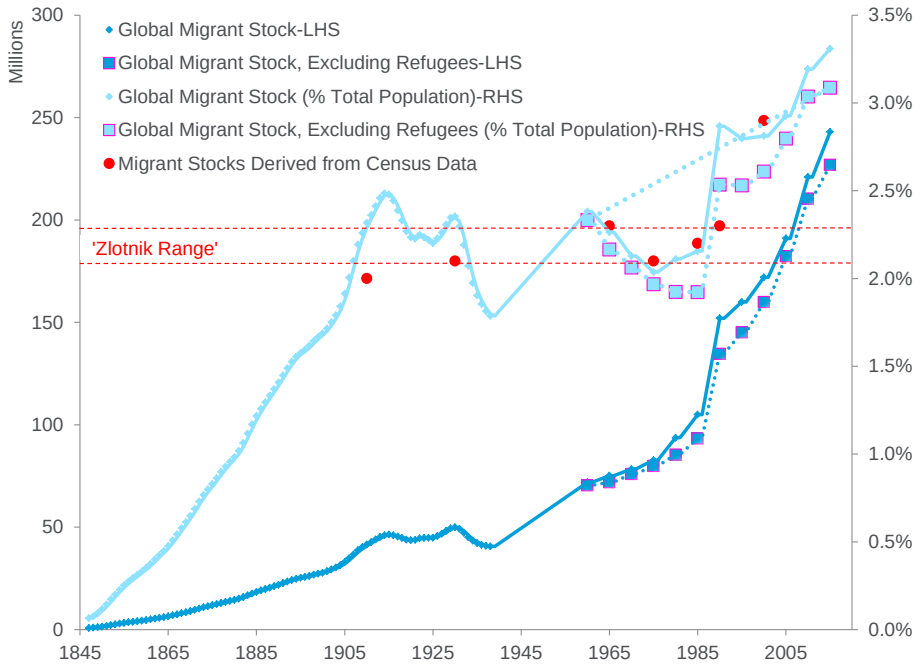
The oil crisis of the 1970s slowed migration to advanced economics but dramatically increased demand for migrants to the Gulf region

The global economic downturn in the wake of the 1973-74 oil crisis slowed the recruitment of migrants to the advanced economies. At the same time higher oil prices dramatically increased demand for migrants in the Gulf region, with migrants now making up over 90 percent of the workforce in some countries.

Since about 1990, the share of migrants as a proportion of the world's population has averaged about 3% — implying that about 1 in 30 people have become migrants

Figure 5 depicts migration trends since 1845. As the number of people in the world has grown, so too has the absolute number of migrants. The UN estimated there were approximately 258 million migrants worldwide in 2017. For a period of approximately a century from around 1890 the share of migrants as a proportion of the world's population remained remarkably constant, hovering above 2 percent (a range known as the Zlotnik range, after his work on the topic). Since about 1990, the end of the Cold War and the associated increase in the number of countries (30 new countries have been created, not least out of the former Soviet Union), together with the creation of visa-free movement within Europe, has led to a new normal range of around 3 percent of the world's population. Over the post-Second World War period, despite much cheaper transport and a much greater potential for travel (especially from Eastern Europe and China, where international travel was prohibited), approximately 97 percent of the world's population have stayed in the countries of their birth (even though these have got smaller and smaller as over 50 new countries have been created) implying that about 1 in 30 people have become migrants.

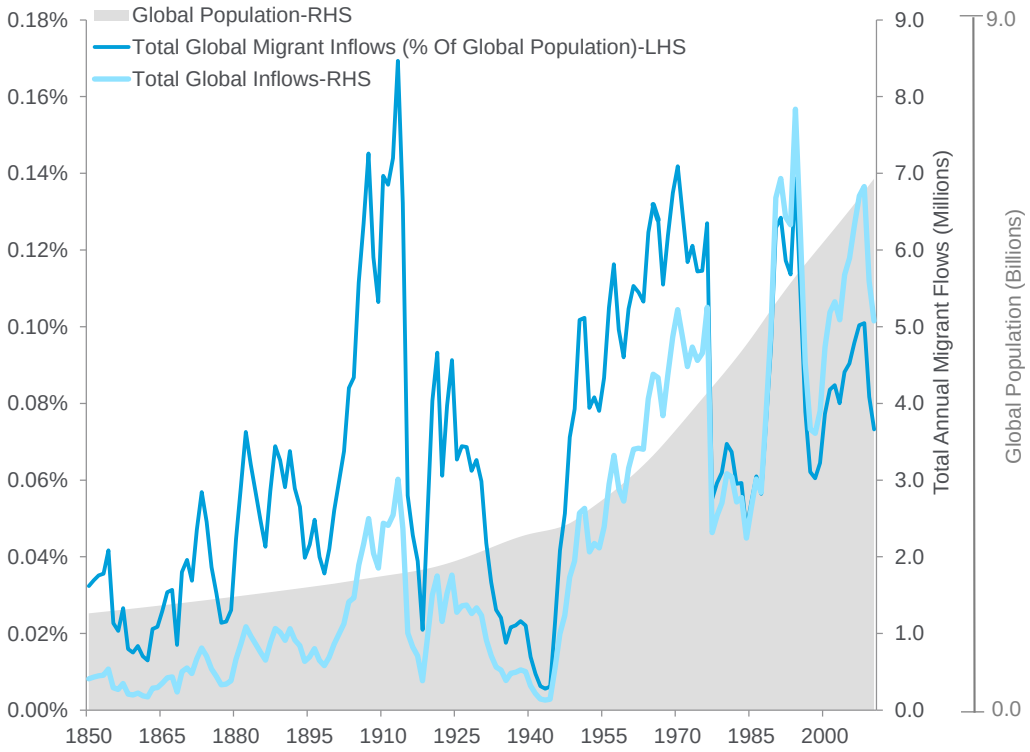
Figure 5. Global International Migration in the Long Term, Trends in Global Migration Stock, 1845-2015



Note: The Zlotnik 'range' refers to the finding by Zlotnik 1998 that the global migration stock had oscillated between roughly 2.3 and 2.1% of the global population between 1960 and 1990. Census estimates taken from MckKeown (2007), derived from: International Labour Office, World Statistics of Aliens: A Comparative Study of Census Returns, 1910-1920-1930 (Geneva, 1936), p. 56; International Organization of Migration, World Migration Report 2003; p. 4; Zlotnik, "International Migration," 431. Segal, Atlas of World Population counts 90 million migrants in 1910, which amounts to 5.5 percent of the world population, but gives no citation for this number.

Source: Citi Research, Brookings (2018,; McKeown (2004), UNPD (2018)

Figure 6. Aggregate Gross Migration Flows, 1850-2010



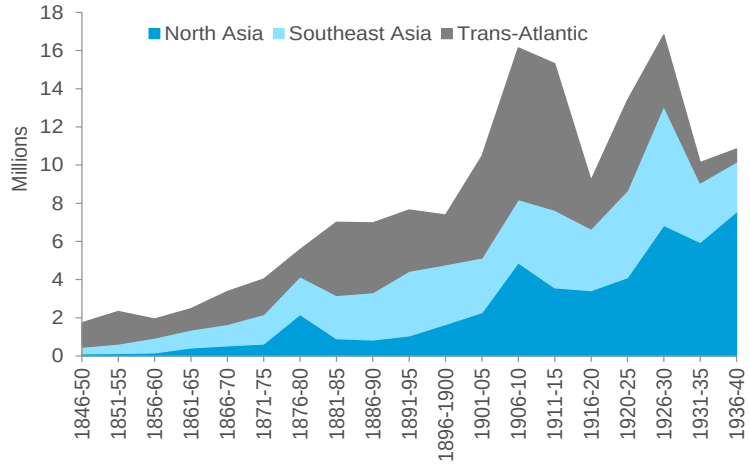
Notes: Total gross migrant flows are measured as the sum of total inflows.

Source: Citi Research, DEMIG (2015), Our World in Data (2017)

Gross migration flows into North and South East Asia were comparable in scale to those into the Americas from 1849 to 1940

McKeown (2004) disaggregates migration flows by regions and shows the extent to which the gross migration flows into North and South East Asia were comparable in scale to those into the Americas. Combined they account for much of the estimated historical migration flows, although clearly given that for many regions there were no border controls or documents, this remains necessarily speculative. In particular, the scale of migration flows across the border of the African countries may well have matched those in Asia.

Figure 7. Cumulative Migratory Flows, 5-Year Period, 1846-1940



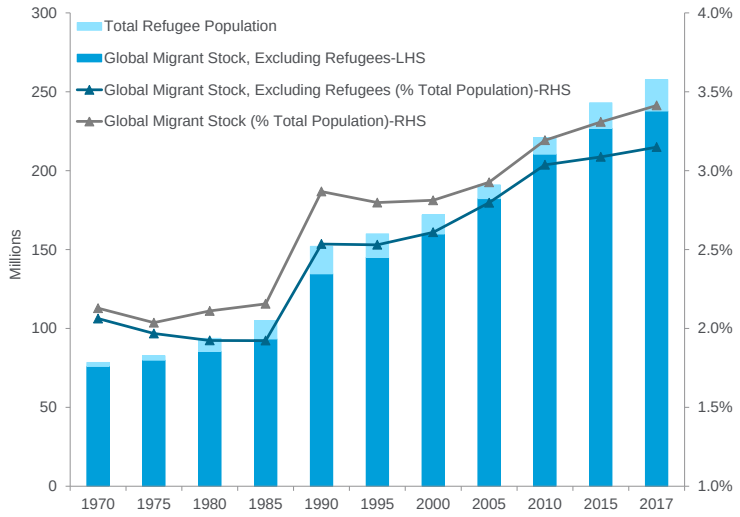
Source: Citi Research, McKeown (2004)

As vast expanses of imperial or colonial territory in Africa and Latin America were carved into colonies, and countries were created with new borders, mass movements of people were not uncommon. The dissolution of the British Raj in 1947 into India, Pakistan, Burma (now Myanmar) and Ceylon (now Sri Lanka) and later, following its succession from Pakistan, Bangladesh, displaced well over 14 million people.

Today the world has about 26 million refugees from places such as Syria and Myanmar

These and other seismic political events, which at times are be accompanied by wars and conflicts, force refugees to migrate. There are about 26 million refugees today, including in recent years over 6.3 million people being forced to leave Syria and over 1 million Rohinghya fleeing Myanmar, with over 95 percent of these refugees seeking shelter in neighboring countries.

Figure 8. Recent Developments in the Global Migrant Stock, 1970-2017

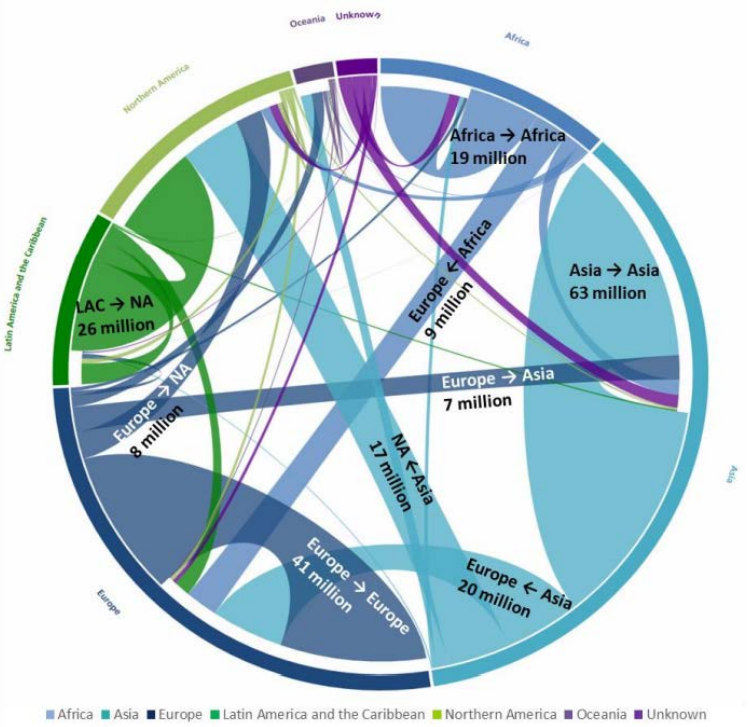


Source: Citi Research, UNPD (2017), UNHCR (2017)

The majority of the migrant stock is in Asia and Europe, but the U.S. and Canada host the greatest number of migrants by country

Globally, 60 percent of all migrants are in Asia (~80 million) or Europe (~78 million) but countries like the U.S. and Canada together host the greatest number of migrants (~58 million). The estimated number of migrants for Africa at 25 million is likely to significantly underestimate the stock of undocumented migrants than is the case for other regions.

Figure 9. Number of International Migrants Classified by Region of Origin and Destination, 2017

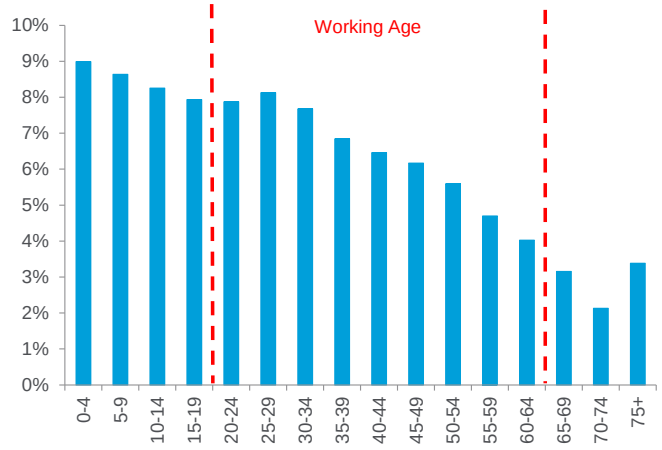


Source: From 2017 United Nations International Migration Report Highlights, by (Barbara Kobler and Pablo Lattes/Department of Economics and Social Affairs), © (2017) United Nations. Reprinted with the permission of the United Nations

Migrants tend to be younger than their host country population — 75% of migrants were of working age in 2017 — which will be helpful in coming decades as population in advanced countries declines

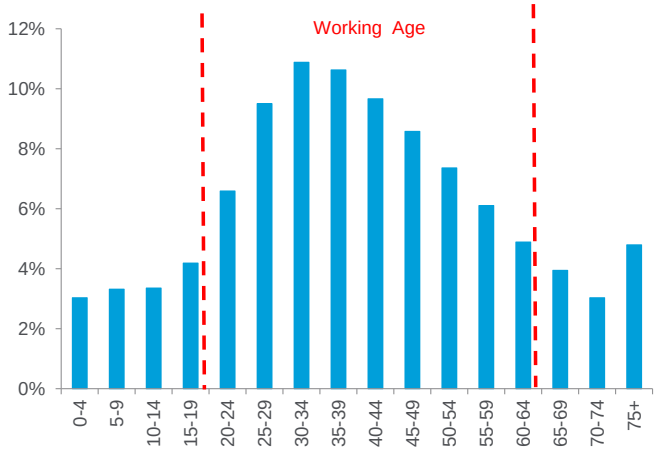
Migrants are on average much younger than their host country populations and this has a very significant impact on the costs and benefits associated with their migration. In 2017, three quarters of migrants were of working age, compared to 57 percent of the global population, with this reflecting the fact that only 14 percent of migrants are under 20 years old, compared to 34 percent of the global population. Over half the countries in the world now have fertility rates which are below replacement, including over half of developing countries. The population of Europe and a number of countries in South East Asia is contracting despite migration, and it has been estimated that in the coming decades, migration many orders of magnitude higher than current levels will be required to stabilize working age populations in Europe, North America, and much of East Asia.

Figure 10. Age Distribution of Total Global Population, 2017



Source: Citi Research, International Migration Report, 2017

Figure 11. Age Distribution of Total Global Migrant Population, 2017



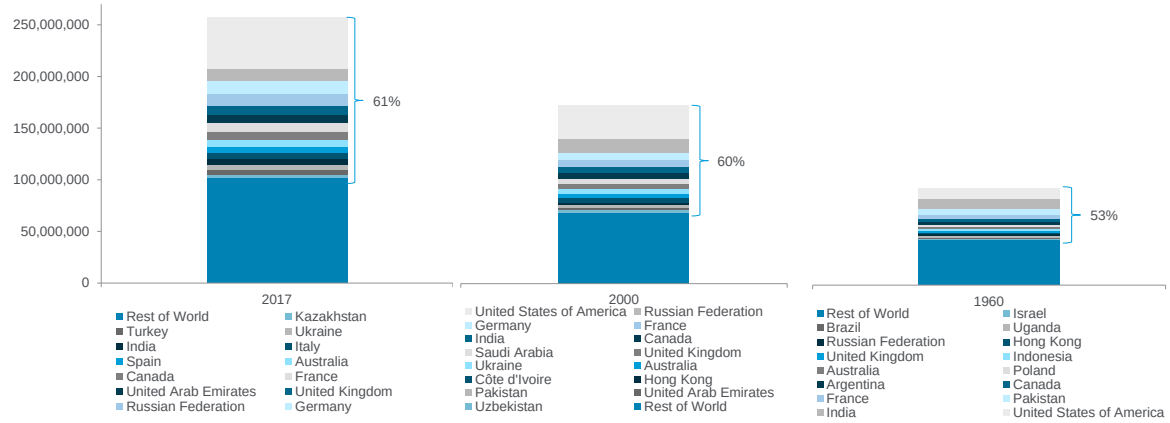
Source: Citi Research, International Migration Report, 2017

The highest growth in migration has been from developing to developed countries and flows between developing countries

The relative contribution of different regions to global migration flows has changed over time. The two flows that have shown the most substantial growth in recent years have been from developing to developed countries and flows between developing countries.

Flows to the advanced economies grew most rapidly in the period following the Second World War to the turn of the millennium, driven by globalization and the growing global integration of migratory flows. As more and more economies integrated themselves into the global economy, new migrant flows became possible. The resulting trend was growing migrant concentration in a handful of the most enticing destination economies (see Figure 12).

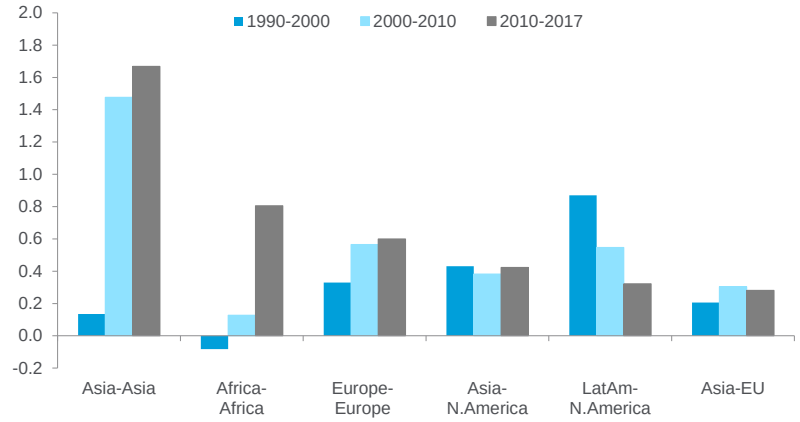
Figure 12. Global Migration Stock by Destination, Share of the Top 15, 1960-2017



Source: Citi Research, World Bank (2018,; UNPD (2017)

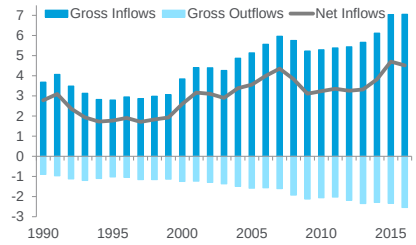
Since the mid-2000s, migration flows between developing countries have grown more rapidly. The migrant stock of the advanced economies has continued to expand (see Figure 14), but these flows have been joined by substantial expansion in migration among developing economies. These are often within specific global regions; the fastest growing of which have been within Asia and Africa (see Figure 13). Transcontinental migration, then, is still dominated by flows into the developed economies, but regional flows are increasingly varied.

Figure 13. Average Annual Change in the Number of International Migrants Along the Six Largest Regional Migration Corridors, Millions,1990-2017



Source: United Nations (2017)

Figure 14. Gross and Net Migration Flows, OECD Economies, Millions, 1990-2016

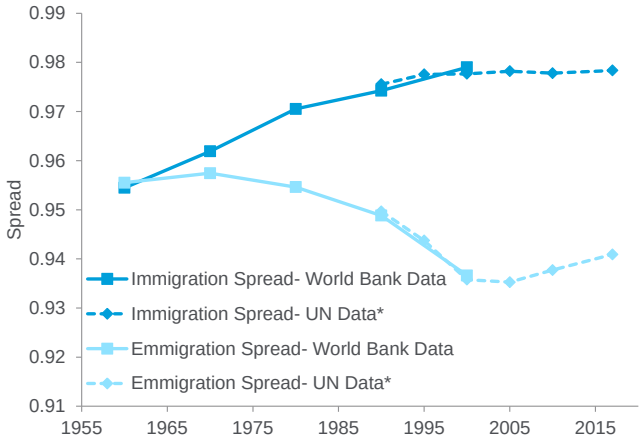


Source: Citi Research, OECD (2017)

Migrant flows have shifted away from concentrations in the U.S. and U.K and the global spread of migrants across different destinations is increasing

This shift in flows is contributing to a fundamental change in distribution of the global migrant stock. In the latter part of the 20th century, this was characterized by growing concentration in economies such as the U.S. and U.K., as the world became more integrated. Since the mid-2000s, this has reversed, however, with the global spread of migrants across different destinations increasing. These flows have remained strongly coincident with wage and earnings-based incentives, potentially reflecting interesting developments in the wider global economy.

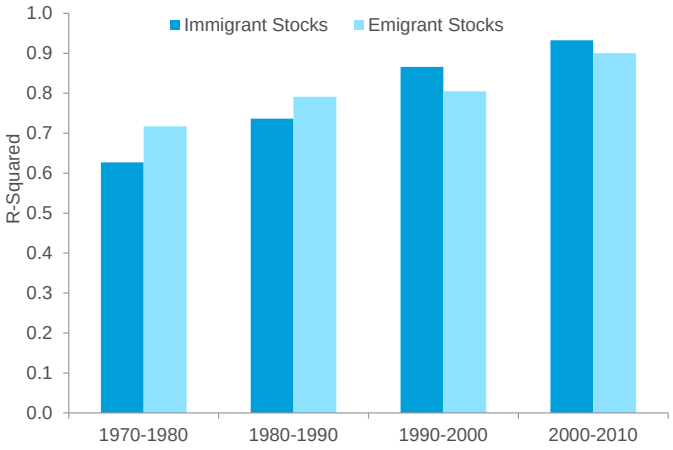
Figure 15. Global Emigrant and Global Immigrant Spread, 1960-2017



Notes: UN immigration data and emigration data has been multiplied by 0.9965 and 0.9943 respectively. This is in order to rebase these series in comparison to the older series, derived from World Bank Data. Spread is defined as unity minus the Herfindahl index. This method is taken from Czaika and de Hass (2014) see pages 299-301.

Source: Citi Research, Czaika and de Hass (2014), World Bank (2011), UNPD (2018)

Figure 16. Explanatory Power of Wages, Alongside Other Economic and Demographic Variables, in Determining the Distribution of the Global Migrant Stock, 1970-2010



Notes: Doa et al.'s modelling is based primarily on demographic differences and wage and non-wage income differentials between home and potential destination economies.

Source: Citi Research; Doa et al., 2016

Migration will be an increasingly vital dimension of coping with the global aging trend…although today there appears to be very little correlation between a country's fertility rate and attitudes toward migration

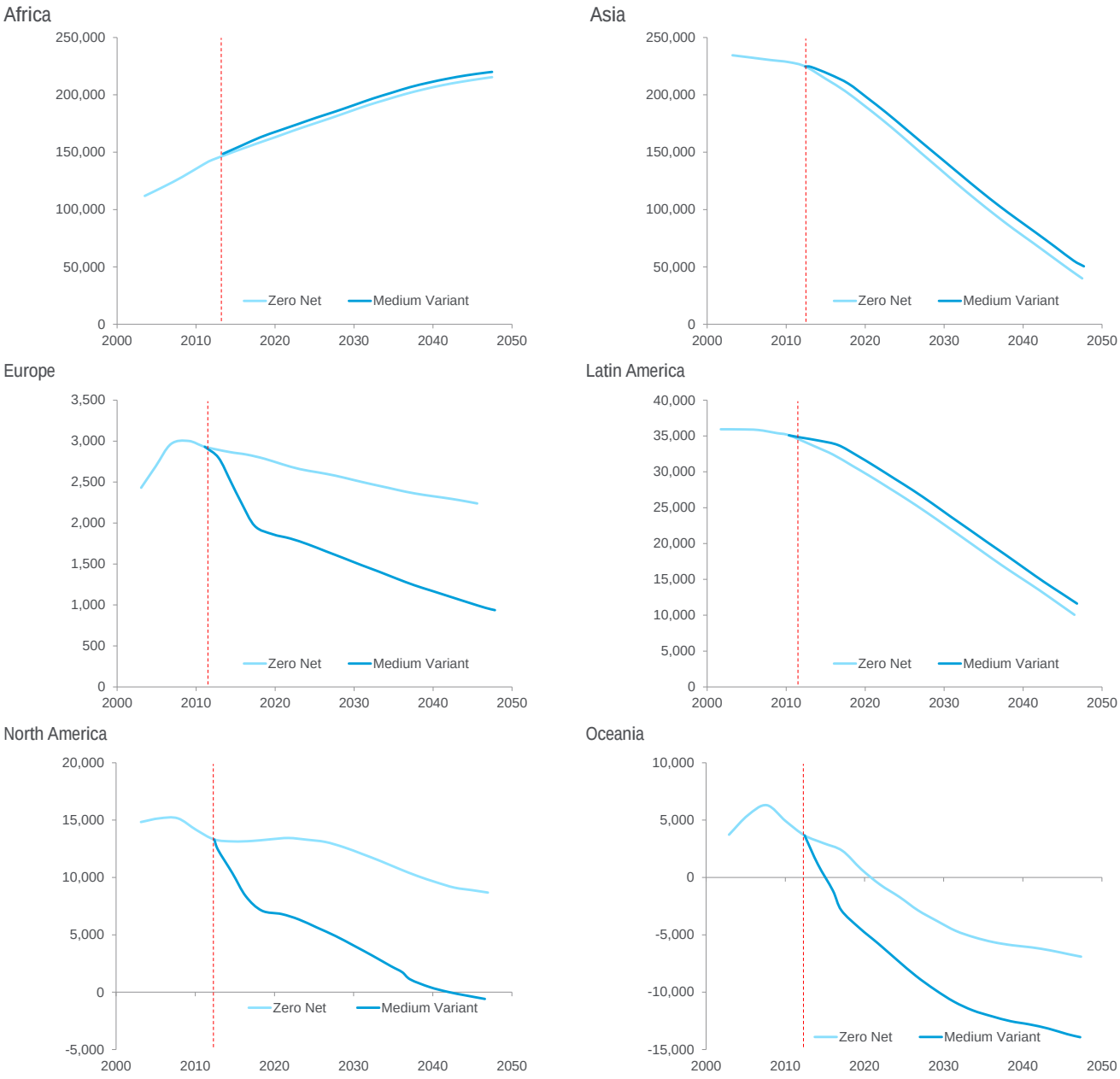
The aging trend is global and will lead to a doubling in the number of people over 60 from 962 million today to over 2 billion in 2050, with median ages projected to rise from 30 to over 36, but ranging from 25 in Africa (which has a median age of 19 today) to over 45 in advanced countries. Migration will be an increasingly vital dimension of coping with this transition and easing the burden on care and social security systems. As countries age, the economic imperatives for migration are expected to become more significant, but, as we see below, there currently appears to be very little correlation. Two of the countries with the lowest fertility rates in the world — Poland (1.3 births per woman) and Hungary (1.4) — are amongst the most opposed to migration, while other low fertility countries such as Spain (1.3) and Germany (1.5) have proved more welcoming.

Women are increasingly becoming migrants and now make up 48% of migrants worldwide

The gender composition of migration flows has changed significantly over time from being primarily male until the 1960s to increasingly more female. By 2000, all regions of the world were sending greater numbers of women abroad than men and in 2017 women comprised 48 percent of all migrants worldwide. The proportion of women migrants is highest in Europe (with 61 percent of the migrants leaving Ukraine being women) and lowest in Asia, although 60 percent of the migrants leaving both Singapore and Philippines are women.

The acceleration of economic globalization over the past thirty years has seen increased integration of the world's economies, facilitated by revolutions in communication, transport, finance, and others. While these flows now transcend borders, migration remains as rooted in a Westphalian national political system as ever, with flows of people subject to more not less regulation.

Figure 17. Estimates and Projected Change in Population Over 5-year Time Periods by Region With and Without Net International Migration, 2000-2050



Source: Citi Research, United Nations, International Migration Report 2017

Migration and Economic Growth

Our analysis finds migration is likely to generate greater prosperity on an aggregate, per capita, and per worker basis

In recent decades, immigration has been strongly and increasingly associated with economic prosperity. More interesting, there is a growing body of evidence that diversity, and immigration, drive economic prosperity as well as reflecting it.[5] In this section, we explore this recent work and present new estimates of some of the recent growth effects of migration. We find that migration is likely to generate greater prosperity[6] on an aggregate, per capita, and per worker basis, though the associated distributional effects of this may be more uneven.

Given the recent growth in and newfound scale of migrant stock, the impact of migration on growth is now a 'macro-critical' policy issue

Among OECD countries, migrants now make up between 10 – 30 percent of the working population, in comparison to 5 percent in 1960 and 3.3 percent of the population globally. Growth since the millennium has been extensive, with total migrant stocks in the OECD increasing 20 percent, and high-skilled stocks by 70 percent, between 2001 and 2011 versus 130 percent 1999-2010 (Nathan, 2014). Considering the recent growth in and newfound scale of migrant stock, the impact of migration on growth is now a 'macro-critical' policy issue (Jaumotte et al., 2016). Recent political changes, and a darkening of the political outlook as far as migration is concerned, make understanding the growth impact of migration all the more pressing.

To understand the full economic gains of migration requires an understanding of labor market impacts and labor productivity impacts

Traditionally, much of the literature discussing the growth effects of migration have focused on the labor market impacts: the effect of migration on aggregate employment, working age population ratios, native labor market outcomes, and so forth. In more recent periods this has been joined by a substantial body of work looking at the effect of migration on labor productivity: human and physical capital per worker, and total factor productivity (Nathan, 2014). Importantly, to understand the full economic gains of migration, all of these respective channels need to be understood simultaneously.

A holistic view of migration's impacts on economic growth requires three sets of distinctions: (1) over time: a distinction between the long- and short-term impacts of migration; (2) scale: a distinction between the headline GDP impact, the per capita impact, and per worker impact; and (3) migrant characteristics: differentiating between different migrant skill levels.

Our overriding conclusion is that migration is conducive to native and aggregate prosperity driven by the young age of migrants vs. host populations, rising human capital improving output per worker, and increased rates of innovation and total factor productivity growth

Our overriding conclusion is that migration is conducive to native and aggregate prosperity. In Germany and the U.K., for example, we estimate that if immigration had been frozen in 1990, the economy real GDP would have been around €155 billion and £175 billion lower respectively in 2014. In the U.S., too, migration has made a substantial contribution to recent economic growth, especially since the financial crisis. Migrant contributions to aggregate prosperity largely applies across all of the three respective distinctions above and can be put down to three main drivers.

First, the relatively young age profile of most migrants in comparison to native populations (see Figure 25) means migration often has a strong positive impact on GDP per capita (as well as aggregate GDP), underpinning an improvement in the proportion of aggregate workers to dependents in the economy as a whole. Migrants are usually of working age. Clements et al. (2015) note the important fiscal benefits, and its importance in GDP per capita terms, of migration helping to offset the depressive impact of growing numbers of workers leaving the labor force.

[5] See, for example, Alesina, Harnoss, and Rapoport, 2016.
[6] Here we largely measure prosperity in GDP.

Indirectly migrants, especially lower-skilled migrants, also drive greater labor force participation among natives.

Second, migration contributes to improved output per worker by increasing human capital (and subsequently physical capital) levels. Rapidly growing numbers of skilled migrants have made a direct and growing contribution to higher human capital. These advantages are contingent on skills being recognized, with short run de-skilling sometimes making it difficult to capture the benefits year on year (Preston, 2014). In addition, unskilled migrants have often made indirect contributions by increasing incentives to invest in human capital among natives.

Third, there is a growing body of evidence that migration increases rates of innovation and total factor productivity growth. This is discussed in the next chapter but has especially important implications for long-term growth — with the effects at a regional level seemingly highly persistent (Akcigit et al., 2017).

How Does Migration Generate Growth?

Migration generates growth through (1) labor market impacts and labor supply; (2) changes in human and physical capital per worker; and (3) impact on total factor productivity

The growth generative impacts of migration can be grouped into three main categories: labor market impacts and labor supply; changes in human and physical capital per worker; and the impact on total factor productivity. We discuss the first two here, turning to the third in the next chapter.

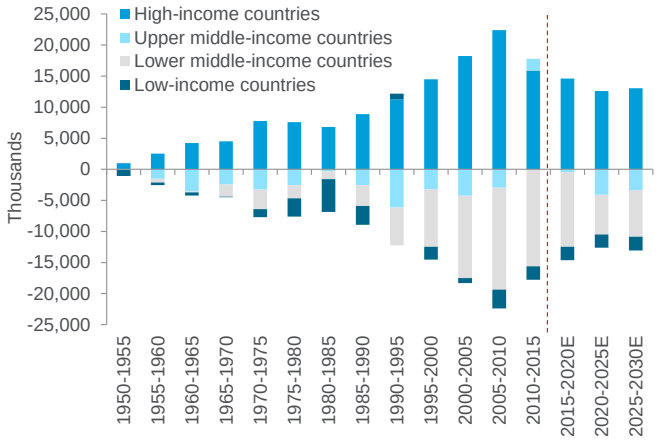
Labor Market Impact

The labor market impact of migrants is the product of three different components. First, migration can drive growth in the aggregate labor supply which helps drive headline growth. Across the OECD, as noted earlier, net migration rates are generally positive (see Figure 18). The importing of labor migrants, in particular, often drives increases in the total number of hours worked, resulting in greater aggregate growth all else being equal.

Migrants have a direct positive contribution to recent growth in the total number of hours worked among OECD countries

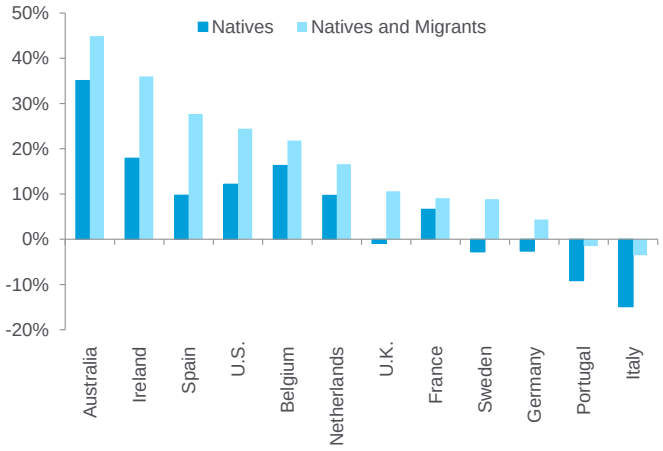
Across the OECD, migrants have made a positive direct contribution to the rate of growth in total hours worked, with the largest marginal impact in the Anglo-Saxon and Southern European economies. This is demonstrated in large gaps between the changes in hours worked by the native population alone and the changes in hours worked by both natives and new migrants combined (see Figure 19). In many of these economies, the gap between realized aggregate and native hours worked averaged between 10 and 18 percentage points. For all, however, this gap was positive: hours worked grew more rapidly when migrants are included.

Figure 18. Net Migration Flows by Development Level, 5-Year Intervals, 1950-2030E



Note: Medium variant forecasts used for post-2025 values.
Source: Citi Research, UNPD (2018)

Figure 19. Growth in Hours Worked, Native and Aggregate Labor Force, 1990-2015



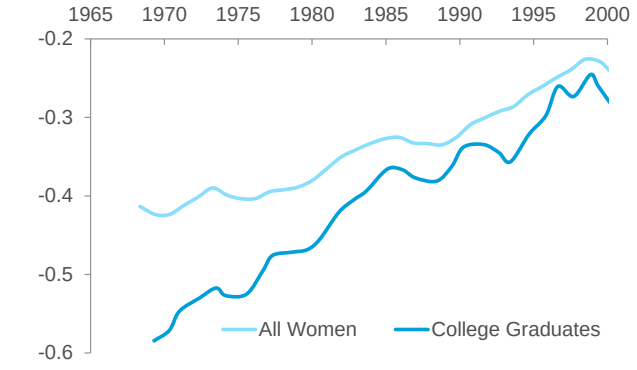
Source: Citi Research, ILO, OECD

Migration can also lead to lower care service costs, helping to increase female labor force participation and fertility rates

This, however, is only part of the story. Among native populations, aggregate labor supply growth is often driven by increasing female labor force participation. A positive impact of migration is that it often leads to substantially reduced costs in care services that can otherwise often inhibit the entry of women into the labor force. These effects are especially helpful in areas where the supply of low-skilled native workers is relatively low (either as a result of non-existence or low participation).

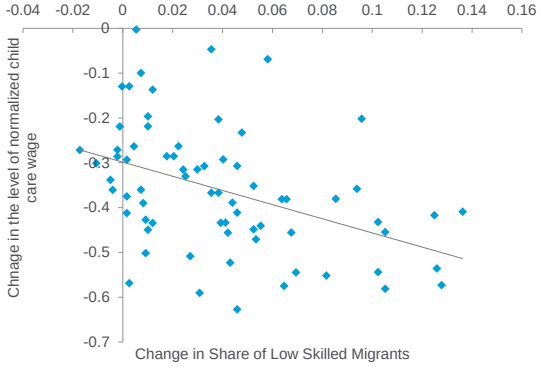
Interestingly, the decline in care service costs through migration has driven both participation and higher birth rates by alleviating the tradeoff for women between work and fertility. Furtado and Hock (2010) show the tradeoff between fertility and female labor force participation rates (among natives) is lower in U.S. cities with large numbers of migrants.

Figure 20. Correlation Between Fertility and Labour Force Participation, U.S., 1970-2000



Notes: Correlation reflects a tetrachoric correlation.
Source: Furtado and Hock (2010)

Figure 21. Low-Skilled Immigration and Wages in Child Care, U.S. Cities, 1980-2000

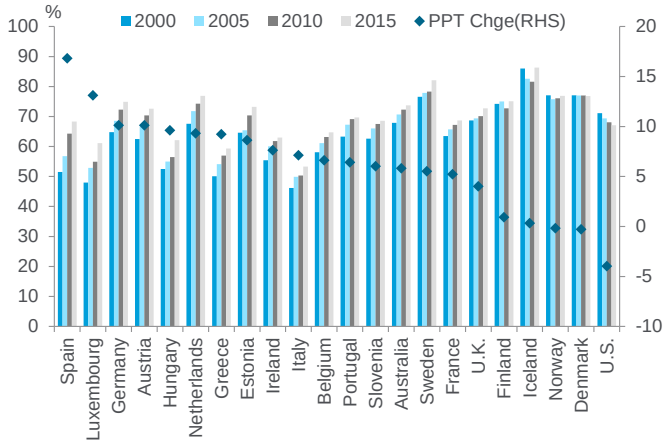


Source: Furtado and Hock (2010)

This echoes cross national analyses that show a relatively strong positive correlation between fertility levels and female labor force participation; both correlating closely with pro-natal policies that ease the tradeoff in managing both childcare and work (Englehardt and Prskawtz, 2001). This is in contrast to the historic cross national relationship between fertility and female labor force

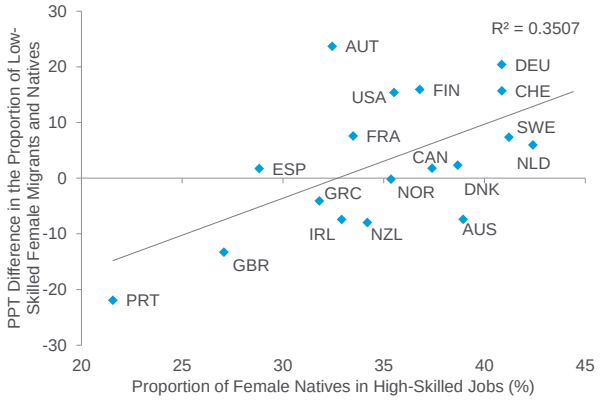
participation, that was usually negative (Lee, 2014). Affordable care services, especially for children, play a particularly extensive role in this.

Figure 22. Recent Changes in Female Labor Force Participation, 2000-2015



Source: Citi Research, OECD

Figure 23. Native Female Labor Force Participation and Low-Educated Migration: Low Education vs. High Skilled, 2000



Source: Jaumotte et al. (2016), OECD (2015)

The effect of this correlation between affordable care services and female labor force participation seems to be particularly extensive among highly-skilled women, increasing the economic impact. For example, Barone and Moretti (2011) found that low-skilled migration increased the labor force participation rate of highly-skilled native women in particular, while Amuedo-Dorantes and Sevilla Sanz (2013) find that migration is associated with less time spent by highly-skilled women on certain forms of childcare.

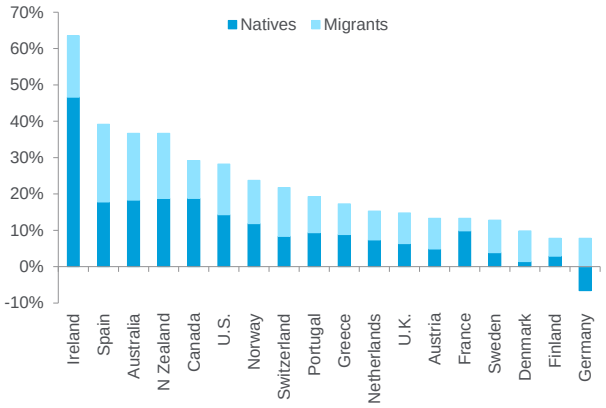
The importance of this mechanism has also been manifest in some of the debate regarding Brexit, with the U.K. Department of Health warning that a shortage of care workers could force many U.K. workers (likely disproportionately women) to quit their jobs in order to care for relatives.[7]

Given the lower age of migrants, migration often increases the ratio of workers to the total population, positively impacting GDP per capita

Migration usually improves GDP per capita, as well as aggregate GDP, by increasing the workforce disproportionately in comparison to its impact on the wider population. This is, most often, a function of migrant age (see Figure 25). In addition to the indirect effects on female labor force participation, migration often increases the ratio of workers to the total population, positively impacting GDP per capita.

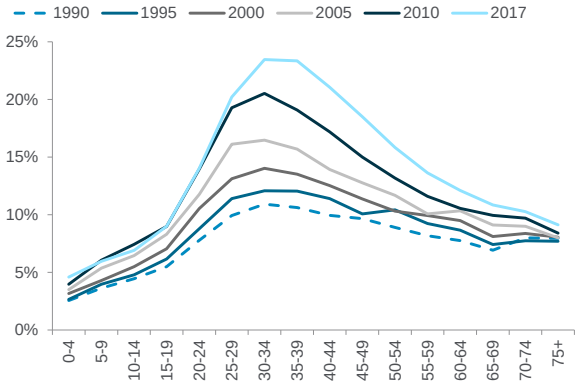
[7] The Guardian (2018).

Figure 24. Growth in Working-Age Population (25–64), Contributions of Migrants and Natives, 1990–2010 (%)



Source: Citi Research, UNPD, IMF

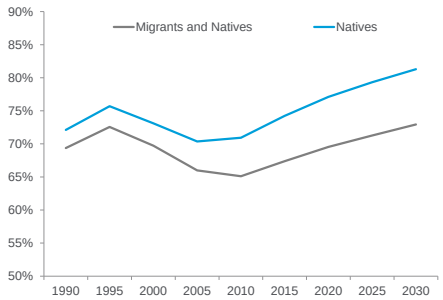
Figure 25. Migrant Population as a Share of Total Native Population, by Age, High Income Countries, 1990-2017



Source: Citi Research, UNPD

Looking here just at the direct component (the additional effect of migrants alone on the proportion of workers to dependents in the population at large) the effects of this are both significant, and expected to grow larger as native populations age. For example, we forecast the adjusted dependence ratio, in this case calculated as the total number in 'dependent' age groups (65+ and <15) divided by the forecast number of workers, is consistently higher for native populations compared to migrant and native populations combined. In the U.K., we expect this will be 9 percentage points higher among the native population alone, compared to natives and migrants combined. The figures are similar for the United States, but these gaps are often lower for the continental European economies.

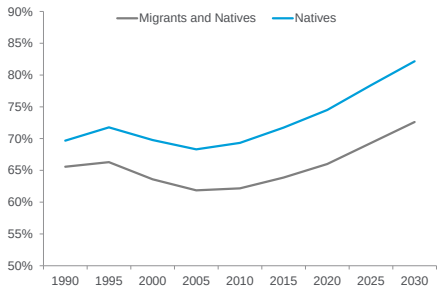
Figure 26. Employment Rate-Adjusted Dependency Ratio, U.K., 1990-2050



Note: Adjusted dependency ratio is the total number in dependent age groups divided by the total number of workers (working age population adjusted for participation and unemployment rates). UN medium variant and zero migration estimates used in forward looking population statistics.

Source: Citi Research, UNDP, ILO

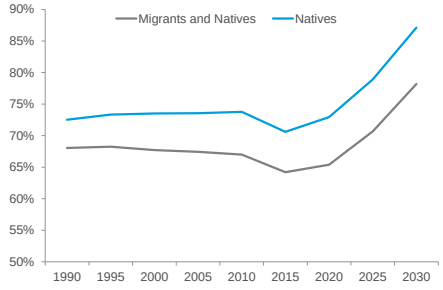
Figure 27. Employment Rate-Adjusted Dependency Ratio, U.S., 1990-2050



Note: Adjusted dependency ratio is the total number in dependent age groups divided by the total number of workers (working age population adjusted for participation and unemployment rates). UN medium variant and zero migration estimates used in forward looking population statistics.

Source: Citi Research, UNDP, ILO

Figure 28. Employment Rate-Adjusted Dependency Ratio, Germany, 1990-2050



Note: Adjusted dependency ratio is the total number in dependent age groups divided by the total number of workers (working age population adjusted for participation and unemployment rates). UN medium variant and zero migration estimates used in forward looking population statistics.

Source: Citi Research, UNDP, ILO

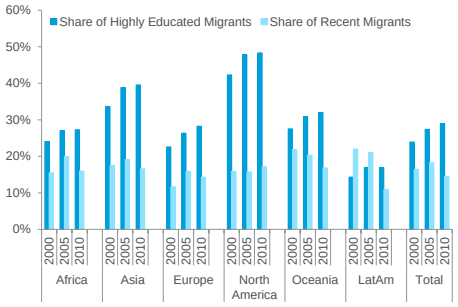
Migration is also cited as helping maintain year-over-year employment and GDP growth and increasing the size of the tertiary-educated labor force

As Clements et al. (2015) argues with respect to the fiscal burden, in the context of an increasingly aging population, migration is likely to play an important role in sustaining year-on-year employment and aggregate and GDP per capita growth.

Migration also makes important growth contributions by driving changes in human capital. In more recent periods, growing flows of high-skilled migrants have contributed to more rapid human capital growth directly. The number of migrants with a tertiary degree rose by 130 percent between 1999 and 2010, compared to

just 40 percent for low-skilled migrants. Such migrants are now the largest skill group in comparison to native OECD populations, making an increasing contribution to the size of the tertiary-educated labor force.

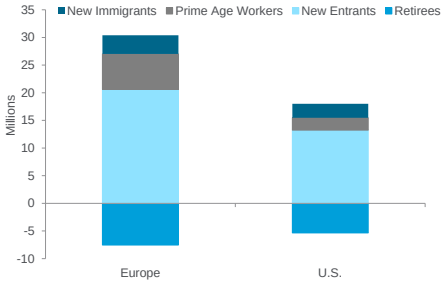
Figure 29. Share of Highly-Educated and Recent Migrants Aged 15 Years and Over in OECD Countries, by Region of Origin (Percentage of Total), 2000-2010



Note: Highly-educated migrants are defined as persons who have completed tertiary education. Recent migrants are those who have been in the destination country for five years or less.

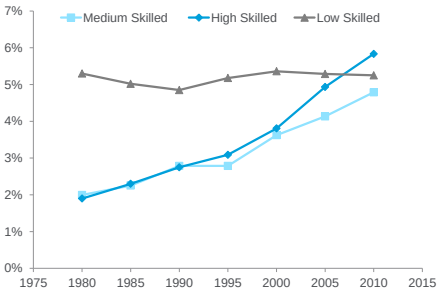
Source: Citi Research, Analysis of OECD DIOC Databases.

Figure 30. Changes in the Tertiary-Educated Labor Force, 2000-2010



Sources: OECD (2014); OECD DIOC Databases; European countries: European Labour Force Surveys (Eurostat), 2000 and 2010; United States: 2000 Census and American Community Survey 2010

Figure 31. Stock of Migrants by Skill, OECD (Percentage of Total Population), 1975-2015



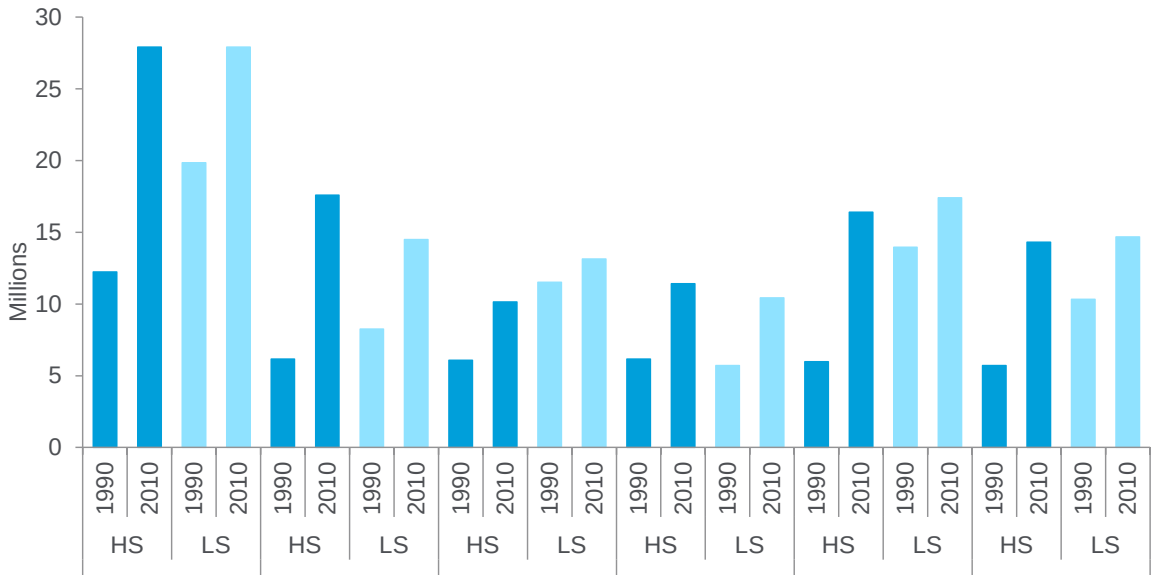
Note: The database is from the Institute for Employment Research and reports the immigrant population ages 25 years and older by gender, country of origin, and educational level for OECD countries over the years 1980–2010 (at five-year intervals). Figures are a simple average of OECD economies.

Source: Jaumotte et al. (2016)

Increasingly, highly-skilled female migrant stock is exceeding males

The feminization of these flows has been an important additional development, with the highly-skilled female migrant stock exceeding the male in all OECD economies with the exception of Spain (Kerr et al., 2016) (see Figure 32). These flows have been linked to differences not just in employment opportunities but also differences in women's rights in origin economies (Nejad and Young, 2014).

Figure 32. Migrant Stocks in OECD Countries in 1990 and 2010



Notes: High-skilled (HS) workers are defined as those with at least one year of tertiary education. Low-skilled (LS) workers are those with just a primary education. The data presented covers people of working age (25+) and pertain to 29 OECD members with consistent data from 1990 and 2010.

Source: Kerr et al. (2016); Migration patterns taken from Database on Immigrants in OECD Countries and Docquier, Lowell, and Marfouk (2009)

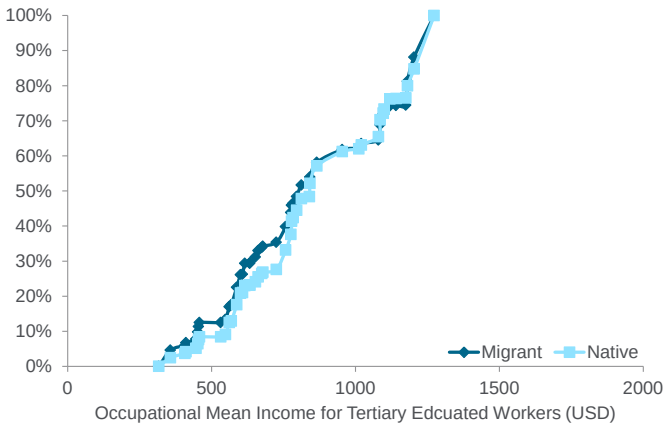
Geographic concentration of migrants means growth contributions tend to be captured regionally vs. nationally, but the scale of recent skilled migrant inflows has driven growth contributions to the national level

As discussed below, skilled migrants are often highly geographically concentrated. Often, this means the actual growth contribution is poorly captured at a national level. Instead, additional benefits of agglomeration often come into play given skilled migrants' concentration in large, dynamic cities. Nathan (2014) notes this likely boosts migrants' actual growth contribution (see Skilled Migration and Urban Agglomerations: Modern Productivity Engines).

Despite this, the scale of recent skilled inflows makes it likely that recent developments have made an aggregate difference to economic growth. This is, of course, contingent on migrant skills being recognized and subsequently matched with appropriate jobs. This can make it hard to track the skill contributions of migrants based on year-on-year inflows (Preston, 2014).

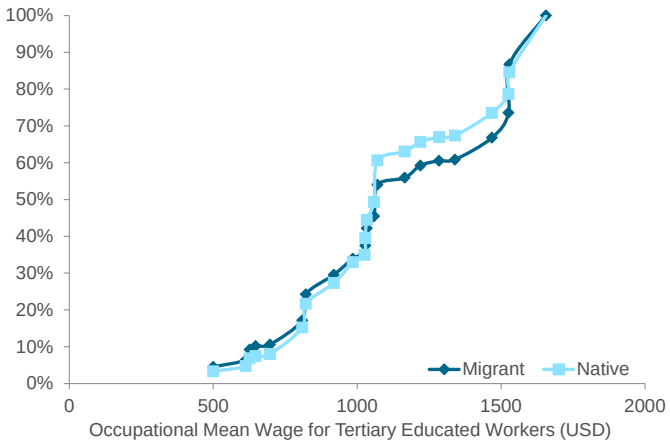
As well as in skills supply, progress seems to have been made in properly recognizing and matching migrant skills with appropriate jobs, adding to migrant growth generation. Looking at the U.S., in 2000 migrant graduates were disproportionately focused in lower paid occupations (measured by mean wages for all graduates employed in that occupation) (see Figure 33). By 2017, however, much of this seems to have disappeared (see Figure 34).

Figure 33. Cumulative Distribution of Tertiary Educated Men, by Occupational Mean Income, U.S., 2000



Note: Chart refers to full time, employed, individuals.
Source: Citi Research, CEPR-CPS

Figure 34. Cumulative Distribution of Tertiary Educated Men, by Occupational Mean Income, U.S., 2017



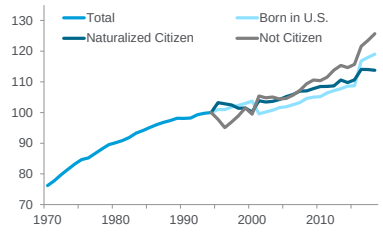
Note: Chart refers to full time, employed, individuals.
Source: Citi Research, CEPR-CPS

Improving skills mismatch for migrants as migrants spend more time in their destination country, helps generate growth

This change may be associated with certain cohort effects. As migrants spend more time in their destination country, rates of de-skilling often fall as subsequent job searching facilitates better matching. This is evidenced in a stronger wage growth trajectory for new graduate immigrants, in particular, in the initial years after migrating. Hence these differences may reflect increases in the average time spent by migrants in the U.S. (Preston, 2014).

An increase in 'skilled migration' has helped to directly increase the aggregate level of human capital while indirectly low-skilled migration has increased labor force participation for skilled women, improving the aggregate supply of skilled labor in the economy

Figure 35. U.S. Human Capital Growth, 1970-2016, Indexed (1995=100)



Source: Citi Research, CEPR-CPS

The rapid increase in 'skilled migration' in recent years suggests that, rather than diluting human capital, migration has increasingly been driving aggregate improvement. Strong growth in migrant human capital means that even those economies in which the average level of human capital remains lower than that of natives, such as in the U.S., recent improvements in migrant human capital has made a contribution to growth rates, at least in the sense of reducing the dilution effects that would otherwise result from continued net immigration. In many other OECD countries (such as the U.K.), the aggregate level of human capital is often higher than among natives. The combination of continued migration with higher levels of improvement in the skill level of migrants is likely to produce a dual benefit to growth.

While high-skilled migrants can make an important, direct contribution to human capital, low-skilled migrants can also make notable indirect contributions. As noted above, migration can play an important role in facilitating labor force participation for skilled women, likely improving the aggregate supply of skilled labor in the economy. Barone and Moretti (2011) found that low-skilled migration increased the labor force participation rate of highly-skilled native women in particular.

Hunt (2017) argues that migration can improve native human capital by increasing the incentives to complete education among natives too. In the US, they show an increase of one percentage point in the share of immigrants in the population aged 11-64 increases the probability that natives aged 11-17 eventually complete 12 years of schooling by 0.3 percentage points. So, in these circumstances, both high- and low-skill migration can have important positive impacts.

Investment and Capital per Worker Impact

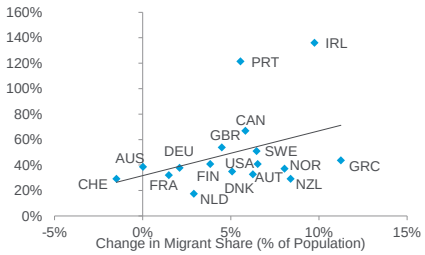
In a closed economy, a migrant-driven increase in labor force growth would, in all likelihood, increase aggregate investment but reduce the aggregate capital intensity of the economy (i.e., capital per worker would likely fall), depressing GDP per capita.[8]

Evidence suggests increases in migration (and labor supply) do not have the expected negative impact on capital per worker

However, the evidence suggests that there is very little association between changes in migration and capital per worker, with recent data actually implying a weak positive relationship (see Figure 36). Instead, migration and associated increases in the labor supply tend to increase investment returns. In open economies, this is associated with investment inflows and a subsequent return to initial levels in the ratio of capital to workers.

[8] In a standard, closed economy Solow Swann model of economic growth, higher rates of labor growth will result in a substitution between capital and labor, with a resulting fall in capital intensity of production.

Figure 36. Growth of Capital-to-Labor Ratio vs. Immigration, 1990–2010



Source: Jaumotte et al. (2016)

Much of the analysis looking at this question comes to this conclusion (Alesina et al., 2016; Ortega and Peri, 2014). Interestingly, the adjustment is often remarkably quick, with Ortega and Peri (2009) showing that, even in the short term (within a year), immigration does not dilute capital per worker, especially in a relatively open economy.[9] Rather, the ratio is usually sustained and immigration prompts further investment and growth.

There are several caveats to this. First, on a local level, an influx of low-skilled workers can depress incentives to invest by encouraging the development of less capital intensive production processes. Lewis (2011), for example, finds that low-skilled migrants in manufacturing contexts do indeed depress capital investment from where it otherwise might be, with capital per worker falling as employers move to more labor-intensive processes.

A sufficiently large, rapid inflow of migrants could change an economy's 'comparative advantage,' by pushing these economies towards more labor-intensive exports and economic activity and depressing aggregate economic growth in the longer term. At an aggregate level and in the longer term, however, there is relatively little evidence of either effect. These effects are notable on a local level, but they are also relatively short lived, localized and thus not relevant to the aggregate discussion here.

Implications: Migration and Recent Growth

We model the direct contribution of migration to growth and find a strong, positive economic impact on aggregate growth resulting from migration

We model the direct contribution of migration to growth using a standard, neo-classical, growth model (see Appendix 1 – Growth Methodology). Our model compares how the economy has grown with migrants and natives as a whole with the growth in the native economy alone. Here we look primarily at the respective rates of labor force growth.

Given the indirect mechanisms noted above, as well as the impact of migration on total factor productivity (see below), our forecasts are likely conservative in comparison to the true impact of migration on GDP growth. Despite this, they still show a strong, positive economic impact on aggregate growth resulting from migration.

In our analysis, we try to focus on the portion of headline growth attributable to migrants

We model the migration in this way to focus in on the likely marginal impact of migration on GDP growth, versus a counter-factual case where there wasn't additional labor supply. In other words, we are trying to focus in on the portion of recent headline growth attributable to migrants and migration. Here we assume no impact of migration on aggregate native wage levels or employment, reflecting our findings discussed in the labor market section of this report.

The models show growth rates of the total economy and that of the native economy – the difference is the effect of migration on economic growth

If growth rates of the native economy, and the larger total economy (including migrants) are the same, then migrants (via their impact on labor supply) have made a contribution to growth proportional to, but not exceeding, that in the native economy. If, however, growth in the native economy lags that in the total, then even in the short term, migration (at least with respect to its impact on the labor market) is likely making a disproportionately large contribution to growth.

To calculate this we pull data from Penn World Tables on real GDP (in local currency), labor quality, capital growth, and labor share of income. Added to this, we substitute our own estimates of hours worked, both as it has developed in recent years and under a counter-factual, no migrant, scenario (assuming labor market

[9] Several others have concluded similarly. Capital is generally thought to 'chase' migrant labor (Kenan, 2013), at the aggregate level.

outcomes are independent among both groups[10]). Based on the literature above, we assume a constant capital-to-effective labor ratio, reflecting the wider findings noted above. For more details on how we calculate these estimates, please see Appendix 1 – Growth Methodology.

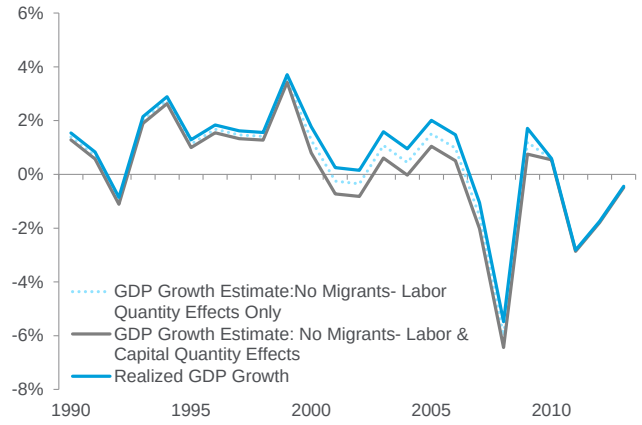
Not accounting for the increase in labor quality associated with migrants, our models find that migration has had a substantial positive impact on recent economic growth

Using initially a model that does not account for changes in aggregate labor quality associated with migrants, we find migration has had a substantial impact on recent economic growth, increasing growth for the aggregate economy above that resulting from natives alone. This impact, however, does vary within the OECD. Some of the largest impacts are in the Southern European economies where growth between 1990 and 2014 would have been between 20-30 percentage points lower across the period as a whole in the absence of immigrants.

Positive migration impacts are seen in the U.K., the U.S. and Southern European economies over the 1990-2014 time period

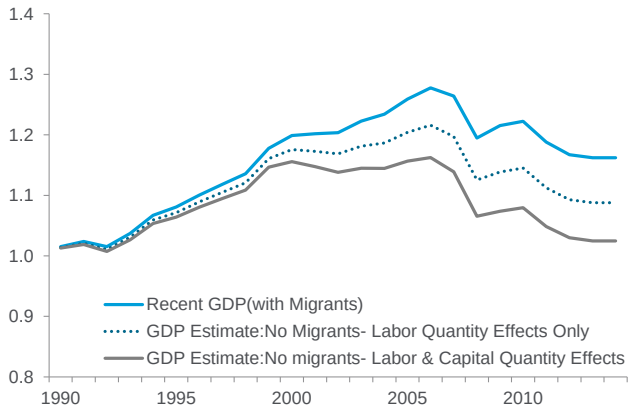
These effects are similarly high in some Anglo-Saxon economies, with the U.K. also seeing economic growth of around 20 percentage points less without migrants while, if immigration had been frozen in 1990 (instead of being completely absent), the economy would be around 9% smaller than it is now. In the U.S., total economic growth between 1990 and 2016 would have been roughly 15 percentage points lower than it actually has been without migration, while in Australia, the equivalent gap between 1990 and 2014 is less extensive, implying equal rates of growth in the native and migrant economies.

Figure 37. Recent Developments in GDP Growth With and Without Migration, Italy, 1990-2014



Source: Citi Research; OECD (2018); ILO (2018)

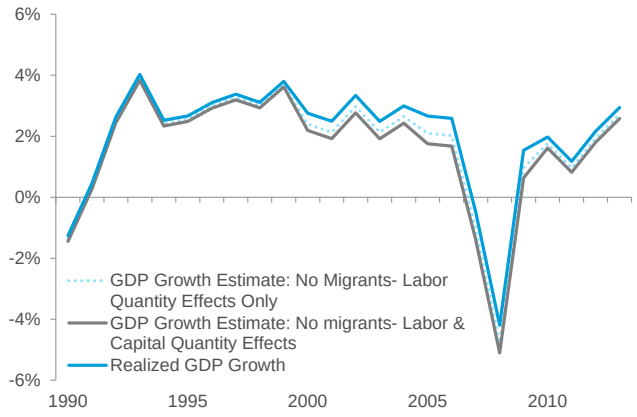
Figure 38. Recent Developments in GDP With and Without Migration, Italy, 1990-2014, Indexed (1990=1)



Source: Citi Research; OECD (2018); ILO (2018)

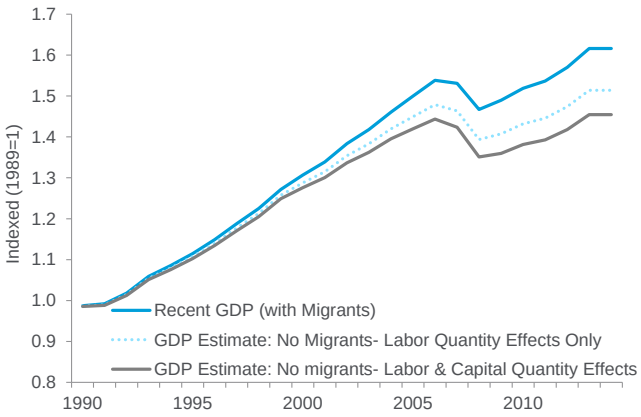
[10] This reflects our findings elsewhere in the report that, at the aggregate level, there are few links between migration and native labor force outcomes.

Figure 39. Recent Developments in GDP Growth With and Without Migration, United Kingdom, 1990-2014



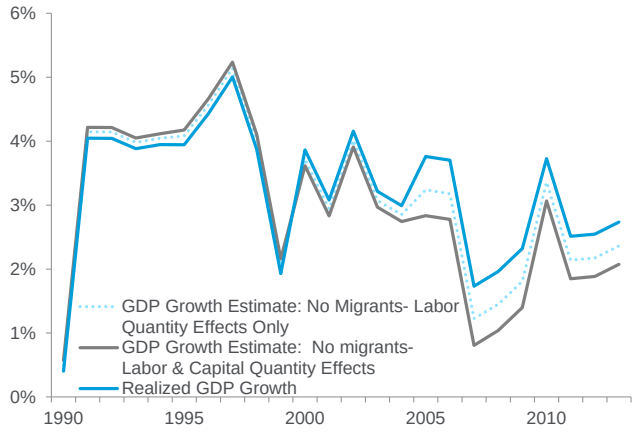
Source: Citi Research; OECD (2018); ILO (2018)

Figure 40. Recent Developments in GDP With and Without Migration, United Kingdom, 1990-2014, Indexed (1990=1)



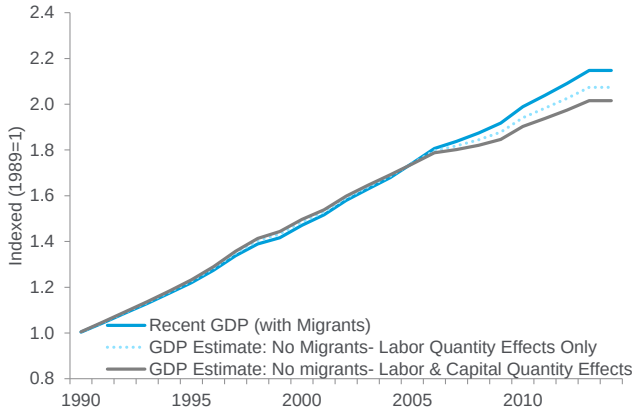
Source: Citi Research; OECD (2018); ILO (2018)

Figure 41. Recent Developments in GDP Growth With and Without Migration, Australia, 1990-2014



Source: Citi Research; OECD (2018); ILO (2018)

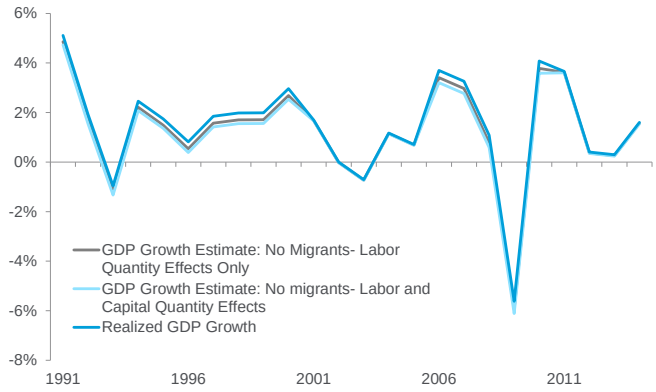
Figure 42. Recent Developments in GDP With and Without Migration, Australia, 1990-2014, Indexed (1990=1)



Source: Citi Research; OECD (2018); ILO (2018)

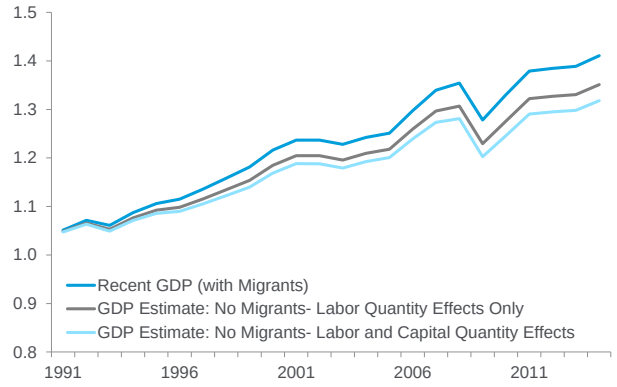
Continental Europe shows the greatest variation, with growth differentials between France relatively low (reflecting a lesser degree of population aging); while in Germany they are relatively high.

Figure 43. Recent Developments in GDP Growth With and Without Migration, Germany, 1990-2014



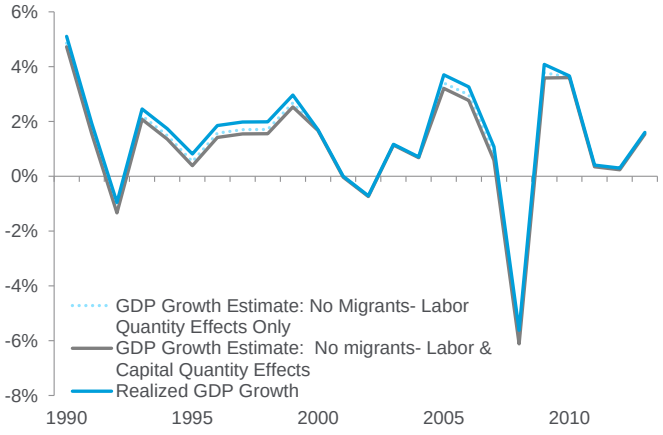
Source: Citi Research; OECD (2018); ILO (2018)

Figure 44. Recent Developments in GDP With and Without Migration, Germany, 1990-2014



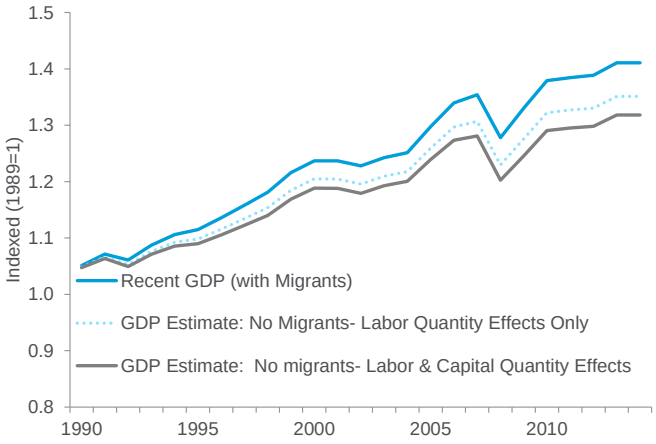
Source: Citi Research; OECD (2018); ILO (2018)

Figure 45. Recent Developments in GDP Growth With and Without Migration, France, 1990-2014



Source: Citi Research; OECD (2018); ILO (2018)

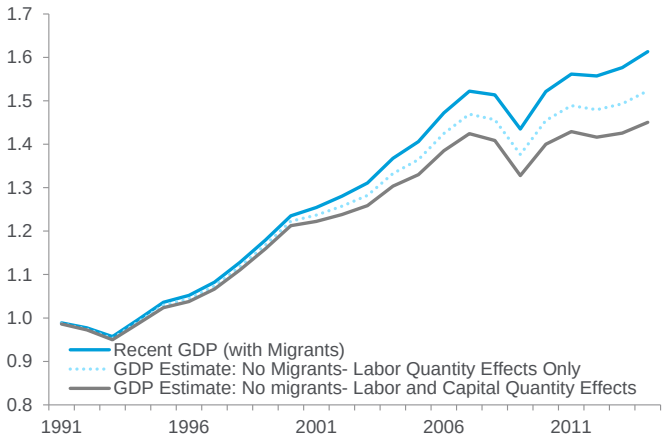
Figure 46. Recent Developments in GDP With and Without Migration, France, 1990-2014



Source: Citi Research; OECD (2018); ILO (2018)

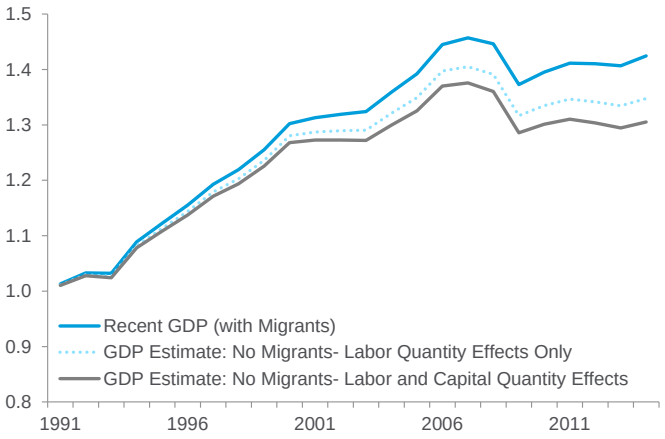
In the Nordic economies, migration also seems to have had a relatively extensive impact, with both Denmark and Sweden seeing potential growth boosts of around 20 percentage points, since 1990, owing to immigrants.

Figure 47. Recent Developments in GDP With and Without Migration, Sweden, 1990-2014



Source: Citi Research; OECD (2018); ILO (2018)

Figure 48. Recent Developments in GDP With and Without Migration, Denmark, 1990-2014



Source: Citi Research; OECD (2018); ILO (2018)

Recent Impact in the United States

Looking at the U.S., we expand our analysis to include changing labor quality growth and differentiate by skill level

We have taken a more granular approach to our analysis of the U.S. Here we also compare growth in the native economy, to that of the migrant economy. However, we include measures of both changing labor quantity and quality growth associated with migration here. We also differentiate respective labor market indicators by age, gender, migrant status, and education, expanding beyond our model in the section above.

Measuring Labor Quality

It is difficult to include measures of labor quality due to skills and wage mismatches for migrants

Including measures of labor quality is a challenge. As we noted above, migrant education is not necessarily 'labor quality' in this case. Migrants often suffer de-skilling (Preston, 2014) and the resulting skills mismatch means that measuring education reflects potential, rather than realized growth contributions.

At the same time, measuring individual wage outcomes is also unsatisfactory. This approach is often used, even in some of the more advanced modelling (Lisenkova and Sanchez-Martinez, 2016). However, in many cases, migrants face penalties in their incomes even when employed in the same occupations and often, seemingly, exemplifying similar levels of productivity (De Jong and Madamba, 2001: U.S.; Platt, 2011: U.K.; Nielsen, 2013; other).

These effects often apply in the long term as well, with evidence of an immigrant inventor wage-gap that cannot be explained by differentials in productivity in the U.S. over many decades (Akcigit et al., 2017). In such a case, additional migrant productivity still drives aggregate economic growth, but this is accrued elsewhere; this should still be counted as part of aggregate economic growth.

Our approach looks at the distribution of migrants and natives across different occupations and education levels and determines their 'quality' by comparing education level-occupation mean wage with aggregate mean wage

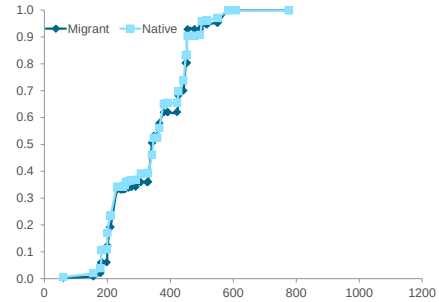
In order to try and find a compromise, we have chosen to measure labor quality by looking at the distribution of migrants and natives across different occupations and education level pairs, measuring their subsequent 'quality' according to the educational level and occupation mean wage as compared to the aggregate mean wage in each respective time period.

Such an approach yields several interesting results. Female migrants, in particular, are often focused disproportionately in lower value occupations in comparison to native women of similar education levels, even among those that are employed full time. This is true at both a tertiary and secondary level in the U.S. and France, while outcomes for male migrants and natives, for respective education levels, are relatively similar. This, again, highlights the importance of better labor market integration amongst this group.

In the U.S., there is no obvious distinction between migrant and native men regarding their occupational distribution

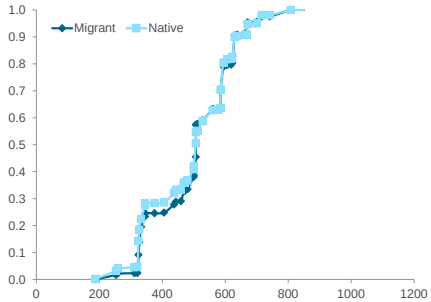
In the United States, there has not been any obvious distinction between migrant and native men regarding their occupational distribution (controlling for education level). In comparison to 1995-2000, more recent periods (2010-2017) have seen migrants with a secondary education become increasingly concentrated among those in lower value occupations compared to their native peers. However, among graduates, the inverse is true, with migrants potentially becoming more concentrated among higher skill occupations in comparison to natives.

Figure 49. Cumulative Distribution of Men with Primary Education, by Occupational Mean Income, U.S., 1995



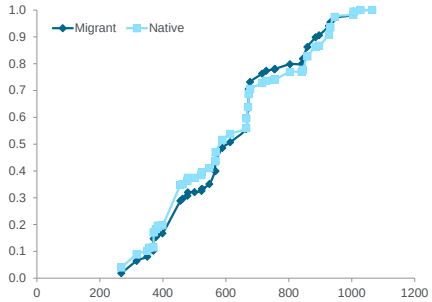
Note: Chart refers to full time, employed, individuals.
Source: Citi Research, CEPR-CPS

Figure 50. Cumulative Distribution of Men with Secondary Education, by Occupational Mean Income, U.S., 1995



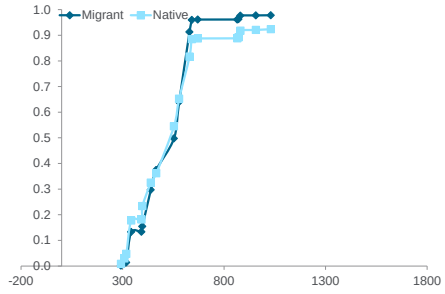
Note: Chart refers to full time, employed, individuals.
Source: Citi Research, CEPR-CPS

Figure 51. Cumulative Distribution of Men with Tertiary Education, by Occupational Mean Income, U.S., 1995



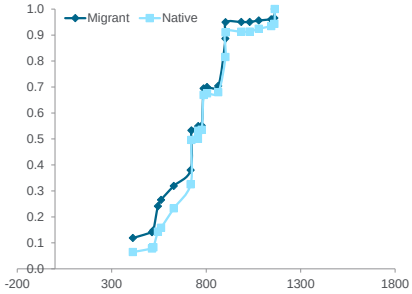
Note: Chart refers to full time, employed, individuals.
Source: Citi Research, CEPR-CPS

Figure 52. Cumulative Distribution of Men with Primary Education, by Occupational Mean Income, U.S., 2017



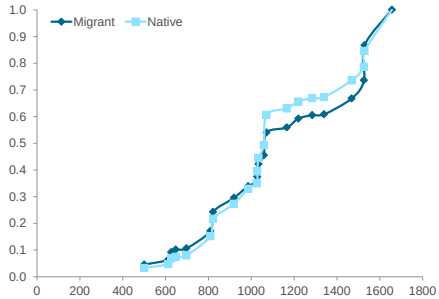
Note: Chart refers to full time, employed, individuals.
Source: Citi Research, CEPR-CPS

Figure 53. Cumulative Distribution of Men with Secondary Education, by Occupational Mean Income, U.S., 2017



Note: Chart refers to full time, employed, individuals.
Source: Citi Research, CEPR-CPS

Figure 54. Cumulative Distribution of Men with Tertiary Education, by Occupational Mean Income, U.S., 2017

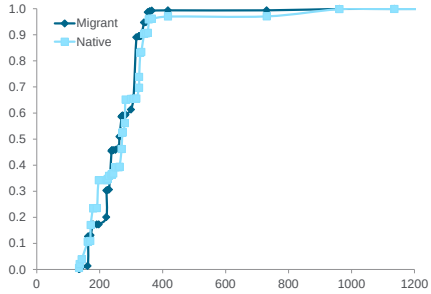


Note: Chart refers to full time, employed, individuals.
Source: Citi Research, CEPR-CPS

However, there is a distinction among women where tertiary-educated female migrants have given way to occupational disadvantage

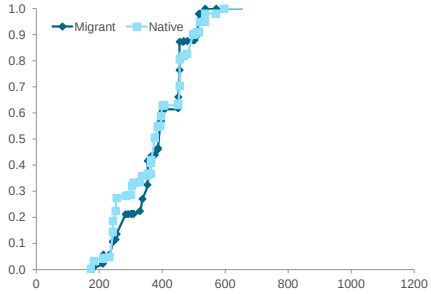
However, it is among women that a new occupational split has increasingly developed. Relative occupational equality among secondary levels of education and an advantage among tertiary educated female migrants seem to have given way to occupational disadvantage, with migrants increasingly concentrated among lower value occupations compared to their native female peers.

Figure 55. Cumulative Distribution of Women with Primary Education, by Occupational Mean Income, U.S., 1995



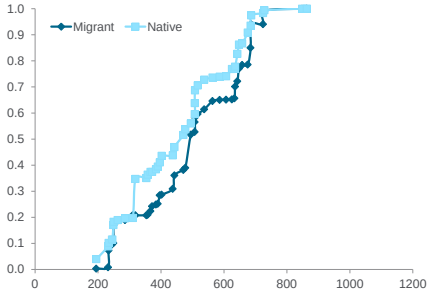
Note: Chart refers to full time, employed, individuals.
Source: Citi Research, CEPR-CPS

Figure 56. Cumulative Distribution of Women with Secondary Education, by Occupational Mean Income, U.S., 1995



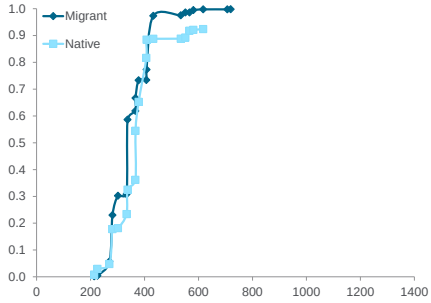
Note: Chart refers to full time, employed, individuals.
Source: Citi Research, CEPR-CPS

Figure 57. Cumulative Distribution of Women with Tertiary Education, by Occupational Mean Income, U.S., 1995



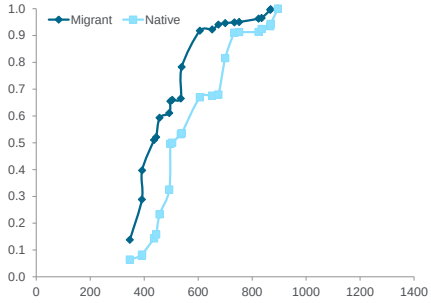
Note: Chart refers to full time, employed, individuals.
Source: Citi Research, CEPR-CPS

Figure 58. Cumulative Distribution of Women with Secondary Education, by Occupational Mean Income, U.S., 2017



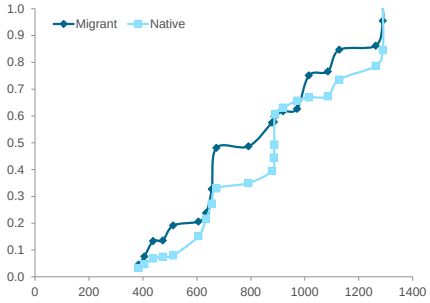
Note: Chart refers to full time, employed, individuals.
Source: Citi Research, CEPR-CPS

Figure 59. Cumulative Distribution of Women with Secondary Education, by Occupational Mean Income, U.S., 2017



Note: Chart refers to full time, employed, individuals.
Source: Citi Research, CEPR-CPS

Figure 60. Cumulative Distribution of Women with Tertiary Education, by Occupational Mean Income, U.S., 2017

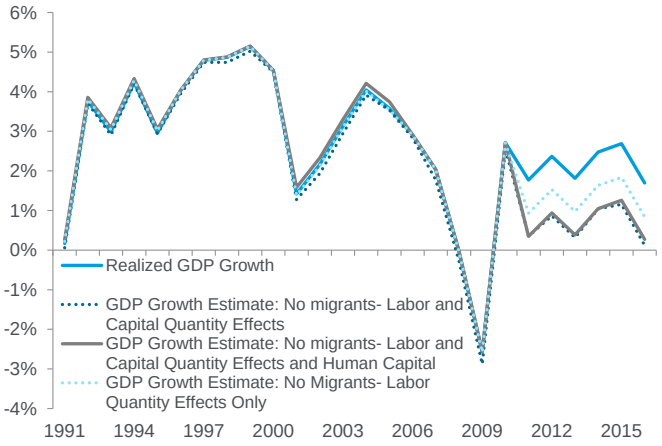


Note: Chart refers to full time, employed, individuals.
Source: Citi Research, CEPR-CPS

Our model suggests U.S. aggregate economic growth from 2011 to 2016 would have been 1.5 percentage points lower in the absence of labor quantity and quality growth among migrants

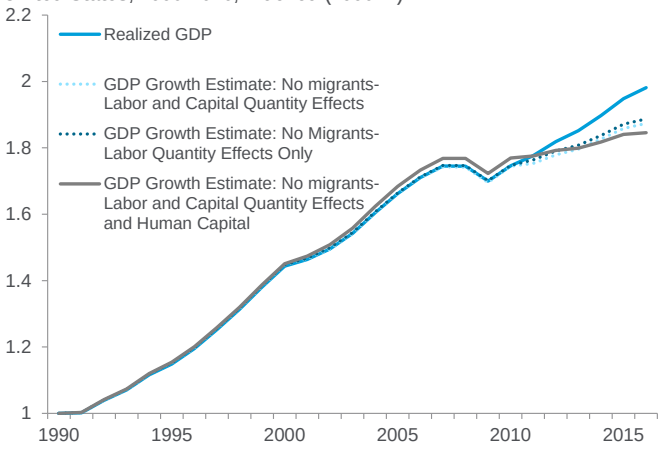
Having controlled for direct migrant impact on labor quality, we find a notable recent divergence in the United States between growth rates among natives, compared to the economy as a whole. From 2011 to 2016 in particular, aggregate economic growth in the United States would have been roughly 1.5 percentage points lower in the absence of labor quantity and quality growth among migrants, compared to what has otherwise been realized. While not quite putting the U.S. in recession, this is enough to cancel out the majority of post crisis gains. This sudden change in the impact of migration reflects a combination of falling post crisis total factor productivity growth, alongside stagnant female labor force participation growth.

Figure 61. Recent Developments in GDP Growth With and Without Migration, United States, 1990-2016



Source: Citi Research; CPS (2018); OECD (2018); ILO (2018)

Figure 62. Recent Developments in GDP With and Without Migration, United States, 1990-2016, Indexed (1990=1)



Source: Citi Research; CPS (2018); OECD (2018); ILO (2018)

Impact on Per Capita Prosperity

In addition to positive effects on aggregate economic growth, migration has also increased per capita growth reflecting the concentration of working-age cohorts in migrant stocks

Our modelling above implies that migration has played an important part, in this case solely via direct labor market impacts, on aggregate economic growth. Without migration, these economies would likely have grown at a slower rate since 1990. Interestingly, beyond the impact on aggregate growth, migration seems to have driven per capita growth too. This follows from the results above, reflecting the growing concentration of migrants among those of working age.

In the U.K., migration resulted in a 16.6 percentage point increase in aggregate GDP from 1990 to 2016 and an 8 percentage point increase in total population

In the U.K., for example, we estimate labor effects resulting from migration has driven a 16.6 percentage point increase in aggregate GDP between 1990 and 2016. At the same time, migration resulted in an 8 percentage point increase in the total population. In very crude terms, then, this implies a net positive impact on GDP per capita. Even if these figures are not currently salient in debates around migration, they betray important macroeconomic realities.

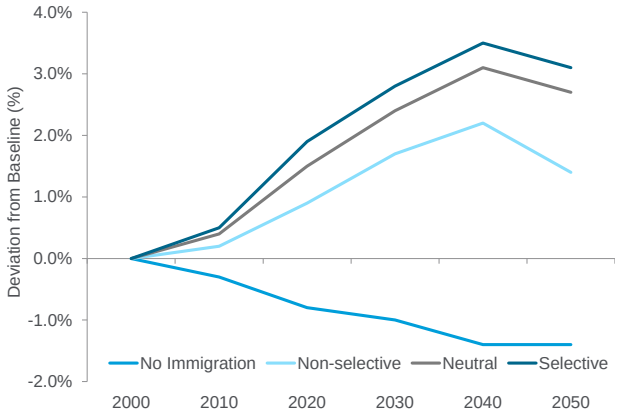
This indicates disruption to current immigration flows could depress growth on a forward-looking basis

These findings are corroborated by other research looking at the direct impact of migration on growth. Notably, these not only corroborate our historical findings, but also suggest that disruption to current immigration flows could depress growth on a forward-looking basis.

Looking at the France, for example, Chojnicki and Ragot (2011) find that a case in which net migration falls to zero, from 2000, would likely result in a percentage point gap in GDP per capita that exceeds 3 percent by 2040. Similarly, in the U.K., Lisenkova and Sanchez-Martinez (2016) find that even the additional restrictions that could potentially result from Brexit would reduce GDP per capita (see Figure 64).[11]

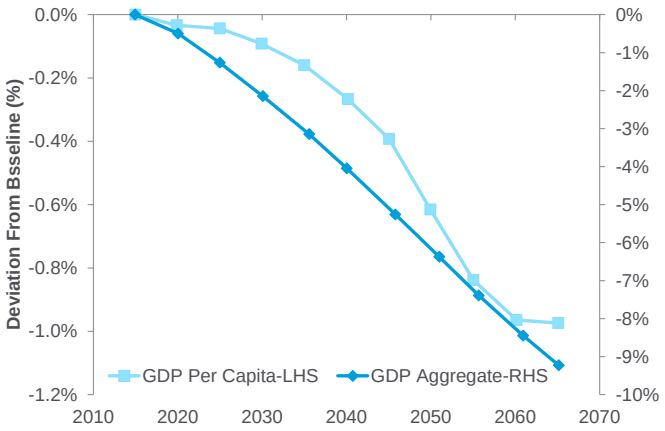
[11] Lisenkova and Sanchez-Martinez (2016) conceive of a Brexit scenario in which migration from the EU 15 and the New EU fall by two thirds and three quarters respectively. Migration from outside the EU is unaffected.

Figure 63. Percentage Point GDP Change in Different Migration Scenarios, France, 2000-2050



Source: Chojnicki and Ragot (2011), Citi Research

Figure 64. GDP in 'Leave Scenario' Case (Falling Immigration), U.K., 2015-2065



Source: Linenkova and Sanchez-Martinez (2016), Citi Research

What Are We Missing?

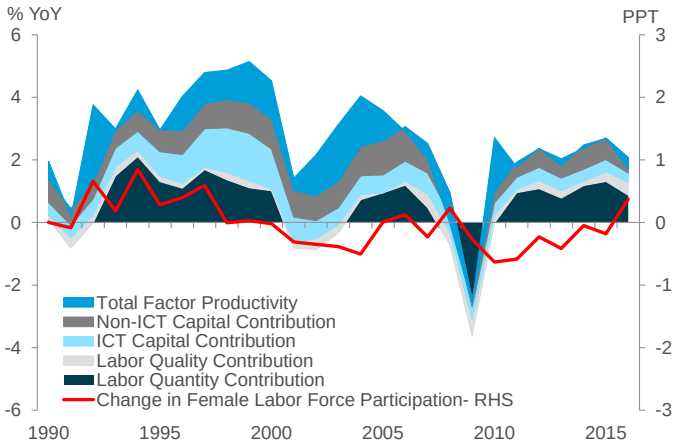
There are three particularly notable omissions from our modelling.

Missing from our modeling: (1) the indirect effects of migration; (2) the potential impact of migration on labor market outcomes for natives; and (3) any impact from migrants on total factor productivity

First, we miss all of the indirect effects of migration that we discussed in the first part of this section. We think this likely played an important role in our finding in the United States, in particular, with a sudden change in the growth contribution of migration around 2011 potentially reflecting a changing balance between direct and indirect labor market effects associated with migration.

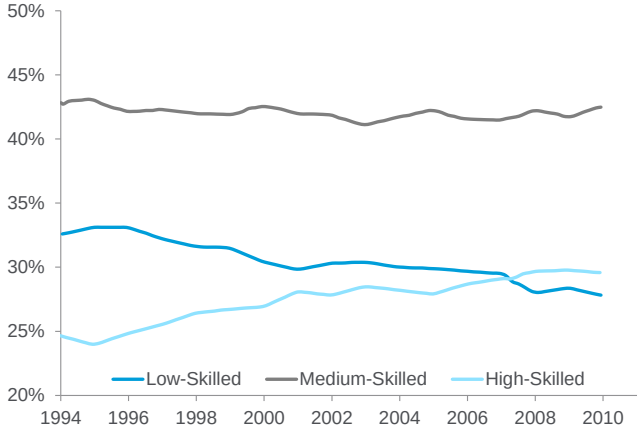
Labor force growth has played a consistent and significant part in aggregate U.S. economic growth since 1990. We suspect migration may have played a more indirect role in labor quantity growth during this period, not captured by the above model. The same may also be true of human capital effects. With migrants into the United States increasingly growing more highly skilled, this may have altered the balance between direct and indirect human capital effects, with the first becoming more predominant in recent years. The inclusion of indirect effects would likely increase both the scale and duration of migration's growth-generative effects here.

Figure 65. Components of U.S. Economic Growth and Change in Female Labor Force Participation, 1990-2016



Source: Citi Research, Conference Board (2016)

Figure 66. Share of Low-, Middle-, and High-Skilled Immigrants in the U.S., 1994-2010



Source: Brookings (2016), CPS

Second, we exclude migration's potential impact on the labor market outcomes of natives, assuming these to be insignificant in aggregate. As we note in the inequality section, migration can have an important impact on both wage distribution (Dustmann, Frattini, and Preston, 2012), as well as on wages and unemployment in local areas, and in specific occupations (Nickell and Saleheen, 2015). In aggregate, however, we assume there is little impact on wage outcomes, taking what we see as a conservative interpretation of much of the literature (Card, 1990; Peri, Shih, and Sparber, 2015; Friedberg, 2001; Hunt, 1992; Ottaviano and Peri, 2012; Docquier, Ozden, and Peri, 2014; Foged and Peri, 2016).

Lastly, we do not take into account any of the potential impacts of migration on total factor productivity. Several recent studies have suggested this may be the most significant single channel through which immigration alters aggregate income, especially in the longer term (Aleksynska and Tritah, 2015). We discuss this in the next chapter.

Migration and Innovation

Both public perceptions and analytic evaluations of the costs and benefits of migration tend to be focused on the short term. While it is vital to understand these shorter-term implications of migration for wages, unemployment, taxes, public expenditures, housing, education, and beyond, it is at least as important to consider the longer term implications too.

Two ways to generate innovation in an economy are to increase the number of highly-educated workers and introduce diversity into the workplace

Knowledge, entrepreneurship, and technology are the driving forces of a dynamic economy. Two reliable ways to generate ideas and innovation in an economy are to increase the number of highly-educated workers, and introduce diversity into the workplace. Both of these objectives are advanced through immigration; experience of countries like the US bears this out. While productivity growth in the US has been sluggish, the industries accounting for the highest economic and productivity growth have high concentrations of migrants.

Fareed Zakaria argues that the global "edge" of the U.S. and its "ability to invent the future" rest on high levels of immigration." In his book, *The Post-American World*, he writes:

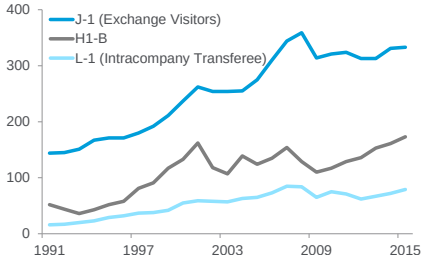
> *"America has found a way to keep itself constantly revitalized by streams of people who are looking to make a new life in a new world… America has been able to tap this energy, manage diversity, assimilate newcomers, and move ahead economically. Ultimately, this is what sets the country apart from the experience of Britain and … other historical examples of the great economic powers…"*

Fareed Zakaria highlights the significance of immigrants in driving revitalization and innovation in the U.S.

We believe Zakaria correctly highlights the significance of immigrants in driving re-vitalization and innovation. The U.S. has long benefited from the creative and intellectual contributions of its migrants. Immigrants have made up more than three times as many Nobel Laureates, National Academy of Science members, and Academy Award film directors as would be expected from the migrant share of the population. They include the winners of 56 Fields medals in mathematics and some 40 percent of all Fortune 500 companies were founded by first- or second-generation immigrants (Anderson, 2013). Immigrants are founders of some of the most recognizable firms, including Google, Intel, PayPal, eBay, and Yahoo. Some of the evidence for public companies suggests that immigrants are three times as likely as natives to start highly successful firms (MGI, 2016).

The U.S. is not however an exception as immigration similarly has given rise to periods of dynamism in other countries. In the U.K., for example, one-third of all Man Booker winners have been migrants. As Robert Winder noted in his book *Bloody Foreigners*, immigrants have contributed to successive waves of innovation in industry, finance, and the arts and a similar story can be told for many dynamic economies. Similarly, Robert Guest, in his book, *Borderless Economics*, also discussed the dynamic role played by migrants in a range of countries, including China.

Figure 67. Temporary Work Visas Issued in Categories with Many High-Skill Workers, U.S., 1991–2015, Thousands



Source: Science and Engineering Indicators 2018, Citi Research

Studies find higher rates of temporary high-skilled worker admissions substantially increased rates of innovation — for both migrants and natives

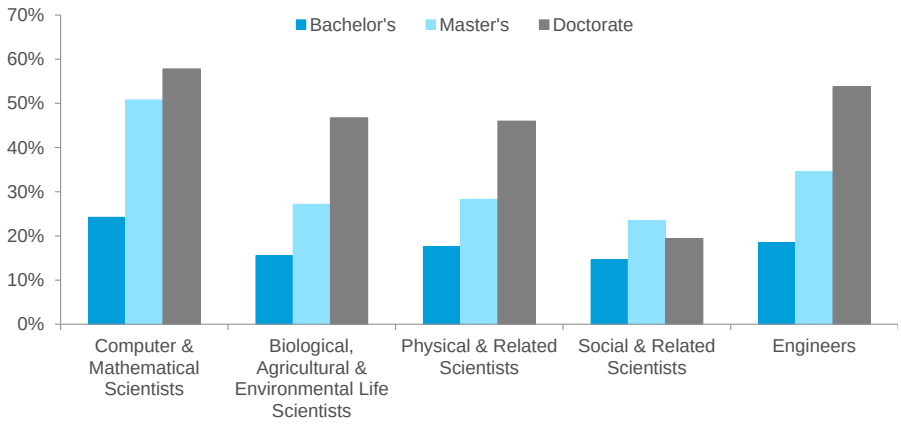
All of these substantial impacts can, at times, be hard to pin down in the aggregate data. However, Harvard researchers William Kerr and William Lincoln make a direct connection between U.S. immigration policy that is open to skilled workers and information technology innovation. They find that higher rates of temporary high-skilled admissions (through higher levels of H-1B visas) "substantially increased" rates of invention (measured via patents). Importantly, increased numbers of skilled migrants not only increased migration's contribution to innovation, but also likely that of natives. The same effects are increasingly observable in aggregate total factor productivity data.

Migrants drive greater innovation through: (1) concentration in regional and occupational centers of innovation; (2) disproportionate issuance of patents and as entrepreneurs; (3) various second-order effects based on diversity; and (4) global awareness

How exactly do migrants drive greater innovation? We identify four mechanisms. First, migrants tend to concentrate in the most innovative areas of the economy, compared to the population as a whole. This can help fill acute skill shortages and drive aggregate productivity at a faster rate. This holds in both terms of geographic regions (with migrants often clustering towards the most innovative cities), and in terms of skills and occupations.

In 2015, immigrants accounted for 45 percent of the U.S. workforce with a science or engineering doctorate, with immigrants making up higher share of S&E occupations as the level of education increased. In computer and mathematical sciences 60 percent of U.S. workers are foreign born and in engineering the immigrant share is around 55 percent nationwide, with 64 percent of engineers in Silicon Valley are foreign-born (FT, 2014).

Figure 68. Foreign-born Scientists and Engineers Employed in S&E Occupations, by Highest Degree Level and Occupational Category, U.S. % Total, 2015

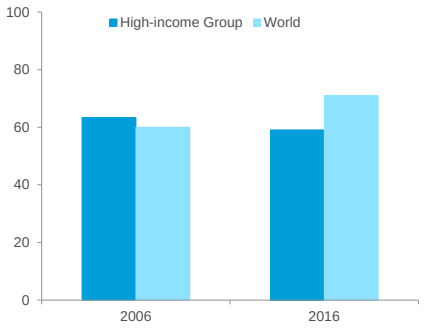


Source: Citi Research, Science and Engineering Indicators 2018

Second, skilled migrants make disproportionate contributions to economic innovation, both through issuing patents and as entrepreneurs in comparison to equivalent natives. It has long been argued entrepreneurial individuals typically self-select as migrants, believing they will acquire higher rewards (Borjas, 1987). Migrants are by nature more likely to take risk as they have already taken the decision to leave their communities and homes to travel and find a new life. Not everyone becomes a migrant and so they tend on average to be more prepared to explore new places and ideas than others.

Not surprising they are more likely to start businesses and be entrepreneurs. Not only because they are willing to take more risk, but also as they do not have networks and careers built for them in host country. In the U.S. as a whole, around 40 percent of global patent applications are filed by immigrants as inventors or co-inventors and immigrants are three times more likely than natives to file patents. (MGI and Goldin, 2012). At leading science firms, immigrants file the majority of patents: 72 percent of the total at Qualcomm, 65 percent at Merck, 64 percent at General Electric, and 60 percent at Cisco. Among high-income countries, the share of patents filed by nonresidents also seems to be growing (See Figure 69).

Figure 69. Share of Patents Filed by Residents, Percentage Total



Source: Citi Research, World intellectual Property Indicators, 2017

More than a half of business start-ups in Silicon Valley involve a foreign-born scientist or engineer and approximately half of all venture capital-backed firms and 30 percent of such firms taken public have at least one immigrant founder. Furthermore, a 2016 study found that more than half of U.S. startups valued at $1 billion or more that have yet to go public — the so-called unicorns with potential for high growth and job creation — have at least one immigrant co-founder. (MGI, 2016).

Third, in addition to their higher contributions to innovation and business start-ups, higher rates of immigration also have second-order effects on innovation. Skilled and unskilled migrants can contribute to higher productivity by increasing specialization across the economy as a whole, yielding wider productivity benefits (Borjas, 2012). Diversity is also closely and directly linked to innovation on a firm and regional level. Migrants are different from the host population and potentially see things differently from the native group and allowing them to challenge pre-existing business, further driving productivity benefits. Diversity, directly and via higher productivity, also plays a key role in attracting and retaining creative and talented people to cities (Florida, 2002), driving further innovation.

Fourth, migration can help foster better international trade, investment, and technology based linkages which boost productivity. Migrants not only bring an established set of pre-existing international links with them, but are also more willing to explore globally, spotting new opportunities and potential innovations.

We suspect many of the dynamics on innovation create cycles of prosperity for cities that are able to attract and utilize migrants effectively: Innovation begets immigration, and immigration drives innovation. Economic geographer Richard Florida argues that diversity increases a region or city's ability to compete for talent. Subsequent innovation and further economic outperformance can then underpin further skilled immigration, with the cycle repeating all over again (Beaverstock, 2012). This poses an important additional question for many advanced economies: how best can benefits from these ecosystems be best shared over a greater geographic scope?

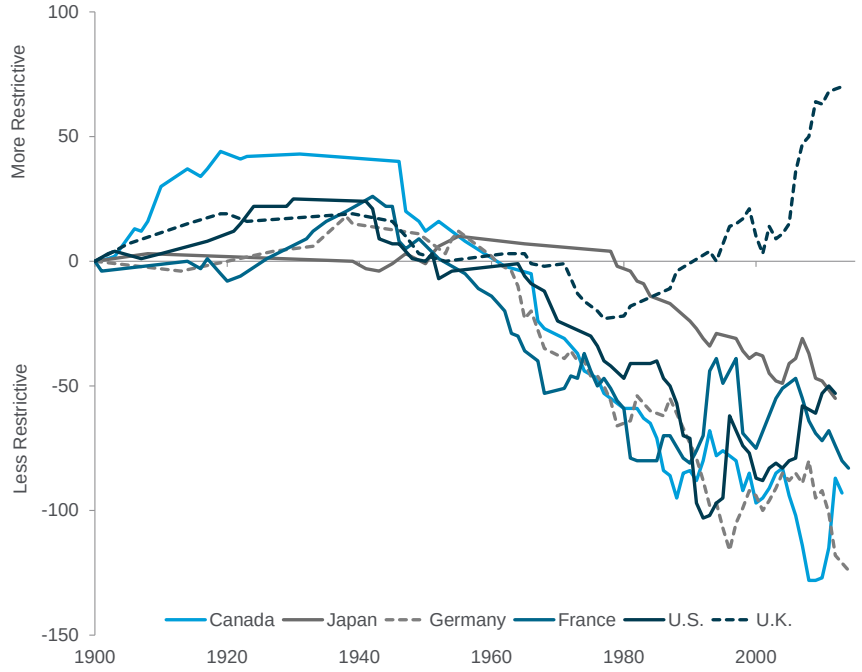
Migration and Total Factor Productivity

The long-term impact of immigration on productivity is likely more significant than many short-term impacts on labor markets but this is difficult to measure

Goldin (2011) shows that the dynamic long-term impact of immigration on productivity is likely to be more significant than many shorter-term labor market impacts. The effects of this, however, are hard to pin down and can at best only be measured through proxy indicators and instrumental methodologies. While there is a growing body of evidence regarding the contribution of immigrants to the dynamism of societies, identifying the relation between immigration and productivity remains difficult.

Changes in migration policy may, however, be having important implications for productivity. One possible factor behind the sharp decline in productivity in the OECD countries over the past fifteen years may have been an end to the multi-decade trend towards greater immigration liberalization (see Figure 70), though evidence for a link between migration and the wider slowdown in productivity remains purely circumstantial. There does, however, appear to be a causal link between immigration and total factor productivity growth in specific cases (see below).

Figure 70. Cumulative Permissiveness of Immigration Policies, Select Countries, 1990-2015



Notes: Each change in legislation is scored by whether it is 1) more or less permissive and 2) how extensive the change is.

Source: Citi Research; Demig Policy Database

Measuring Migration's Impact on Total Factor Productivity

Studies based on refugee waves and productivity and on migration policies in Europe and their effects on productivity have both come up inconclusive

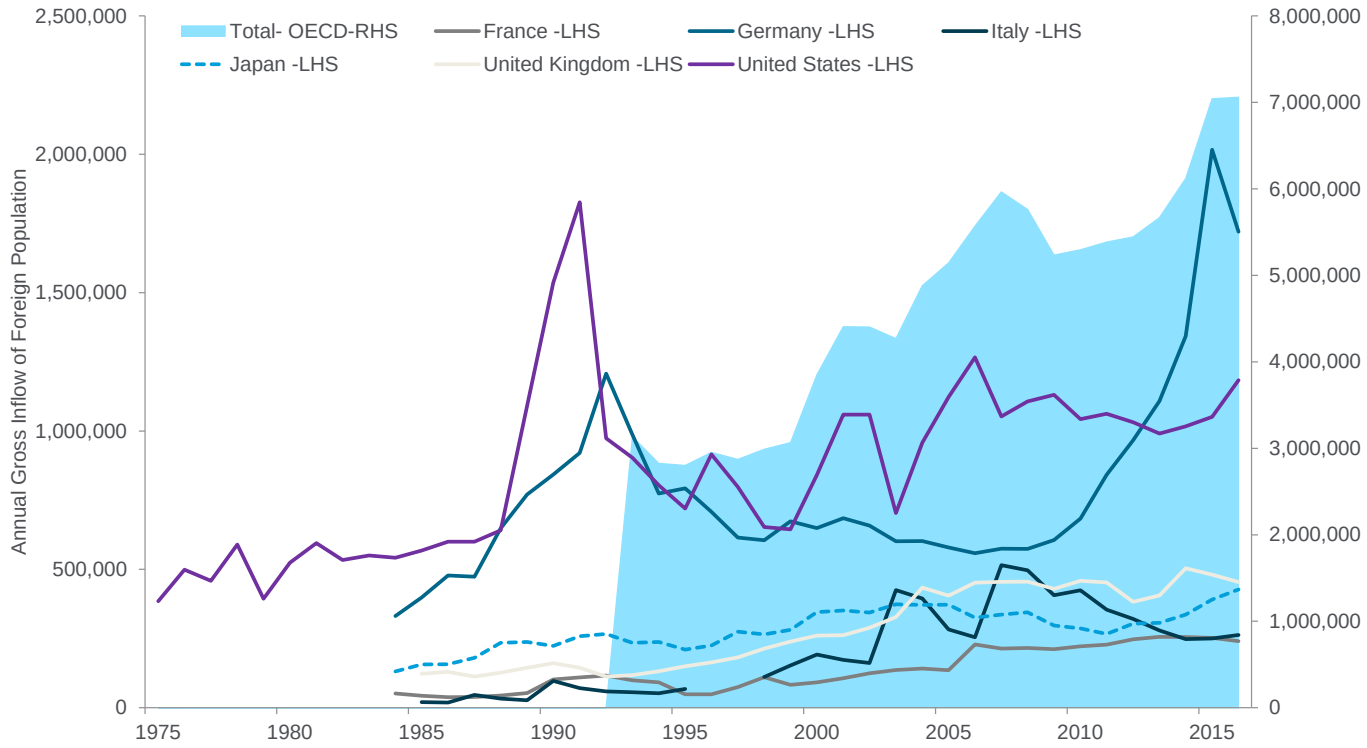
In addition to the growth effects we discussed previously, there is growing evidence that migration also has a significant, positive, impact on total factor productivity, even at the national level.

Within countries, several different approaches have been taken to measure the impact of migration on productivity. One has been to evaluate the impact of (random) refugee waves but this has proven inconclusive. There is no consensus on the employment, wage, or productivity impacts associated with, for example, the Mariel boatlift of Cuban refugees into the U.S. (Card, 1990; Peri, 2017; Borjas, 2017).

Refugees also may not be representative of economic immigrants or students and so studying surges in the number of refugees may not have wider lessons. Migration policy changes within Europe, particularly in relation to the integration of European Union members, provide a more broadly applicable test of the impact of immigration on productivity, but these studies have not yielded clear conclusions (Dustmann, 1996; Bauer and Zimmerman, 1999; Beerli and Peri, 2015).

Attempts to correlate swings in immigration patterns with changes in productivity hold little predictive power either. Immigration inflows, shown in Figure 71, vary considerably for each country and it can often take several years for measurable effects on productivity to be realized.

Figure 71. Gross Annual Immigration Inflows for Five OECD Economies, 1975-2015



Source: Citi Research, OECD (2018)

Drawing general conclusions about the long-term implications of immigration on innovation and dynamism in society are also hard to measure

The existing evidence gap in part derives from the fact that the longer-term implications of immigration in terms of lifting rates of innovation and dynamism in society are often diffuse and hard to measure. Gains may also be heavily dependent on mediating factors such as investments in schools, transport, housing, language skills, and other investments to improve assimilation and raise the rate at which immigrants improve productivity. This can make drawing general conclusions difficult.

Even where these benefits may be greater than the short-term costs, politicians and voters tend to react to the short-term costs. Just as the global productivity benefits of migration are beyond any one government to capture, so too can the long-term benefits of migration be beyond a given government. This may have stunted incentives to better understand the long-term benefits of migration.

While evidence that higher migration drives economic dynamism is difficult to find, there is mounting evidence that lower migration has a negative impact on economic dynamism

Despite this, a mounting body of evidence points to a negative impact of lower migration on economic dynamism. Importantly, these effects tend to transpire over an extended period of time. Peri (2012) shows that immigration is highly positively correlated with total factor productivity growth in the U.S., with the efficiency gains larger for unskilled workers than skilled.

The contribution of migrants to dynamism is not confined to the U.S. In the U.K. there is a positive and significant association between increases in the employment of migrant workers and labor productivity growth, even after controlling for changes in the skill mix of the workforce: A 1 percent change in immigrant share in employment is associated with an increase in labor productivity of 0.06 percent to 0.07 percent. (NIESR, 2013).

Conversely, some have argued that migration can result in the transmission of low productivity from low- to high-income countries (Algan and Cahuc, 2014). Clements et al. (2016) show that evidence for such a process is unconvincing, with many of the models used by these authors implying current rates of migration are too meager to drive the effects they suggest. Again, ultimately this suggests that greater rates of migration beyond current levels would yield aggregate productivity benefits.

A bigger question is whether higher productivity growth is a driver of migration or a reflection of migration

The central methodological problem here in reaching firm conclusions about the long-term effects of migration on productivity growth is endogeneity. Higher productivity growth can both drive migration, and (potentially) reflect it. In such a symbiotic and complex process, it can be difficult to determine causality, and subsequently isolate the precise contribution of migration.

Progress has been made in capturing the causal impact of migration on GDP per capita growth with strong positive effects

In recent years, progress has been made in this area, with especially notable contributions from Jaumotte et al., 2016; Alesina et al., 2016; Ortega and Peri, 2014, and Aleksynska and Tritah, 2015. These studies employ various combinations of innovative instruments in an attempt to control for the effects of endogeneity, and capture the causal impact of migration on GDP per capita growth. All find strong positive effects. These findings corroborate the microeconomic and policy-based evidence. This includes studies such as Kleven et al. (2014) in Denmark who show that policies designed to promote skilled migration can be successful innovation policy tools.

Alesina et al. (2016) conclude: "…the diversity of skilled immigration relates positively to economic development (as measured by income and TFP per capita and patent intensity)" while Aleksynska and Tritah (2015) find that immigration has a positive effect on income, that primarily works through total factor productivity (notably, these effects apply for all migrants). Jaumotte et al. (2016), looking across the OECD, conclude that immigration increases GDP per capita mostly by raiding productivity, with a 1 percentage point increase in the share of migrants in the adult population increasing long-run GDP per capita by 2 percent. In addition to the growth effects we discussed previously, migration also appears to have a significant impact on total factor productivity, even at the national level.

Unskilled and semi-skilled migrants both seem to drive productivity benefits, though in slightly different ways. In general, it seems that while skilled migration tends to drive productivity benefits in most instances, those of lower-skilled migrants are more contingent.

Skilled Migration and Urban Agglomerations: Modern Productivity Engines

The skill levels of migrants matter for productivity benefits

For productivity, the skill levels of migrants matter (Borjas, 2003; Ottaviano, 2013; Hanson, 2016; Ortega, 2014). The productivity benefits of migration are not limited to, but often are driven by, skilled migrants in particular.

The Skill-Biased Technological Change (SBTC) literature has provided researchers with a framework to evaluate complementarities between low- or high-skilled migrants and high-skilled natives (Ottaviano, 2013). Additional emphasis is put on the importance of high-skilled migrants in native scientific output as well as overall regional productivity (Borjas, 2012; Mitaritonna, 2014).

Bouptane (2014) compared migration flows between 22 OECD members to examine the impacts on each country's labor market given the skills of immigrants. The two largest economies, the United States and Germany, exhibit productivity changes close to zero, even negative in the former's case, given either an absolute or relative change in migration flows. On the other hand, the United Kingdom and France exhibit large productivity gains. Bouptane outlines two measures of skills for migrants: the percentage with tertiary education, and human capital of immigrants relative to natives. Interestingly, both variables are significantly lower for the United States and Germany than for the United Kingdom and France. This corroborates other findings from Alesina et al. (2016), for example, that suggest the productivity gains from skilled migrants are both more widespread, and extensive.

Trends in Skilled Migration

The productivity enhancement characteristic of skilled migrants has led to a global race for talent among OECD economies

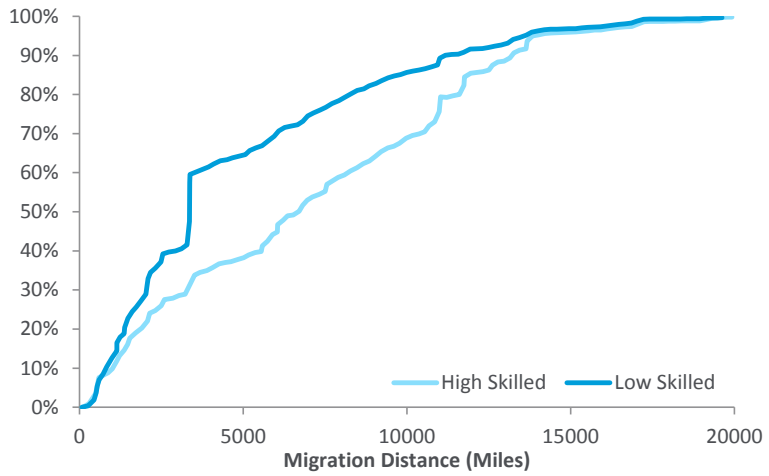
Given these productivity enhancing characteristics, it is no surprise that there has been a global race for talent among the OECD economies in recent decades (Kerr et al., 2016). In general, skilled workers are part of a more integrated global labor market, in comparison to other migrants. Market integration here also seems to be progressing more quickly. For example, high-skilled migrants seem to migrate further on average, for example, (see Figure 72) and also appear to be more acutely sensitive to changes in global tax and earnings regimes.[12]

The result is an increasing concentration of skilled emigrants to a shrinking set of 'destination' economies

The implication is that skilled migrants gravitate to areas in which they are likely to be more productive to a greater degree than other workers; this being where they can maximize their earnings. The result of this integration, just as with global migration (see above) has been an increasing concentration of skilled emigrants from an increasingly disparate set of source countries in a shrinking set of 'destination' economies. The extent of such trends, however, is greater amongst skilled migrants and does not seem to have reversed.

[12] Sensitivity to such changes tends to increase the higher up the skill distribution a worker is located. For example, Akcigit et al. (2016) show that superstar inventors' location choices are significantly (and more acutely) affected by top tax rates.

Figure 72. Cumulative Distribution of Migration Distance, 2010



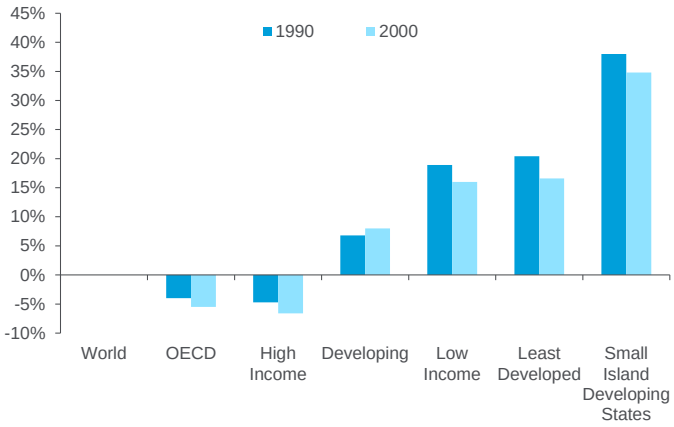
Notes: This plots the relationship between the stock of immigrants to OECD countries and the distance between their destination and origin countries. The data come from Arslan et al. (2014) and refer to those of age 25 or over. Tertiary-educated individuals are defined as high-skilled.

Source: Kerr et al. (2016)

Skilled migration is disproportionately focused on the OECD, specifically the U.S., the U.K., Canada and Australia

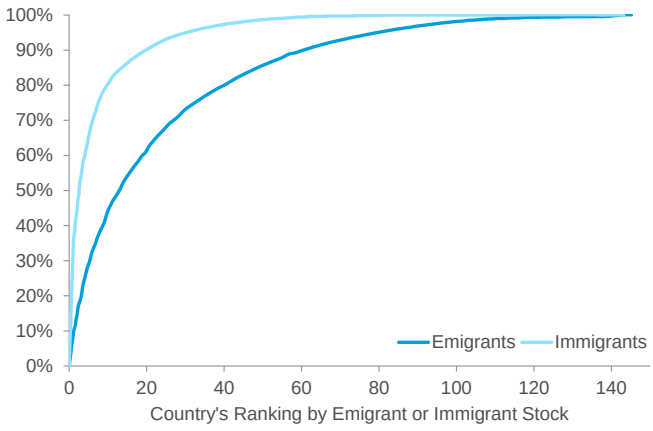
Skilled migration is disproportionately focused in the OECD, which hosts two-thirds of high-skilled migrants despite containing only 20 percent of the global population. Within the OECD, however, skilled migrants are also heavily concentrated. Four Anglo-Saxon countries dominate. The U.S., the U.K., Canada, and Australia were the destination for nearly 70 percent of all skilled migrants in the OECD in 2010. The U.S. alone has historically hosted close to half of all high-skilled migrants to the OECD and one-third of high-skilled migrants worldwide. In 2010, the U.S. hosted 11.4 million skilled migrants, 41 percent of the OECD total.

Figure 73. Net High-Skilled Emigration Rates by Country Development Level, 1990-2000



Source: Citi Research; Artuc et al. (2015)

Figure 74. Cumulative Distribution of High-Skilled Immigrants and Emigrants, 2010

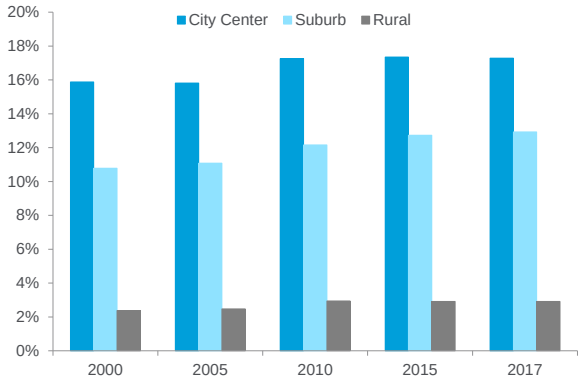


Source: Kerr et al. (2016)

In the U.S., skilled migrants are not only concentrated in certain states but also in urban centers

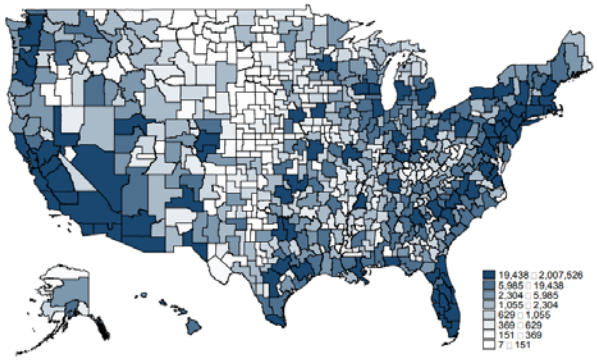
In the U.S., the concentration of migration within certain states is, in many respects, only part of the story. Within states, these migrants are also very heavily concentrated often in the most dynamic urban centers. For example, Kerr et al. (2016) notes that skilled migrants are highly concentrated in just a few major metropolitan areas in the U.S. including Boston, different regions of California, New York, Miami, Seattle and Miami, (see Figure 76) with similar patterns observed in the U.K..

Figure 75. Percentage of Foreign Born Among the Tertiary-Educated Population in U.S., 2017



Source: Citi Research, CEPR-CPS

Figure 76. Distribution of High-Skilled Migrants in U.S., 2010



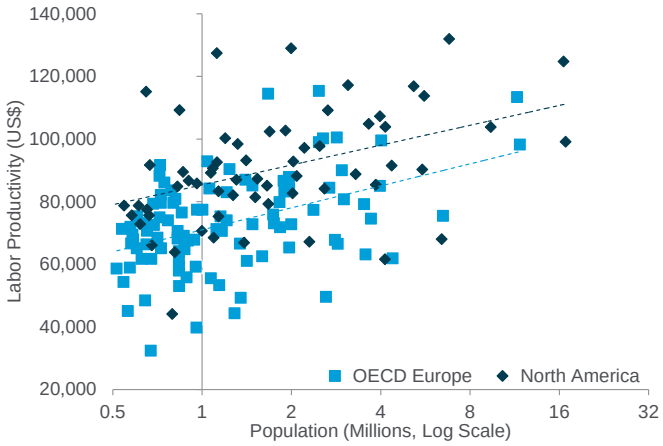
Note: Data on high-skilled migrants by Public Use Micro Areas in 2010 are drawn from the 5-year sample of the American Community Survey. These data are subsequently merged to 1990 Commuting Zones using the crosswalk files and weights developed by David Dorn (http://www.ddorn.net/data.htm). High-skilled migrants are defined as those with at least one year of tertiary education.
Source: Kerr et al. (2016)

Skilled migrants tend to concentrate in areas of highest labor productivity

This reflects the propensity of skilled migrants to concentrate in areas of highest labor productivity. Across the OECD, as Ahrend et al. (2016) note, large agglomerations are more productive, on average, compared to other metropolitan areas. Among cities with more than 500,000 inhabitants, a 1 percent population increase is associated with a 0.12 percent increase in labor productivity on average.

Given the sensitivity of international migrants to these respective differences in income, it is no surprise that these individuals increasingly focus in these more productive areas. Looking at the U.S., for example, skilled migrants have become more concentrated not just in those areas that are larger per se, but in general those with greater tertiary wage levels (see Figure 78).

Figure 77. City Size and Labor Productivity, 2010



Note: Labor Productivity is measured as GDP (USD in constant PPP and constant prices, reference year is 2005) divided by the total employment in a Functional Urban Area. Data refer to 2010 or the closest available year. Source: Citi Research

Figure 78. Percentage of Foreign Born Among the Tertiary-Educated Population Across Metropolitan Areas (by Mean Tertiary-Income Level) 2005-2017

Source: Citi Research, CEPR-CPS

The concentration of skilled migrants in urban regions, and indeed the most productive urban regions, reflects the greater responsiveness of this group to different wage and productivity incentives.

Skilled Migration and Localized Innovation

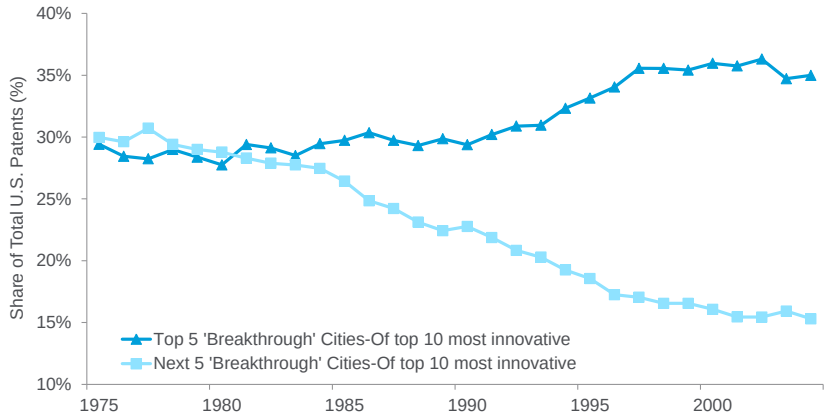
Skilled migrants not only concentrate in areas of higher innovation, but also drive higher rates of innovation in those areas

We suspect that skilled migration has not just come to concentrate in those areas with the greatest rate of innovation but, reflecting the national level findings, increasingly come to drive it too. On a local level, these dynamics are likely self-re-enforcing, driving sustained regional outperformance. In addition, given the increasing importance of local innovation clusters to aggregate productivity, we suspect this has helped to boost aggregate productivity.

Cities with prior 'breakthrough' innovation show higher subsequent patenting performance

In recent years, aggregate productivity has become increasingly centralized in localized, occupationally-specific clusters built around existing innovative breakthroughs. In the United States, Kerr et al. (2010) show that innovation has become increasingly concentrated around so called 'breakthrough' innovations (here defined by the top 1 percent of all innovations within given industries when ranked by citation level). Looking at 19 prominent patenting cities (between 1975 and 2004) Kerr shows that breakthrough innovation is disproportionately influential in driving more recent patenting activity, even among historically comparable cities. Innovation is becoming increasingly concentrated around 'landmark' innovations. This is shown on Figure 79 below which compares the share of total patents among the top 10 innovative cities by industry. Since the mid-1980s, there has been a sharp divergence, with those areas with a greater numbers of 'breakthrough' innovations enjoying better subsequent patenting performance.

Figure 79. Localized Patenting Growth of Top 10 Most Innovative Cities by Industry (U.S., 1975-2004)

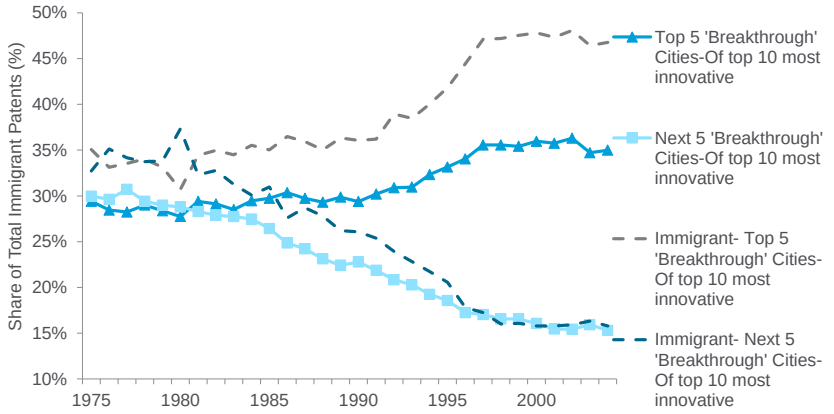


Source: Citi Research; Kerr et al. (2010)

And industries more dependent on skilled migrants in those innovative cities saw a more rapid concentration and aggregate patenting growth

Skilled migrants have been central in this divergence. The re-allocation of innovative capacity to more productive regions was more extensive amongst migrants. This is shown on Figure 80, with the reallocation in patenting between breakthrough and other regions larger amongst migrants than in aggregate. Migrants responded more rapidly to new structural incentives to move. Those industries more dependent on skilled migrants often thus saw more rapid subsequent concentration and aggregate patenting growth in comparison to those with a greater dependence on natives, with the rapid movement helping to drive aggregate innovation. Reallocation was driven by both the focus of new skilled migrants into these new centers, and the greater propensity of skilled migrants to move within the United States, in comparison to skilled natives (Kerr et al., 2010).

Figure 80. Localized Patenting Growth of Top 10 Most Innovative Cities by Industry, U.S., 1975-2004



Source: Citi Research Kerr et al. (2010)

This concentration of migrants in the most innovative and productive regions has often been a factor in migrants' outsized contribution to both innovation and productivity growth (and economic growth) (Nathan, 2014). These effects do not just seem to be limited to the United States. In Germany, for example, Niebuhr (2010) shows migrants are concentrated in regions with higher R&D spending, implying similar effects may be at play.

Skilled migrants are also typically more inherently innovative and entrepreneurial than natives. For example, it has long been argued that migration typically 'pre-selects' those with the greatest innovative potential (especially among skilled groups: Borjas, 1987, Honig et al., 2010). Their location in innovative centers reflects the matching of these individuals with the environment in which they can earn the largest reward.

Large numbers of high-skilled migrants are associated with greater levels of innovation, even having controlled for local economic effects (Hunt and Gauthier-Loiselle, 2010). Hunt (2011) shows that individually, skilled migrants within given regions tend to be more innovative then natives. Similar effects are found internationally. For example, in Canada, Partridge and Furtan (2008) find provinces with a greater number of skilled migrants tend to have higher rates of innovation, even having controlled for other local economic characteristics.

Migrant boosts to local innovation, compared to natives, come through two channels. Firstly, as Hunt (2013) shows, skilled migrants typically possess the specific STEM based skills that are often most conducive to innovation. Equally, even amongst similar graduates, migrants can be particularly innovative[13] in comparison to natives; this often results in an outsized contribution.

Additionally, migrants can also boost the innovation of natives. Kerr and Lincoln find that immigrant innovation 'crowds in' invention by residents – growth in a region's immigrant population on an H-1B visa (for the high skilled) stimulates patent filings by natives. As a result, the marginal impact on innovation can be extensive. Studies on the topic find often quite large effects; these range up to estimates suggesting that a one percentage point increase in US immigrant university graduates increases patents per capita by 15 percent. This likely reflects immediate benefits of diversity (see below), amongst other factors.

The resulting outsized contribution of migration to productivity is not just the product of migrants' greater propensity to move. As Kahn and MacGarvie (2016), it is likely the combination of a particularly dynamic local and innovative context, alongside the particular characteristics of skilled migrants that combine to drive disproportionate levels of innovation by migrants.

Migrants play an outsized role in both the driving of patent-based innovation and the application and adoption of it

Importantly, it seems migrants play an outsized role in both the driving of patent-based innovation, as well as the application and adoption of it.

The entrepreneurial characteristics of migrants also help to convert innovation into economic productivity

Migrants are often essential to the subsequent conversion of innovation into economic productivity, owing to their more entrepreneurial characteristics. In the U.K., immigrants are nearly twice as likely as U.K.-born individuals to be entrepreneurs and have launched one out of every seven companies (FT 4 March 2014). In the U.S., immigrants accounted for 28.5 percent of all new businesses formed in 2015 despite accounting for just 14 percent of the overall U.S. population and they are almost twice as likely as the native-born population to found their own business (Goldin, 2014); likely driving up the level of productivity growth.[14] In

[13] See, for example, Chelleraj et al. (2008) who show that rates of innovation in Chemistry departments are greater when there are greater numbers of foreign students. Their central estimates suggest that a 10% increase in the number of foreign graduate students would raise patent applications by 4.5%, university patent grants by 6.8% and non-university patent grants by 5.0%. These effects are partly attributable to the benefits and idea generation associated with greater diversity. It is also a reflection of the direct contribution of migrants in many cases.

[14] See, for example, https://www.prb.org/usforeignbornstem/

addition, migrants also seem to make a disproportionate impact on the adoption of innovation, even within existing corporate structures. For example, the presence of migrants at the senior level seems to be associated with the more rapid adoption of innovation (Nathan and Lee, 2013).

Both trends seem to drive a positive correlation between realized product innovation and skilled migration, at least in the United States. Measuring innovation slightly differently (focusing on realized innovations in among products, realized rather than patents) Khanna & Lee (2018) find a strong positive association between skilled migration and subsequent innovation.

Migration-driven innovation can lead to subsequent immigration

Interesting, here is the idea that migration-driven innovation can then drive subsequent immigration. Given the importance of breakthrough innovations and clustering, particularly disproportionate migrant contributions to such innovation may be good reason to suppose the concentration of migrants into existing areas of innovation could be self-reinforcing (Stephan and Levin, 2001). Evidence that the migration is associated with higher levels of innovation over several decades suggests a self-reinforcing dynamic. Akcigit et al. (2017), for example, show that areas where immigrant inventors were prevalent between 1880 and 1940 experienced more patenting and citations between 1940 and 2000, though other factors may also lie behind such path dependence.

Diversity and Dynamism

While most of the empirical research on migrant innovation has been based on the U.S., the adoption of policies by other countries to facilitate the immigration of high-skilled workers indicates that similar effects are experienced or anticipated elsewhere.

Expanding opportunities for migrants to fully participate in their host societies in the short-run is a valuable investment, given the long-run benefits of social diversity. Citing a study by Pascal Zachary, Richard Florida notes that “the United States’ economic competitiveness in high-technology fields is directly linked to its openness to outsiders, while the relative stagnation of Japan is tied to ‘closedness’ and relative homogeneity.” This implies that openness to immigrants pays dividends in the long run.

In general, the importance of diversity to innovation has been shown at the regional and the firm level. Ozgen et al. (2013) show that diversity within a firm contributes significantly to higher productivity levels and better performance. Regionally, studies in both the United States and Europe have shown diversity to make a significant marginal contribution to innovation and economic performance (U.S.: Peri et al., 2014; Europe: Nathan and Lee, 2013; Bosetti et al., 2015). Interestingly, these benefits seem to increase the longer the time scale one observes.

Cognitive diversity brought by immigration assists with problem solving and productivity

At a local or group level, Scott E. Page argues that the cognitive diversity brought by immigration assists with problem solving and productivity: “Interacting with a large number of diverse people should be more cognitively taxing than hanging out with your closest friends who look, think, and act just like you. Situated in a diverse polyglot, people… cannot avoid having their worldview a bit more exposed to new ways of seeing and thinking, and as a result they cannot help but become a bit more productive.”

Divergent thinking from diversity contributes to more effective and creative decision-making

Exposure to disagreement from a minority stimulates thinking about problems from multiple perspectives — what social psychologists call ‘divergent thinking’. Groups composed of similar people are more likely to engage in ‘convergent thinking’, which reinforces the status quo. The different life experiences, social norms, and

personal values of immigrants contribute to more effective and creative decision-making than consultation among similar people. These theoretical observations are borne out empirically by Kerr and Lincoln (2010). They find that immigrant innovation 'crowds in' invention by residents – growth in a region's immigrant population on an H-1B visa (for the high skilled) stimulates patent filings by natives (as noted above).

Low-skilled immigration can help native-born workers to increase functional specialization

Diversity can also increase the degree of complementarity between native and foreign workers — delivering local productivity benefits. Borjas (2012), for example, argues that low-skilled immigration can drive total factor productivity improvements by increasing functional specialization, namely, by allowing native workers to move into more complex, communication-orientated roles. There is some evidence of this on a firm level and, in many cases, the presence of lower-skill migrants helps natives of all skill levels shift into higher-skilled roles (MGI, 2016).

Low-skilled immigrants who disproportionately fill lower-wage occupations can free up native-born workers for other occupations

Both high- and low-skill migrants can generate productivity gains through these channels. Low-skilled immigrants in the United States, for example, disproportionately fill lower-wage occupations, freeing up native-born workers to pursue other occupations. Approximately 40 percent of U.S. immigrants work in the two lowest-wage categories: service occupations and production, transport, and material moving occupations, compared with just 27 percent of natives (MGI, 2016). These effects may be more extensive in certain localities.

Cultural diversity is not only useful for decision-making and production; it also adds value to cities and boosts their economies. Immigrant-run businesses may sell goods and services that introduce novel cultural amenities – such as new foods or art forms – into local economies, which are valued by natives of a receiving country. Betz and Simpson (2012) find a positive correlation between inflows of recent migrants, and native self-reported wellbeing in Europe, beyond the economic impact. These effects are important, but beyond the scope of this report.

Diaspora Dynamics

Complementarities between migration, trade, and investment have long been a feature of international migration. Studies connect migration to subsequent foreign direct investment (FDI) flows (Kim and Park, 2013) and trade (Hatzigeorgiou and Lodefalk, 2016). When migrants move, they bring with them new social and cultural links. On a national, regional, and firm level, this can bring significant productivity benefits to both origin and destination countries alike. In more recent periods, these effects still seem to have played a notable role, with migration driving improved access to international opportunities and productive linkages.

High-skilled migrants provide access to global collaborative networks

With respect to innovation, high skilled migrants play an important role underpinning and providing access to global collaborative networks. These have become an increasingly important engine for innovation (Branstetter et al., 2015), on both a firm and regional level. This can often drive up productivity in destination economies.

In many cases, productivity benefits come not just from access to international networks, but also access to new linkages that provide benefits to origin countries too. In many cases, these are directly facilitated by migrants themselves. Foley and Kerr (2013), for example, show how high-skilled migrants can use their expertise to conduct more productive R&D work abroad, often in these migrants' country of origin.

While talented students still go abroad to continue their studies and work in the developed economies, many then use their own global networks, and especially those of the diasporas, to help build new establishments in their home countries.

Dynamic industries have been developed in countries as immigrants return home with knowledge, capital, and experience

The development of dynamic information technology industries in Taiwan and Israel has been a result of immigrants returning home in the early 1980s from the United States and Silicon Valley. Return migrants brought capital, technical and operating experience, knowledge of business models, and networks of contacts in the United States. The two countries now boast leading firms in software, security, PC production, and integrated circuits. A similar process of return migration has occurred in India, with skilled workers from Silicon Valley bringing expertise and capital from abroad to develop the Bangalore IT industry.

Network Diasporas can play a 'bridge' role in connecting home countries with foreign expertise, finance, and contacts

Members of a country's diaspora can play a 'bridging' role in connecting their home countries with foreign expertise, finance, and contacts – overcoming what can be volatile political negotiations with foreign companies. "Network Diasporas," Kuznetsov argues, "are but the latest bridge institutions connecting developing economy insiders, with their risk mitigating knowledge and connections, to outsiders in command of technical know-how and investment capital." For countries to successfully tap into their overseas expertise conditions at home need to be attractive for expatriates to return to or invest in. Migrants in a diaspora are unlikely to spontaneously fire up a flailing national economy; they are a resource that can reinforce or accelerate existing positive trends.

Brain drains are transforming into 'diaspora networks' in places like India

The development of global supply chains, decentralized systems of production, and modern information technologies have facilitated the transformation of brain drain from India into 'diaspora networks' that are supporting the IT sector at home. India's universities are thriving and many of its best graduates seek out jobs in Silicon Valley, where they are supported by established professional networks for Indian nationals. It is easier to start a business in the U,S, but software engineers are more plentiful and inexpensive in India, so handfuls of Indian entrepreneurs have started cross-regional companies that link Silicon Valley capital with workers living in Mumbai and Bangalore. The entrepreneurs and engineers who moved to Silicon Valley years or decades ago are also increasingly moving home, a phenomenon that is related to new visa restrictions on the entry of skilled workers to the U.S. While such restrictions are introduced to ostensibly defend the jobs of native workers, they are having the inadvertent effect of promoting the development of competitive industries overseas.

Diaspora networks support development in the sending country

Even when skilled expatriates do not return home, they may remain connected through diaspora networks that support development in the sending country. Between 1985 and 2000, for example, Chinese who live overseas contributed about 70 percent of China's total foreign direct investment. Taiwan has relied upon diaspora networks for decades to promote the flow of ideas, goods, capital, skills, and technology. It serves as an intermediary between Chinese and South East Asian markets and American capital, skills, and ideas. This 'symbiotic relationship' has developed over 40-50 years through close relations between the U.S. and Taiwan. The relationship will likely grow stronger as China's strategic role increases and Taiwan provides U.S. firms with access to mainland China.

Diaspora networks can help drive investment into the home country

To capture the benefits of diasporas for national development, some countries are developing ad hoc 'diaspora engagement policies'. Ireland and New Zealand, following upon the example set by India and China, are attempting to harness the expertise and finance of their diasporas for national development. Ireland drew upon Irish-American business connections and its skilled expatriate workers to attract Intel to Ireland. New Zealand has introduced a "World Class New Zealander Network" to attract expatriates to invest in their home country.

The political significance of diasporas is notable and has proved an important national resource in some key instances

The political significance of diasporas should also be considered. In the short run, the loss of local and national leaders to migration can deprive a country of key visionaries and community builders, but their later return can ultimately help them chart a new path for their home countries. Consider, for example, the cases of Mohandas Gandhi, Kwame Nkrumah, Ho Chi Minh, or Ellen Johnson-Sirleaf – leaders who spent their young adult years overseas, where they assimilated new ideas that allowed them to later play crucial roles in nation-building at home. Viewed collectively, the South African diaspora — in the form of people forced into exile, and their children — made important contributions to the anti-apartheid struggle and many went back in 1994 to support Nelson Mandela's government, including one of the co-authors of this report. Diasporas from many Latin American countries, who initially fled dictatorial regimes, went back following early democratic reform to provide leadership. Through their actions in their adoptive homes, the Jewish and Taiwanese diasporas have helped to sustain Israel and Taiwan both politically and in terms of innovation and finance. The Lebanese diaspora has also played a key role in ensuring that, despite successive political and other crises, the country has managed to stay solvent.

The influence of diaspora communities is not necessarily benign. Exile groups at times seek to return to power, even at the cost of undermining democratic process. For example, a recent United Nations investigation found that extremist networks in Europe provided financial and operational support to Rwandan Hutu militias responsible for the alleged war crimes in the Democratic Republic of Congo. Leadership of the diaspora included individuals involved in the Rwanda 1994 genocide.

Voting rights for migrants in their home countries vary but many extend political rights to their diaspora populations to maintain support for the country

Some countries extend political rights to their diaspora populations to maintain their support for the country. Colombia, for example, defines its expatriates as one of five minorities that are granted reserved seats in Parliament. France, Italy, and Portugal also have Parliamentary seats set aside for expatriate representation, and many other countries (e.g., Argentina, Brazil, the U.S., Canada, and Germany) permit expatriates to cast absentee ballots. Eritrea's constitution guarantees the right of emigrants abroad to vote in national elections and over 90 percent of Eritreans abroad participated in the 1993 Referendum for Independence.

Skilled migrants seek ways to 'give something back' to their home countries which can take the form of remittances

Skilled migrants are also taking a spontaneous interest in their home countries, and many seek out ways of 'giving something back'. Research among Turkish and South African migrants has found a pervasive sense of moral obligation or duty to contribute skills and expertise to their home countries, even if they are unable to return permanently. Many migrants find ways to remain connected with their home country throughout their lives, and for many this may involve simply sending money home. The volume of remittances sent home by migrants to low and middle-income countries has grown rapidly in recent decades and in 2017 were estimated to exceed $466 billion, over three times foreign aid. One important destination of these private flows are investments in health, education, and new businesses back home, underlying the extent to which migrants contribute to the dynamism and growth of both their new adopted homes and the countries they are leaving.

Source Countries: Brain Drain and Brain Circulation[15]

The migration of skilled workers is a positive for their destination country, but is it good for the sending country?

The number of highly-skilled immigrants has increased sharply, with about 27 million university-educated migrants living in advanced countries, a number which increased by 70 percent in the first decade of this century (FT, 2014). While the immigration of highly-skilled people to rich countries may be vital for the dynamism of the advanced economies, there are fears that it may undermine the development prospects of the typically poorer countries from which these people emigrate. The fact that around 30 percent of immigrants to the advanced economies have tertiary degrees is undoubtedly good for these economies, who have not had to invest in the expense of training graduates. But is it good for the sending countries?

Developing countries are greatly affected by 'brain drain'

Examined on the surface, brain drain statistics paint a devastating picture of the impact of skilled emigration on some developing countries. More than 70 percent of university graduates from Guyana and Jamaica move to developed countries, and other countries have similarly high percentages of their graduates leaving: Morocco (65 percent), Tunisia (64 percent), Gambia (60 percent), Ghana (26 percent), Sierre Leone (25 percent), Iran (25 percent), Korea (15 percent), Mexico (13 percent), Philippines (10 percent).

Africa, the Caribbean, and Central America send the largest proportions of their educated population overseas

High-skilled emigration comes at an enormous financial and social cost for the sending countries and is seen by many as the principal risk of mobility for developing countries. While Europe and East Asia actually send the highest number of educated migrants, Africa, the Caribbean, and Central America send the largest proportions of their educated population overseas – around 20 percent from sub-Saharan Africa and more than 50 percent from many Caribbean and Central American countries. For sub-Saharan African countries, this loss is particularly significant because only 4 percent of the population possess university degrees. Caribbean and Central American countries have such small populations that the mass departure of graduates can hollow out the skill base of both the public and private sectors. In Asia, on the other hand, skilled migration rates are low enough and populations generally large enough that the impacts of human capital depletion are not as great.

Particular concerns are raised by the cost of emigrating health care professionals from developing countries

In addition to the general depletion of human capital, particular concerns are raised by the cost of emigrating health care professionals from developing countries. For many less developed countries, the outflow of medical professionals has imperiled already weak public health systems. Malawi, for instance, lost more than half of its nursing staff to emigration in the decade to 2010, leaving just 336 nurses to serve a population of 12 million. Meanwhile, vacancy rates stand at 85 percent for surgeons and 92 percent for pediatricians. In the face of the HIV/AIDS pandemic, health services have been hard to come by.

But, brain drain is a problem that can be managed through migration policy

The risks of brain drain are real for a subset of countries, but a closer look at why and how brain drain happens recasts it as a problem to be managed through migration policy rather than stopped altogether. Most brain drain originates in developing countries with high rates of unemployment, and the evidence suggests that many graduates leave because they would otherwise be unproductive at home. Organized or xenophobic attacks on particular groups have also played a role in the departure of skilled workers, as have acute concerns regarding kidnapping (particularly in parts of Latin America), crime (the high murder rate is a common explanation for the emigration of many skilled South Africans), and conflict (not least in Syria and Yemen).

[15] Goldin (2011): Exceptional People.

Without the prospect of migration, people generally under-invest in their education … but knowing they can migrate if educated increases demand for education and while some human capital is lost to emigration, a higher number of educated workers remain

While the mass emigration of graduates may have short-term collective costs for some countries, research on the 'new economics of brain drain' suggests that it may have medium and long-term benefits. Oded Stark observes that the problem of brain drain is rooted in the 'leakage' of human capital from a country, but seen within a broader context this concern is exaggerated. Without the prospect of migration, people generally under-invest in their education because the opportunities for putting it to use and the relative competition for jobs may not require much schooling. However, knowledge of the opportunity to migrate to a developed economy where wages are higher for skilled labor leads people to pursue more advanced education. While the country still loses a proportion of its human capital to emigration, it is left with a higher number of graduates within the country than it would have without 'brain drain'. Migration, Stark notes, is "a harbinger of human capital gain" and not "the culprit of human capital drain."

The phenomenon of 'brain gain' has been seen in Fiji and the Philippines, two countries from which large numbers of skilled migrants leave. The Philippines has become a veritable exporter of human capital in terms of the nurses that it trains to send overseas to the United States and elsewhere. The emigration opportunities associated with nursing have stimulated the development of a sophisticated system of high-quality private education that helps to educate low-income women. Large numbers of nurses stay after their education and today the Philippines has more trained nurses per capita at home than wealthier countries such as Thailand, Malaysia, or Great Britain. Similarly, a study of more general-skilled emigration from Fiji showed that these departures had the effect of raising the net stock of domestic human capital. In other words, Fiji ended up with more skilled workers at home than they would have if emigration rates had been lower.

A positive effect of brain drain is that return migration can stimulate local development

The incentives for brain gain in sending countries may also be supported by skilled migrants who have worked abroad and return home to foster new industries. The point is illustrated by the story of Luis Miyashiro, an entrepreneur in Peru. Miyashiro is a Peruvian national who moved to Japan for several years under the Nikkeijin visa program, designed to attract those with ancestral connections to work in Japan. After several years in Japan, he returned to Lima and founded Norkys, a chain of chicken restaurants. The new chain renovated the food-stand concept that is popular in Lima by adding Japanese standards of cleanliness and efficiency. The new fast food chain was launched with ideas and capital from Japan, and it was the first of its type in an Andean country.

Norkys exemplifies how return migration can stimulate local development, and it also illustrates the transmission of 'social remittances' – "ideas, behaviors, identities, and social capital that flow from receiving- to sending-country communities." When migrants lost to 'brain drain' return home, they bring with them social and cultural resources that sometimes influence entrepreneurship as well as family, social, and political life. Return migration rarely happens in large numbers, however, without the presence of other factors conducive to development. The return of skilled migrants is a significant phenomenon in China, for example, but it has yet to take hold in countries like Guyana.

The phenomena of 'brain circulation' and return migration suggest that some migrants move overseas for education or early career development and later return home either permanently or episodically. Yevgeny Kuznetsov remarks that historical patterns of brain drain, which draw promising students from developing countries to challenging careers in developed countries, are now showing signs of "turning into a back and forth movement, or diaspora network."

The Impact of the Brain Drain on Wages in the Origin Country: A Case Study of Italian Graduates[16]

Beatrice Faleri – University of Oxford

While a large body of literature focuses on the impact of immigration on wages in the receiving country, there is surprisingly little evidence on the effect of mass migration on the country of origin. With the end of the financial crisis, and the different speed of recovery experienced by countries within the European Union, migratory flows have intensified particularly from Southern to Northern Europe, opening questions on the labor market impact of such phenomenon on the already struggling economies of countries such as Spain, Italy, and Greece. The case of Italy is particularly interesting, as the country's human capital stock has been increasing together with skilled emigration: it is estimated that the number of new graduates had risen to 17 percent of the population in 2016, and at the same time the share of graduates among all emigrants had reached 30 percent of the total stock of emigrants. Becker et al. (2004) compute a measure of human capital loss to the country, which had also steadily increased since before the financial crisis.

Italian commentators have quickly dubbed this phenomenon as 'brain drain'. Indeed, several surveys of Italian researchers abroad suggest skilled Italian emigrants have a low propensity to return. Differently than most cases of skilled emigration, push factors seem to have almost equal weight with pull factors in determining the size and intensity of Italian skilled emigration. But what is the effect of this 'brain drain' on the wages of graduates who stay in the country?

Original evidence using Italian household survey data and emigration statistics by skill levels from the OECD finds the effect of the Italian skilled emigration on wages changes through time. Specifically, a 1 percent change in the ratio of skilled emigrants to total Italian graduates initially depresses skilled workers' wages by 0.34 percent. The negative effect, however, turns positive two to five years after the first wave of emigration occurs, and then returns to mildly negative after ten years. Theoretical analyses of the brain drain suggest an explanation for this pattern (see Borjas 2007, Myagiwa 1991, Mishra 2007). The initial depression in graduate wages is due to the fact that the skilled workers who emigrate would have been at the top of the income distribution in their own country. As the positions left by these top graduates are gradually filled by skilled workers who remain in the country, their wages rise; furthermore, because of the reduced supply of skilled labor, wages of skilled workers increase in the medium term. Arguably, the longer-term negative effect of skilled emigration on wages relates to loss of human capital, which affects the economy as a whole.

Our independent analysis also assesses the significance of network effects that may encourage human capital accumulation. Docquier et al. (2010) argue that the 'beneficial brain drain' occurs when the emigration of skilled workers induces younger generations to acquire more and better education in order to reap the benefits of skilled emigration themselves. Our results verify this hypothesis: a 1 percent increase in our measure of skilled emigration causes students to spend around 0.7 years more in higher education.

Analytical and data-related limitations in our analysis prevent a conclusive assessment of the effect of the brain drain on an origin countries' labor market. However, we can draw some policy recommendations: particularly, structural reforms of the labor market and targeted investments in research and development in countries that experience high outflows of skilled workers may help rebalance skill gaps, aide the inflow of foreign graduates, and encourage return migration.

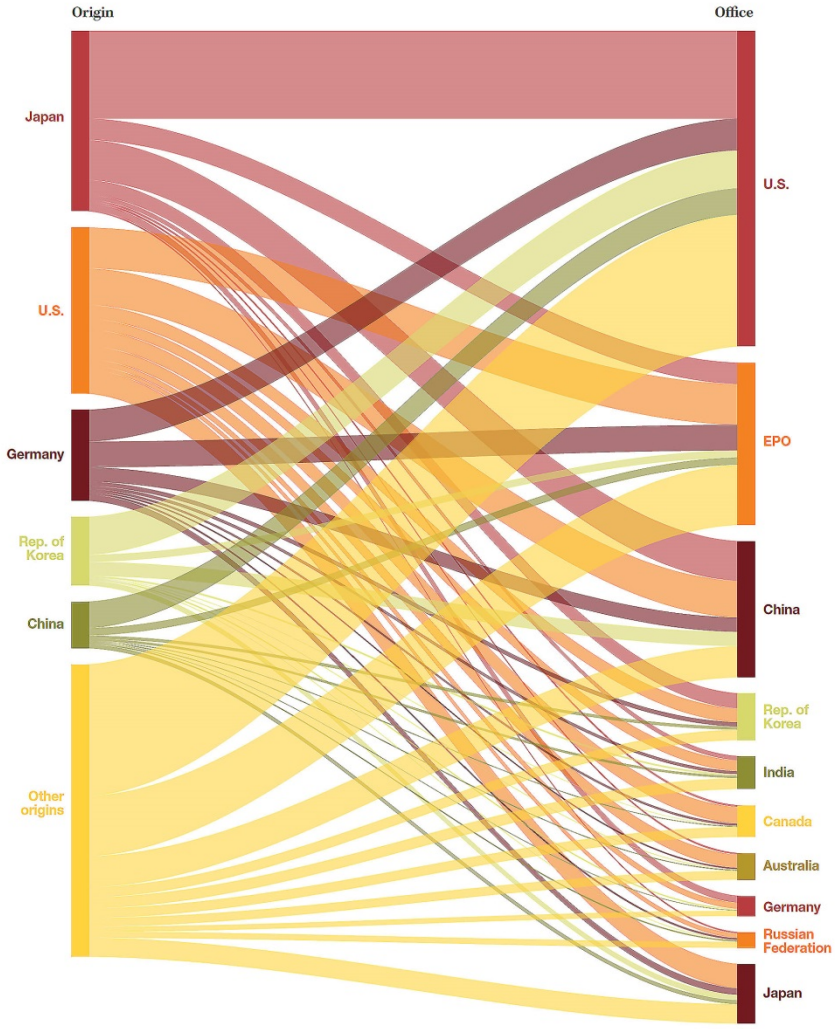
Destination Countries: Spreading the Benefits of Migration Innovation

A virtuous circle of regionalized innovation and growth with migration has emerged

The existence of highly productive agglomerations has provided many advanced economies with an advantage internationally. As an increasingly globalized market for skilled migrants has pulled a growing number of skilled migrants to leading agglomerations, they have further complemented regional innovation and agglomeration effects, generating virtuous cycles of regionalized innovation and growth. Skilled migration has underpinned virtuous ecosystems in parts of the OECD, and in particular, some of the Anglo-Saxon economies (see Figure 81).

[16] This case study was produced by Beatrice Faleri who is a second year MPhil Economics student at the University of Oxford and who has collaborated with Professor Ian Goldin.

Figure 81. Flow of Non-resident Patent Applications Between the Top Five Origins and the Top 10 Offices, 2016



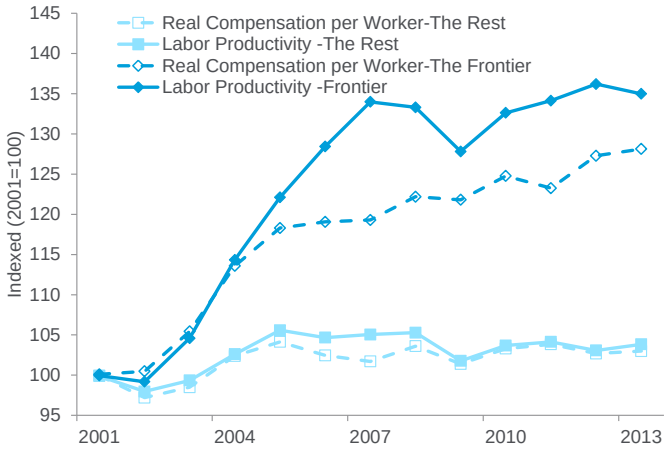
Note: EPO is the European Patent Office. Origin data are based on absolute counts, not equivalent counts.
Source: WIPO Statistics Database, September 2017; World Intellectual Property Indicators 2017- Patents

But institutional failings mean this is contributing to regional productivity disparities in some instances

While benefitting from in these advantages, the structure of innovation across the OECD has also changed. A combination of productivity growth outperformance in these regions and the destruction of mechanisms that might have otherwise dispersed productivity gains more broadly have resulted in growing productivity disparities.[17] As the OECD note, "while the productivity frontier keeps advancing, these gains have not diffused through the rest of the economy" (OECD, 2016). This is true at both firm and regional levels.

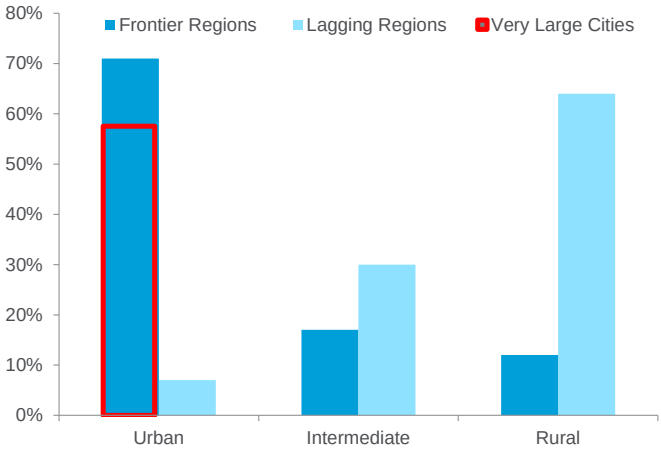
[17] See OECD (2016): Ministerial Briefing.

Figure 82. Gap Between the Productivity and Pay of Frontier Firms (Top 5%) and the Rest, 2001-2013



Note: Frontier Firms are the top 5% in terms of labor productivity by year and sector. Included industries are manufacturing and business services. Firms with at least 20 employees are included.
Source: Andrews, D., Criscuolo, C. and Gal, P (2016)

Figure 83. Frontier Regions — Defined by Productivity Level



Note: Share of frontier/lagging over the period 2003-2013.
Source: OECD (2016) OECD Regional Database.

Many OECD economies have become more dependent on these ecosystems for their aggregate productivity growth; undermining their effectiveness risks a further slowdown in national productivity growth.

Migration and Labor Markets[18]

Attitudes on migration correlate closely with the perceived impact on domestic labor markets

The impact of immigration on domestic labor markets is, in many respects, the central issue for contemporary migration policy. These, and fiscal concerns, dominate political debates. Polls show significant and growing opposition to migration (Eurobarometer, 2018), with attitudes correlating closely with the perceived impact on domestic labor market outcomes.

Despite the long-term benefits of migration, there can be damaging implications on a localized and short-term basis

Our analysis highlights a heterogeneous and complex web of factors mediating the impact of migration on the labor market. Policy, in particular, plays an essential role. Migration can have damaging implications on a localized and short-term basis. These have the capacity to be both severe and, if local trauma is sufficient, enduring, as in the case of trade (Acemoglu et al., 2016). This should not detract from the long-term, aggregate benefits discussed in the previous chapter, but should focus attention on what can be done to ease adjustment; alleviate some of the local, disruptive consequences; and better share migration's costs (as well as its benefits).

The ability of communities to absorb migrants also depends on factors such as local housing markets, transport, schooling, and other facilities

A wider range of factors beyond the work place are important in determining the impact of migration on local communities. The ability of communities to absorb migrants also depends on factors such as local housing markets, transport, schooling, and other facilities. In small towns and rural areas, migrants may work very close to their work places, but in larger towns and cities, work and living places may be geographically distant and both the local conditions at the work place and the residential area need to be considered, as well as the possible pressures on transport systems for commuting between them. Despite their importance, we will not discuss these issues here. They do, however, point to the need for responsive and effective policy structures.

The degree that migrants are either complements or substitutes for native workers is key to migration's impact

The central determinant of migration's impact on native workers is the degree to which migrants are either complements or substitutes for native workers. This, then, depends on: (1) the skills of the specific migrants in question; (2) the skills of the specific natives in question; (3) the structure of the economy; and (4) cyclical conditions. There are, in addition, another set of second order factors affecting the speed at which the economy recovers.

Migration has relatively little impact on aggregate labor market outcomes but can have a severe impact on specific subgroups — the key impact of migration is around the distribution of income

The wide range of factors makes it difficult to generalize about the ultimate impacts of migration on labor markets in the short run. However, we do point to several tentative patterns. Migration has relatively little impact on aggregate labor market outcomes. While there is some evidence that, in the short run, migration can impact aggregate wages and employment, these effects are atypical and are neither generally observed, nor are they severe or long lasting. However, migration can have a severe impact on specific subgroups either in different geographies, and/ or among different occupations and skill levels. In this sense, the key issues around migration seem to be around the distribution of income.

We find evidence that, in many cases, the differential impacts of migration may be contributing to economic inequalities. These effects are far from inherent, but institutional factors such as de-skilling of migrants have often meant lower-skilled workers are competing with migrants much more than skilled workers.

[18] With thanks to Beatrice Faleri for her research assistance on this chapter.

It is not advisable to draw general conclusions here as so many of the economic impacts of migration are specific to time and place. Institutions play a central role in mediating the impact of migration; we think that, in some instances, more can be done to reform these, and their associated policies. We suspect that even in the very long term, the combination of migration and poor policy could hinder the widespread distribution of migration's benefits, and its associated political viability.

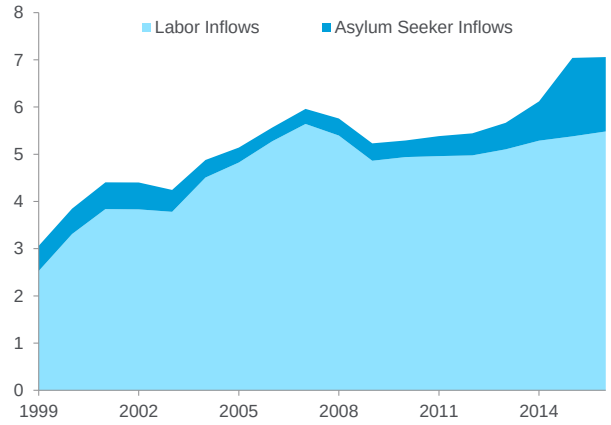
In this chapter, we begin by discussing the labor market outcomes of migrants, and how these compare to natives. Notably, we find cross country evidence of de-skilling, with skilled migrants often struggling to get into advanced occupations. Rather than believing that this is the product of the non-transferability of skills, we instead suggest this is the product of difficulties in getting skills recognized, and difficulties acquiring the complementary qualifications that are sometimes needed.

We then go on to discuss the impact of these migration flows on native workers. Here we find a combination of de-skilling, and other factors have meant migration has tended to increase income inequality. This, and the asymmetry in labor competition that drives it, are far from inherent. These can often be compounded by other, regionally concentrated, costs such as on local services and housing.

Migrant Flows and Labor Market Outcomes

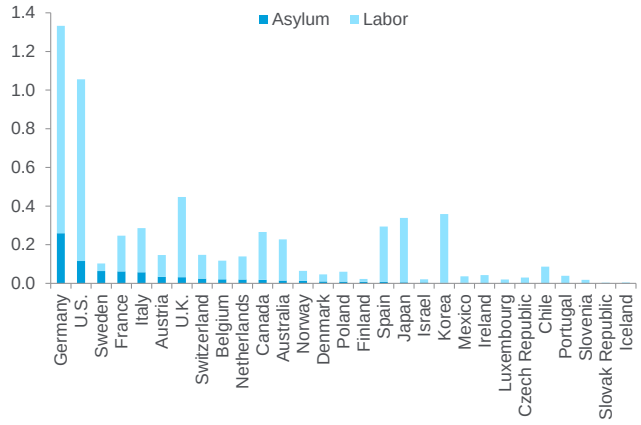
Flows of labor immigrants into OECD countries have almost doubled over the last 20 years, with Germany and the U.S. receiving the largest inflows of both labor migrants and asylum seekers. In 2016, the U.K., Canada, Australia, Spain, and (notably) Korea and Japan also saw substantial inflows (see Figure 84 and Figure 85).

Figure 84. Gross Inflows into the OECD, Labor Migrants & Asylum Seekers, 1999-2016, Millions



Source: Citi Research, OECD (2018)

Figure 85. Gross Inflows, Labor Migrants & Asylum Seekers ,2016, Millions



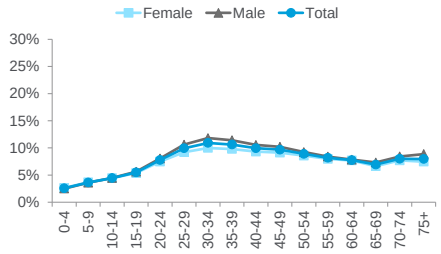
Source: Citi Research, OECD (2018)

Three migration trends are consequential for labor markets: (1) migrants have grown increasingly highly skilled; (2) are increasingly concentrated around working age; and (3) are increasingly feminized

Within this, three trends are particularly consequential for labor markets. First, migrants have grown increasingly highly skilled (as noted above). Compared to the native population, the proportion of migrants is now greatest among those with a tertiary education, compared to any other skill level in the OECD countries (see Figure 31). Migration amongst this group is also rapidly growing. This is increasingly driven by Asian migration, with more than 2 million tertiary-educated migrants originating from this region arriving in the OECD in the past five years. Altogether, India (2 million), China (1.7 million), and the Philippines (1.4 million) account for one-fifth of all tertiary-educated immigrants in OECD countries.

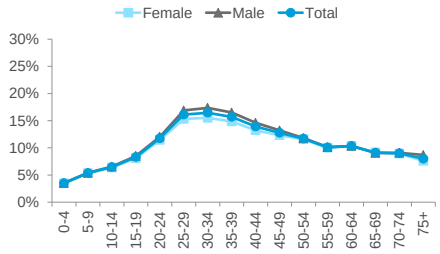
Second, migration has become increasingly concentrated amongst those of working age. The percentage point gap in the proportion of migrants compared to natives amongst 30-35 year olds and 65-70 year olds has increased from roughly 4-5 percentage points in 1990 to roughly 15 today (see Figure 88). Third, migration into the OECD economies has also become more feminized, especially amongst higher skill levels. Women now account for the majority of high-skilled migrants in OECD economies.

Figure 86. International Migrant Stock as % of Total Population by Age & Sex, High Income Countries, 1990



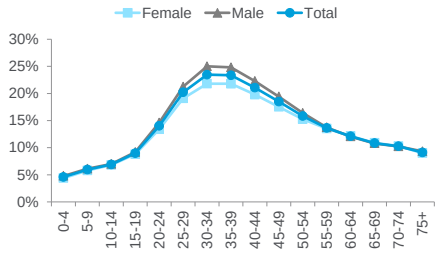
Source: Citi Research, UNDP

Figure 87. International Migrant Stock as % of Total Population by Age & Sex, High Income Countries, 2005



Source: Citi Research, UNDP

Figure 88. International Migrant Stock as % of Total Population by Age & Sex, High Income Countries, 2017



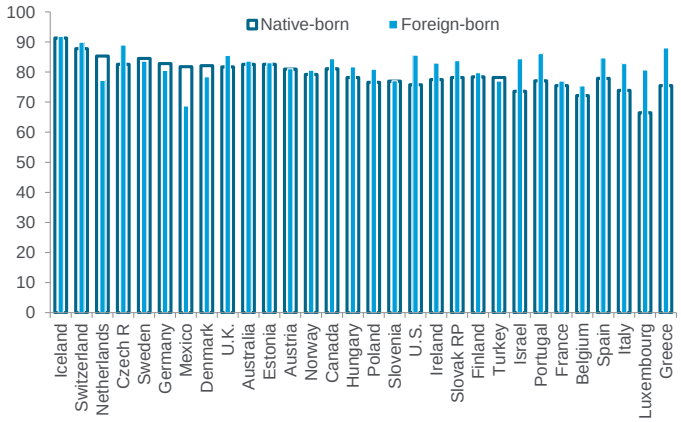
Source: Citi Research, UNDP

Labor Market Outcomes

Participation rates for migrant women are generally lower than natives while participation rates for migrant men are generally higher

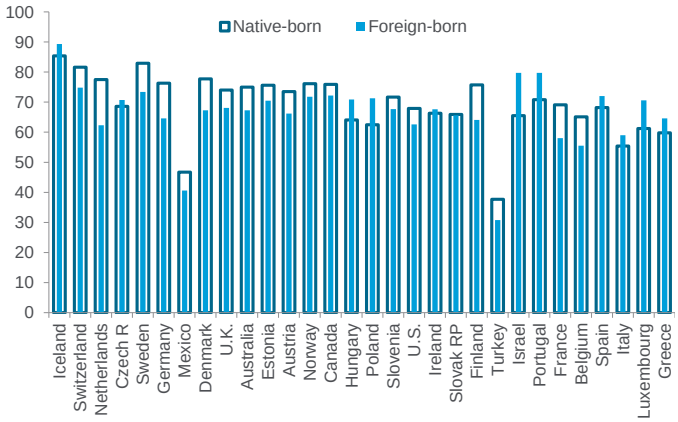
Participation rates amongst migrants tend to differ more substantially by gender than for natives (across the OECD). Generally, the labor force participation rates of migrant men are greater than that of natives. However, for migrant women, participation rates are generally lower (see Figure 89 and Figure 90). This may reflect greater numbers of women migrants entering OECD economies through family channels (family re-unification and so on). Evidence comparing participation rates of male and female migrants entering through labor migration channels tends to show relatively little difference. As above, amongst those migrants that do participate in the labor market, unemployment rates tend to be higher. This is true for both men and women (see Figure 91 and Figure 92).

Figure 89. Male Labor Force Participation Rate: OECD Economies , 2017, %



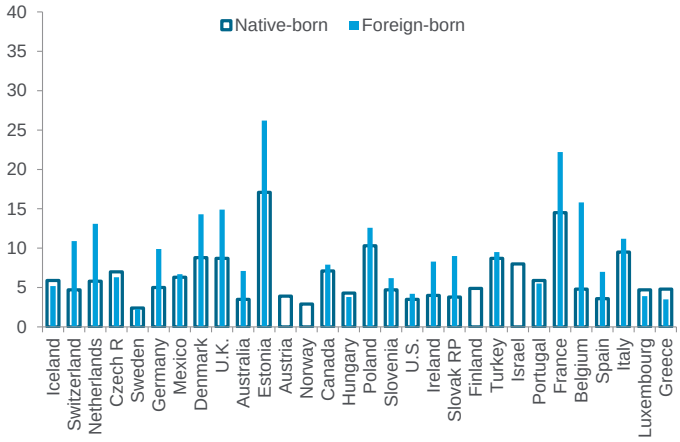
Source: Citi Research; OECD (2018)

Figure 90. Female Labor Force Participation Rate: OECD Economies, 2017, %



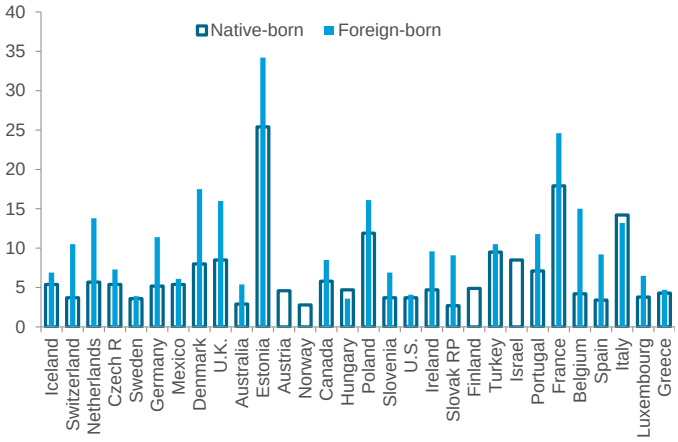
Source: Citi Research, OECD (2018)

Figure 91.Male Unemployment Rate: OECD Economies , 2017, %



Note: No data is available on foreign-born unemployment rates for Austria, Norway or Israel.
Source: Citi Research; OECD (2018)

Figure 92. Female Unemployment Rate: OECD Economies, 2017, %



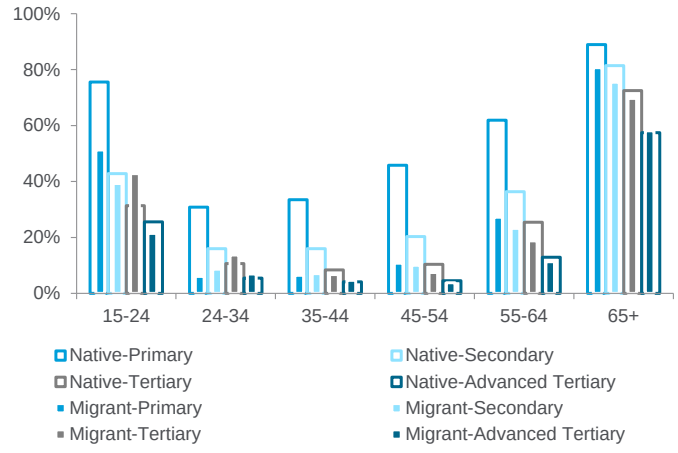
Note: No data is available on foreign-born unemployment rates for Austria, Norway or Israel.
Source: Citi Research; OECD (2018)

The gap in labor market outcomes between migrants and natives is closely linked to education level

The gap in labor market outcomes between migrants and natives is closely linked to education level. Namely, the lower the education level, the more favorable the labor market outcomes of migrants in comparison to natives.

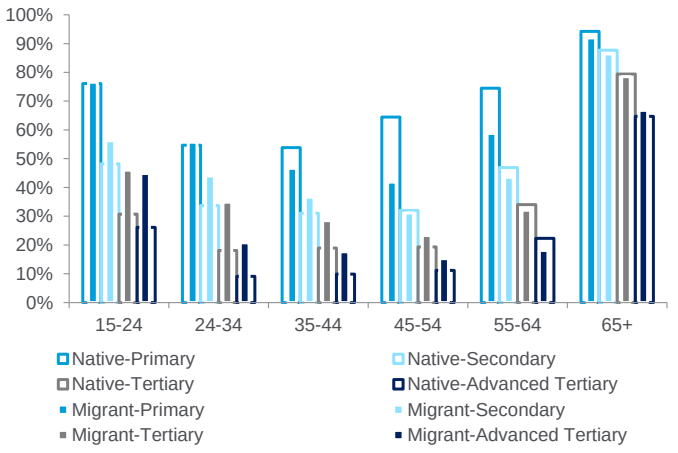
In the United States, for example, non-participation rates among migrant men with a primary and secondary education are lower than the equivalent values for natives (see Figure 93). The same is true for women. Here lower participation rates in general mean foreign-born non participation exceeds that of natives in more instances, but here too the relative outperformance of migrants in lower education levels is discernable (see Figure 94). Notably, migrants also compare favorably to natives in older age categories — this is true for both men and women.

Figure 93. Male Non Labor Force Participation Rate: U.S., 2017



Source: Citi Research; CEPR-CPS

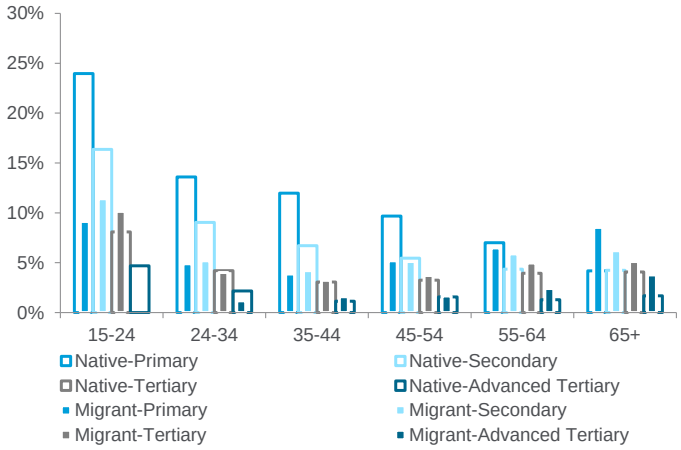
Figure 94. Female Non Labor Force Participation Rate: U.S., 2017



Source: Citi Research, CEPR-CPS

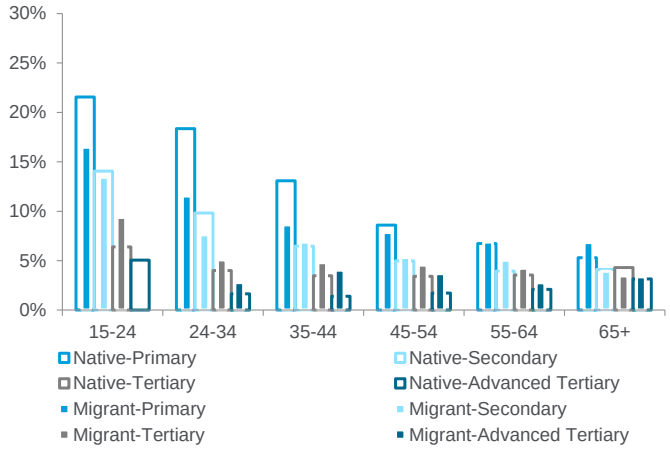
Looking again at the U.S., the same patterns are also reflected in unemployment rates. These are usually lower among lower-skilled migrant groups in comparison to equivalent natives, while unemployment rates among higher skilled workers are generally slightly higher. Unemployment rates for skilled migrants often exceed those of natives, especially amongst older age groups. This somewhat depresses the economic benefits otherwise resulting from higher participation.

Figure 95. Male Unemployment Rate: U.S., 2017



Source: Citi Research, CEPR-CPS

Figure 96. Female Unemployment Rate: U.S., 2017

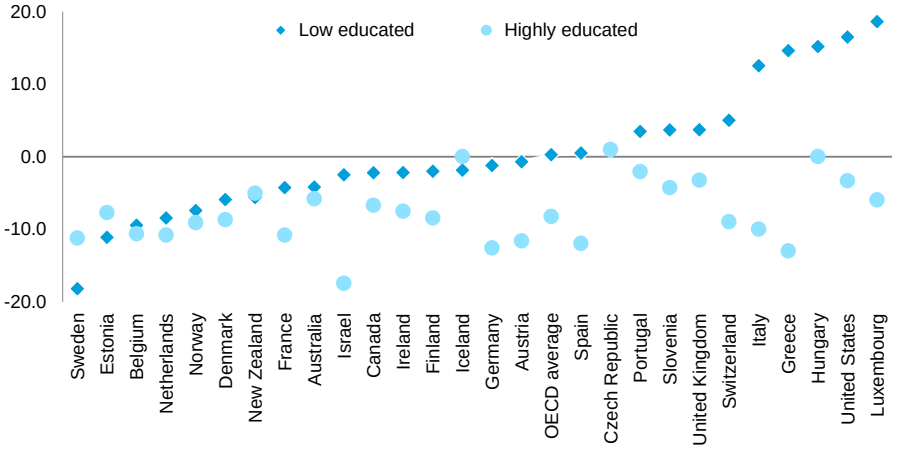


Source: Citi Research, CEPR-CPS

Trends suggest employment rates for migrants outperform those of natives among lower-skilled cohorts, and underperform among higher-skilled groups

Both participation and unemployment trends suggest employment rates for migrants outperform those of natives among lower-skilled cohorts, and underperform among higher skilled groups. The U.S. does not seem to be an exception in this respect. Looking across the OECD, most economies have larger gaps (positive) between migrant and native unemployment among lower-skilled workers, in comparison to high-skilled. The scale of the gap is relatively high in the U.S., in comparison to the rest of the OECD, but the trend is similar (see Figure 97).

Figure 97. Difference in Employment Rate of Foreign- and Native-born Populations, by Educational Level, Excluding Persons Still in Education, 2009-2010, Percentage Points



Notes: Data for New Zealand and Canada include persons still in education.
Source: OECD, Settling in: OECD indicators of immigrant integration, 2012

De-Skilling and Migrant Wage Penalties

Lower participation among higher-skilled migrants is a cause for concern as it amounts to lower fiscal contributions

Lower participation among higher skilled migrants is a cause for concern. As we discuss in the chapter on fiscal impacts, this results in disproportionately low fiscal contributions, with disproportionate losses resulting from poor outcomes among high-value migrant workers (see Figure 141). Two factors seem especially notable. One is lower participation among highly-skilled workers; the second is the lower pay when in work. The two are likely linked, with lower levels of pay either discouraging labor force participation, or higher rates of unemployment making effective job matching more difficult (especially if access to unemployment insurance is limited (Tatsiramos, 2014).

Lower pay could be the product of difficulty in getting into appropriate high-paying occupations or lower pay within the same occupations

Lower pay is the product of either lower pay within the same occupations (and education levels), or difficulty in getting into appropriate, high-paying occupations. The latter is likely especially economically damaging, as it not only reflects underpay, but also the loss of wider productivity associated with the proper utilization of available skills. We might also expect its impact on participation to be more severe, with lower pay not only reflecting lower levels of monetary reward, but also likely differences in work satisfaction.

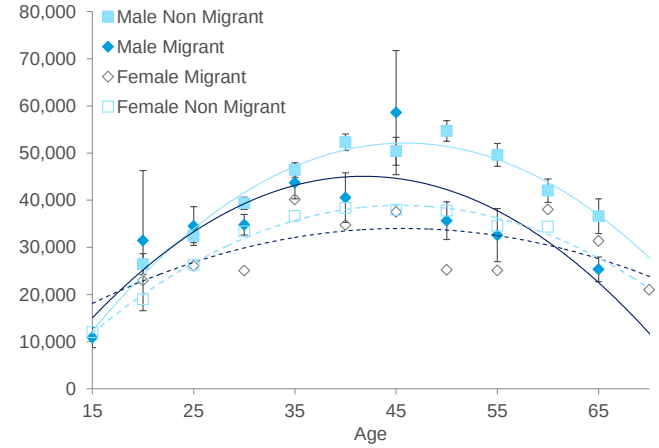
De-skilling is a central element to lower pay often suffered by migrants

While the balance between inter-occupational and intra-occupational migrant pay gaps vary, here we argue the first is playing a very substantial role in many cases. The degree of occupational de-skilling varies, but is a central element to the lower pay often suffered by migrants (having controlled for education level, age and experience) in many cases, and is a factor in the lower participation that often accompanies this.

Analysis has shown in general, that migrants earn less than natives

In general, though not in all cases, migrants earn less than natives. For example, in Italy, the average gap between the mean earnings of both working age male and female native and migrant workers is around 10,000 Euros. It is a similar story in the U.K. (see Figure 98 and Figure 99).

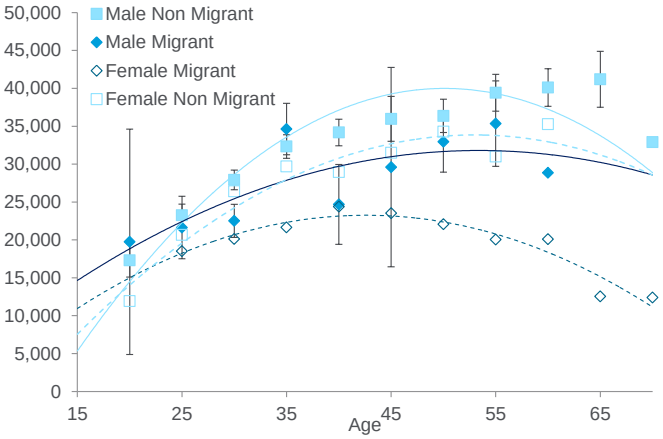
Figure 98. Mean Annual Income By Age and Gender, U.K., 2010, GBP



Notes: Data includes only full time, employed, individuals.

Source: Citi Research, OECD-SILC

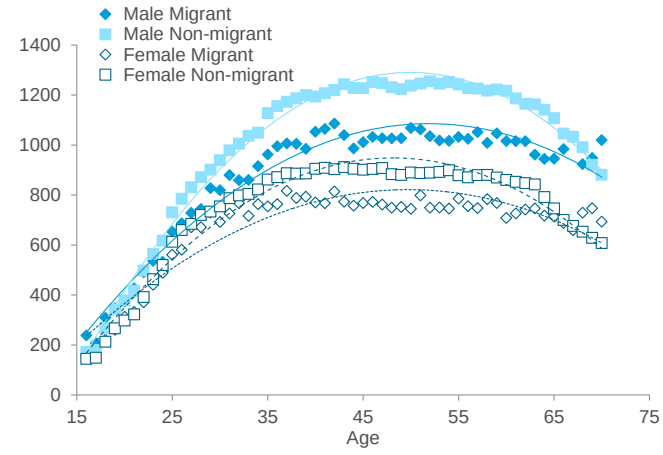
Figure 99. Mean Annual Income By Age and Gender, Italy, 2010, Euros



Notes: Data includes only full time, employed, individuals.

Source: Citi Research, OECD-SILC

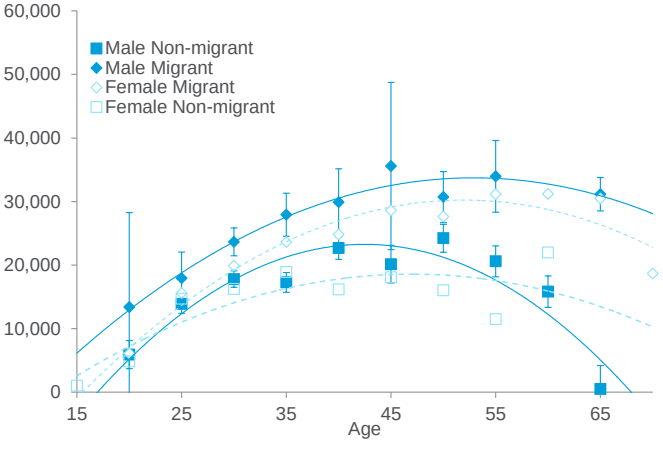
Figure 100. Mean Weekly Income By Age and Gender, U.S., 2017, USD



Notes: Data includes only full time, employed, individuals.

Source: Citi Research, CEPR-CPS

Figure 101. Mean Annual Income By Age and Gender, Spain, 2010, Euros



Notes: Data includes only full time, employed, individuals.

Source: Citi Research, OECD-SILC

In the U.S., gender is a stronger determinant of earnings than migrant status. But, among both men and women, natives out-earn migrants. In Italy, the pattern is slightly more complex with natives generally outlearning migrants first, and then men outperforming within each respective group. In other words, migrant status, rather than gender, is the predominant determinant of earnings here.

But in Spain and Italy, migrants tend to out-earn natives

It is not always the case that, on average, migrants earn less than natives. In Spain, for example, there is a similar migrant, non-migrant split in earnings as in Italy. However, in this case, average earnings are reversed — migrants tend to out earn natives.

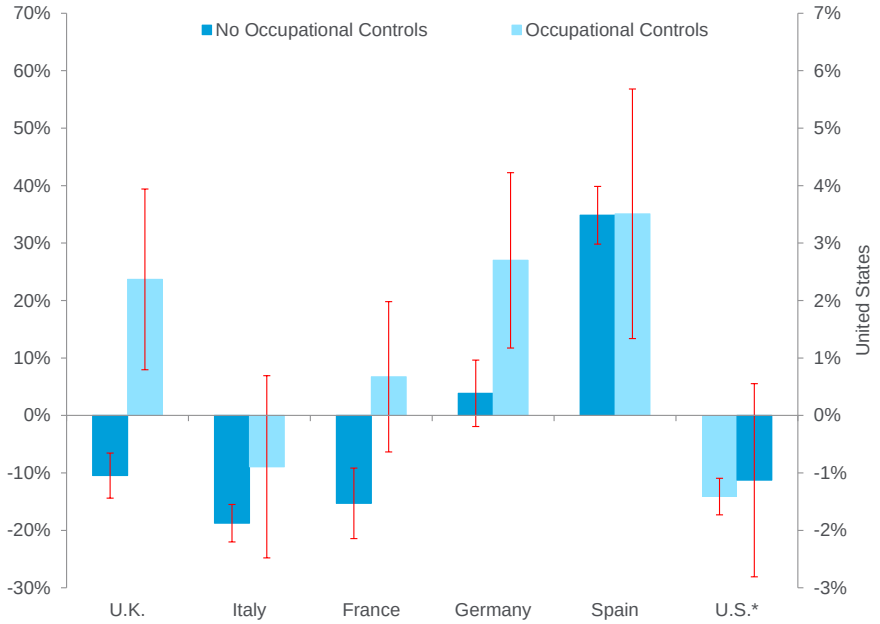
The question of migrant wage penalties, however, requires us to compare like for like. We use a basic regression model in which we control for working hours, education level, experience, and gender to narrow down on the effect of being a migrant on average earnings (see Appendix 2 – Regression Modelling).

We look at two different estimates of the effect of being a migrant on earnings. The first looks at the percentage effect of being a migrant in overall, controlling for education levels. The second controls for occupation, giving us an indication of how migrant pay differs when migrants are in the same occupations as natives with equivalent skills and experience. The difference between the two estimates offers an indication of how much of the migrant wage difference is attributable to differences in migrant allocation to different occupations, and how much is the result of different rates of pay within them.

Over six economies we look at, our analysis suggests differences in the distribution of migrants across occupations weighs on earnings, reflecting de-skilling

The results are shown in Figure 102. The most notable result is, over the six economies we look at here, the migrant wages compare more favorably to those of natives when occupation (in this case broadly defined) is controlled for. The implication is that, to varying degrees, differences in the distribution of migrants across occupations weighs on earnings, even having controlled for the respective factors above.

Figure 102. Marginal Impact on Earnings of Being Foreign Born, U.S., 2017

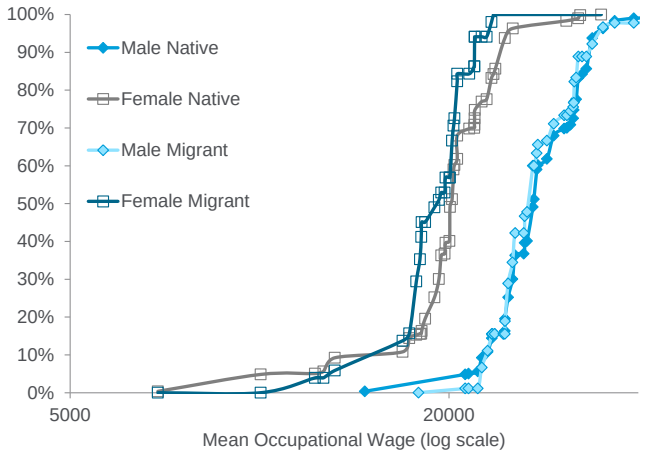


Notes: For more information on the regression used here, see Appendix 2. Data includes only full time employed individuals.
Source: Citi Research; CPS-CEPR

The degree of occupational de-skilling varies significantly by gender

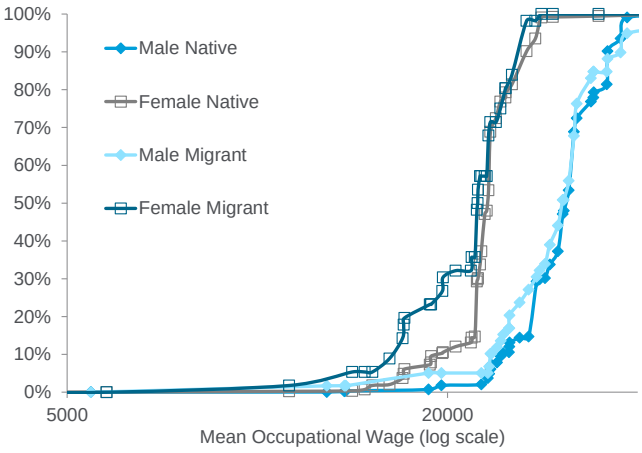
This, we argue, reflects de-skilling. A closer look at these trends reveals several important additional subthemes. For example, the degree of occupational de-skilling often varies significantly by gender. In France and the United States, women are disproportionately affected, for example. In France, at both second and tertiary education levels there is little difference between the occupational distribution of male natives and migrants. Among women, however, there is a noticeable difference, with women more concentrated in lower paying occupations in comparison to their native colleagues (see Figure 103 and Figure 104).

Figure 103. Cumulative Distribution of Secondary-Educated Workers, by Occupational Mean Income, France, 2010



Notes: Data includes only full time employed individuals.
Source: Citi Research; OECD- SILC

Figure 104. Cumulative Distribution of Tertiary-Educated Workers, by Occupational Mean Income, France, 2010



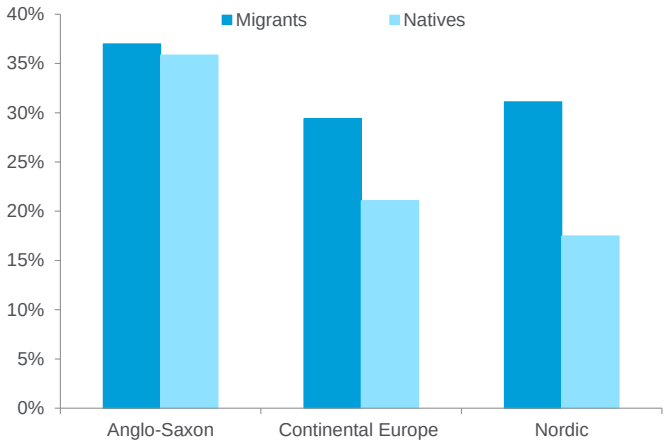
Notes: Data includes only full time employed individuals.
Source: Citi Research; OECD- SILC

Aggregate de-skilling is highest among the Anglo-Saxon economies

When measured by job, rather than education-occupation pairs, aggregate de-skilling seems to be highest among the Anglo-Saxon economies, with the largest gaps between migrants and natives in the Continental European and Nordic countries. Notably, in all of these categories, rates of de-skilling were greater among migrants than natives (see Figure 105).

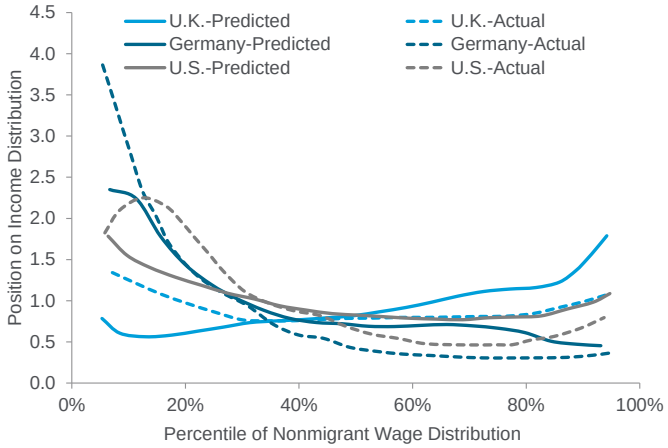
In general, there is a substantial gap between the expected distributions of recent migrants based on their experience and skill level, and their actual distribution across the distribution in all of these cases. Looking at Figure 106, for example, there is a concentration of these migrants in the lower part of the income distribution in comparison to what would be expected given their education and experience (the solid lines in Figure 106). In most cases, this reflects mismatches between migrant skill levels and job (Dustmann et al., 2016).

Figure 105. Higher-Educated Workers in Lower-Skilled Jobs, 2000



Source: Joumotte et al. (2016)

Figure 106. Position of Foreign Workers in the Native Wage Distribution, 1995-2005

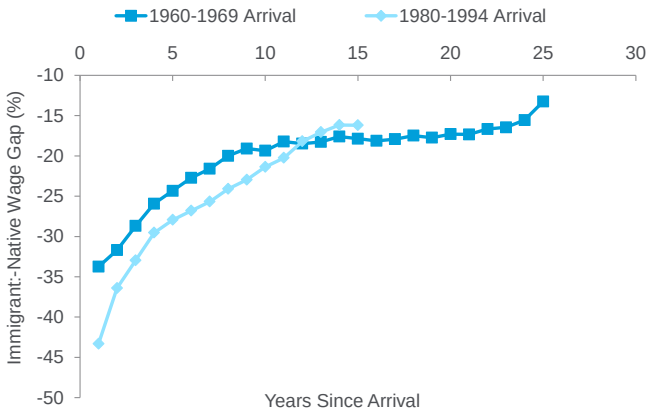


Source: Citi Research; Dustmann et al. (2016)

But this downgrading of skills tends to diminish over time for migrants

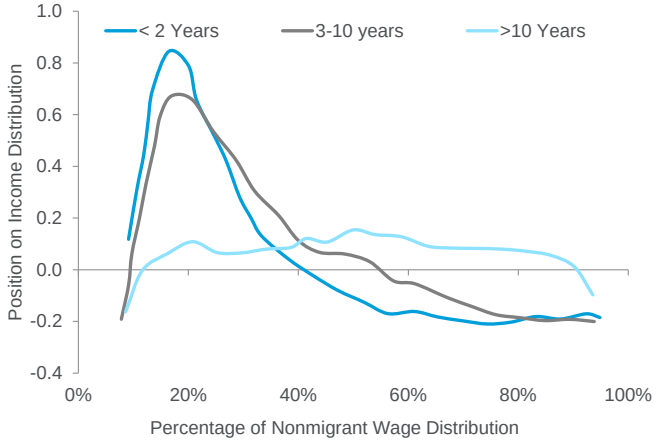
These effects tend to decline over time. Controlling for factors such as age, education and experience, data presented by Lubotsky (2007) shows a strong upward momentum to earnings in the initial years after arrival in the U.S., reflecting better matching and rapid improvement in skill recognition. As Preston (2014) points out, downgrading tends to diminish over time as migrants have longer to search for better opportunities, and acquire certain soft skills and social capital that allow for better communication of existing technical skills.

Figure 107. Immigrant Earnings Relative to Natives by Decade of Arrival and Years in the U.S.



Notes: Chart refers to median earnings.
Source: Citi Research; Lubotsky (2007)

Figure 108. Actual vs. Predicted Positions of Foreign Workers by Duration of Stay, U.S., 1995-2005

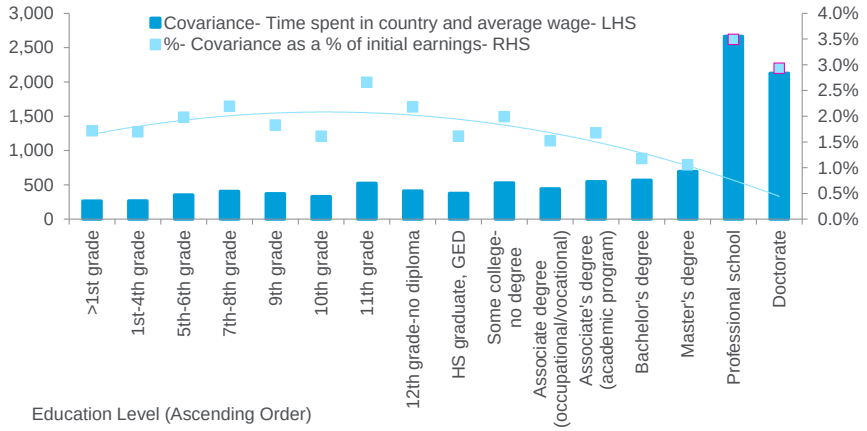


Source: Dustmann et al. (2016)

The upskilling seen in these initial, post migration, wage developments is reflected in the different rates of earnings growth between different education groups. Looking at the current CPS survey data, there is a much stronger rate and absolute level of growth among those with the highest academic education than for other migrants in the U.S. (see Figure 109). In part, this may reflect differential selection effects across different education groups (different rates of return). In general, these are generally supposed to pre-select less effective migrants in older ages/ higher stay durations (Dell' Aringa et al., 2015), but the effects could differ.

Interestingly, these effects are non-linear. Excluding the most advanced tertiary qualifications, proportionally, growth seems to be highest among those groups falling just short of a formal qualification (be it a Bachelor's degree or otherwise). This is especially notable when comparing outcomes to the trend line. This, and the pattern as a whole, may be related to difficulties in skills evaluation. Growth is highest among those qualifications that are relatively hard to interpret.

Figure 109. Covariance Between Years in Country and Earnings- 35 Years After Migration, U.S., 2017



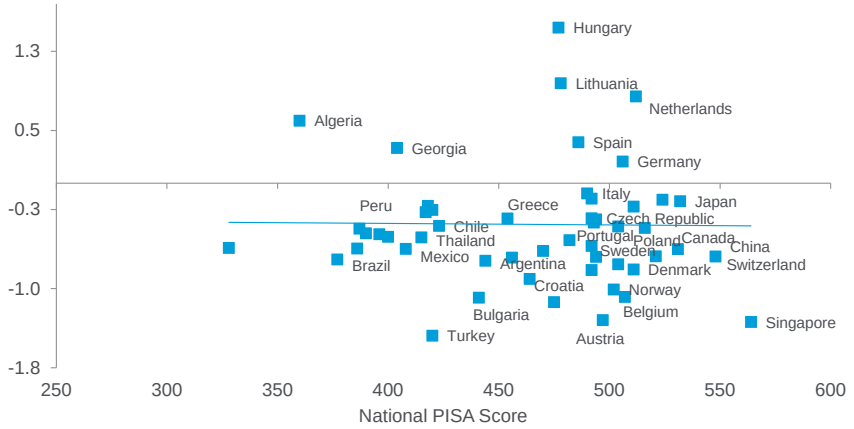
Note: Professional school and doctorate returns are excluded from the derivation of the trend line. Data includes only full time employed individuals.
Source: Citi Research; CPS-CEPR

Poor recognition vs. more profound skill deficiencies or transferability is an explanation for initial low wages

The speed at which wages improve here also implies that the initial low wage level is a product of poor recognition, rather than more profound skill deficiencies or issues with transferability (in comparison to natives). The importance of skill recognition comes through elsewhere too. For example, looking at the effects of active labor market policies in Germany on unemployment among migrants, Thomsen et al. (2013) find that policies, such as private work placements, that provide access to job-based networks and specific job-based experience yield disproportionate benefits among migrants. This implies the existence of latent skills that, with the right complementary qualifications and exposure, yield disproportionate benefits.

The issue of recognition is also implied by the absence of any obvious impact of national skill quality on migrant education returns. This suggests that rather than issues in the nature of the qualifications themselves, which we would expect to vary between different source countries with the measured quality of education systems, we instead find very little correlation. Very generally, if one takes the PISA assessment of secondary school educational outcomes, and compares this to the measured returns on high school education in the United States, for example, there is little evidence of any obvious correlation. This seems to apply to other skills as well. However, given the substantial number of different outcomes that affect skill return, more work is needed to reach firm conclusions.

Figure 110. Home Country PISA Scores and Marginal Migrant Effect on Return to a Secondary Education, U.S., 2017



Notes: Data includes only full time employed individuals.

Source: Citi Research, CEPR-CPS

There are many different factors that can affect the returns on different qualifications. In many cases there are also likely to be issues of transferability and broader questions of quality. However, in many OECD economies, we suspect recognition is an important issue. This puts the focus on assimilation and the wider labor market integration of migrants.

Migrant Assimilation: What Affects the Degree of De-Skilling?

De-skilling as a phenomenon varies significantly between countries

De-skilling is not a homogenous phenomenon. Rather it varies significantly between countries, as noted above, as well as different migrants within the same economy. This is the result of failures to properly recognize and match opportunities to migrant skills and therefore it is to be expected that this is likely to vary depending on factors and characteristics that help migrants demonstrate and signal their abilities within the labor market. To examine this, we conceptualize de-skilling as lower returns to education and experience amongst migrants. We build on the regression model we previously used in Figure 102. In this case, we expand this to allow for differences in migrant returns to education and in country experience, while also differentiating between work experience within the destination economy, and that gained outside.

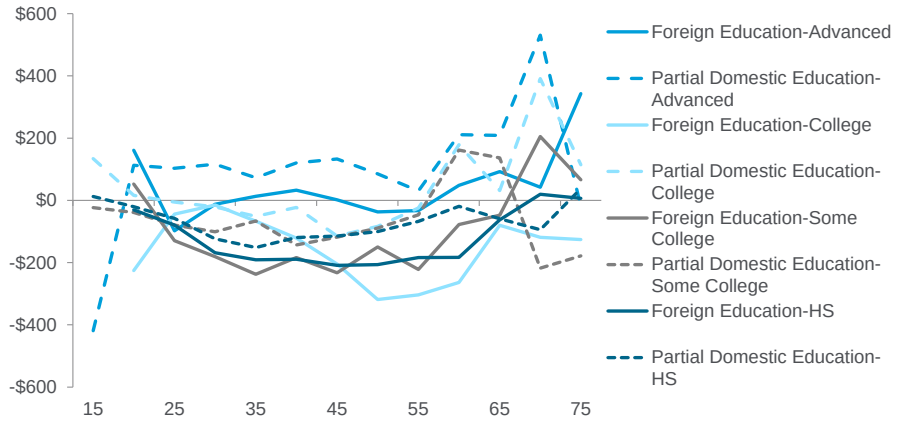
This assumes the effects resulting from non-transferability is limited and, as shown above, at least a substantial component of wage differences is the product of inter-occupational differences. We are able, however, to test that the latter assumption holds (see below). In the first case, we also observe little difference between returns to education between migrants who received some education in country, and those that did not. All else being equal, we suggest this implies relatively little difference between actual skill levels based on where education was received.

Three factors have an important impact on the rate of migrant assimilation and the reduction in de-skilling: (1) age at which an individual migrates; (2) their origin; and (3) the time at which they migrated

We highlight three factors that have an important impact on the rate of migrant assimilation and subsequently reduce the degree of de-skilling: age at which the individual migrates; their origin; and the time at which they migrated.

First, however, it is worth noting the importance of domestically acquired skills to migrant recognition and returns. Generally, earnings are significantly higher at each level of education — for example for those that have acquired at least part of their education in the destination economy. In the United States, for example, while migrant wages lag those of equivalent natives, those for migrants that have had at least part of their education in the United States exceed those who have not (see Figure 111).

Figure 111. Difference between Migrant Average Weekly Earnings & Native by Age, U.S., 2017



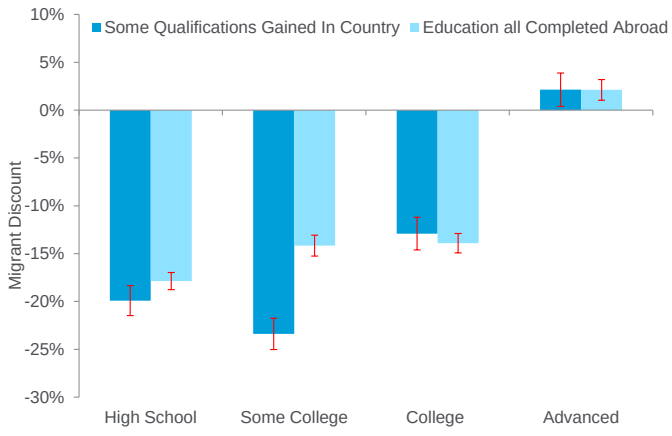
Note: 'Partial domestic education' refers to migrants that have had part of their education in the United States. Data includes only full time employed individuals.
Source: Citi Research; CPS-CEPR

Looking at returns to education, rather than level of earnings, and controlling for other factors this finding reveals that there is no greater return on education among those that gain at least part of their education in the given destination country. If these qualifications were of distinct quality, economically speaking, we would expect these to differ in this respect.

Migrants who receive some education in-country enjoy a substantial advantage

The largest difference in returns between migrants with some education in country, and those outside, seems to be in returns to in country experience. Here those that have received some education (in this case) in the United States seem to enjoy a substantial advantage, with a much lower penalty on such returns compared to those that have no such qualification. This, again, points to the importance of the broader cultural and social factors associated with completing education in a destination economy, as opposed to something specifically related to the skills themselves.

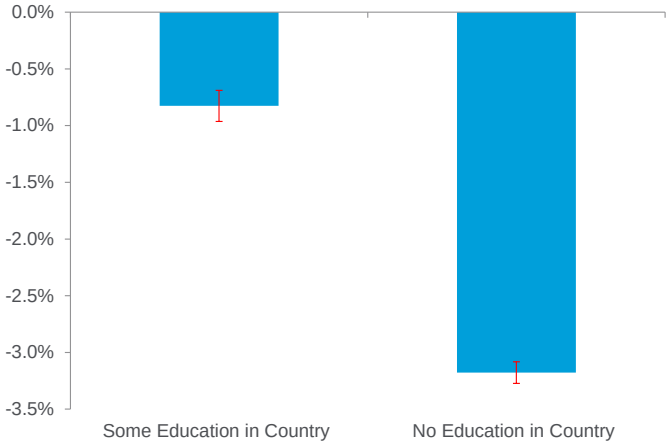
Figure 112. Marginal Effect of Migration on Returns to Education, U.S., 2017



Notes: For more information on the regression used here, see Appendix 2. Data includes only full time employed individuals.

Source: Citi Research; CEPR-CPS

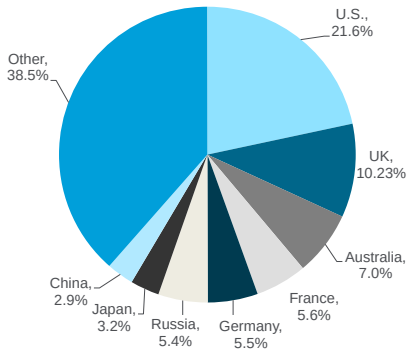
Figure 113. Marginal Effect of Migration on Returns to in Country Experience, U.S., 2017



Notes: For more information on the regression used here, see Appendix 2. Data includes only full time employed individuals.

Source: Citi Research; CEPR-CPS

Figure 114. Total Inbound Internationally Mobile Students, 2015



Source: Citi Research, UNESCO

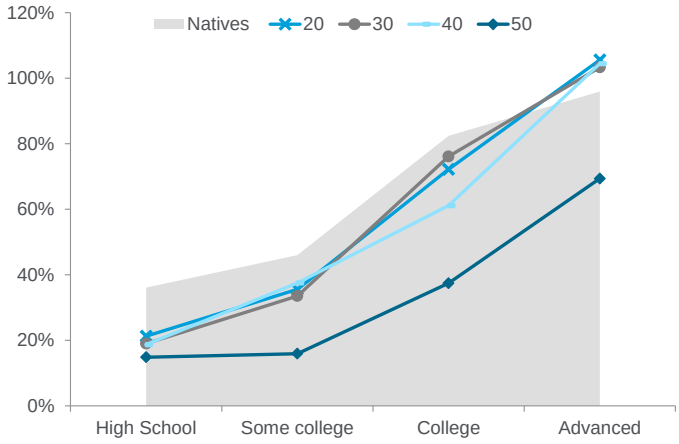
Better labor market outcomes here highlight another benefit to high numbers of foreign students. Alone, foreign students help to subsidize domestic educational institutions, while also playing an important role in attracting leading global talent (Kerr et al., 2016). Leading educational institutions also play a direct role in incubating world leading innovation. Beyond this, however, companies and countries benefit not just from preferential access to talent, but also seemingly better labor market outcomes once utilized. Thus far, these benefits seem to have been disproportionately accrued to the U.K., U.S. and, to a lesser degree, the rest of Europe (see Figure 114).

Beyond this, the age at which individuals immigrated into the United States has an important impact on returns to education and experience. Using our third regression methodology (see Appendix 2 – Regression Modelling), we examine the marginal effect on returns to education and experience for migrants compared to natives.

Looking first at education, we find that returns to education fall substantially for migrants the older the age at which they migrated. Age does not feature in the migration selection policies of many countries (with the notable exception of Australia). However, the analysis here suggests it could be a significant determinant of educated migrant wage outcomes and lifetime fiscal contributions (see below).

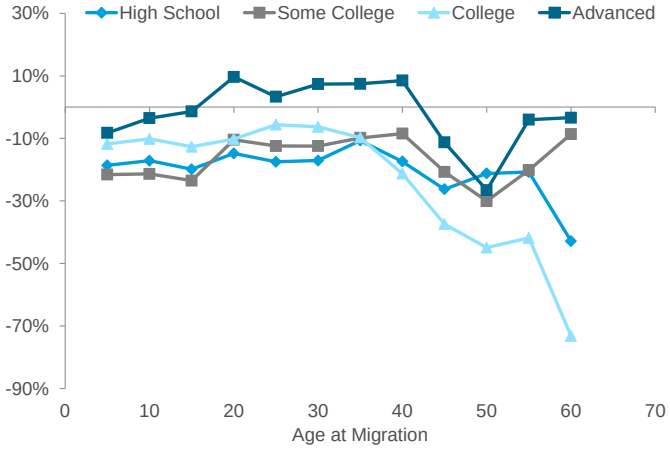
Importantly, outcomes seem to exhibit a significant degree of nonlinearity, with migrant penalties increasing substantially above the age of 40. The reasons for this are unclear. This could be the result of selective return migration, as well as interactions with childcare, with college returns falling from around age 30. The findings here closely mirror results elsewhere showing that, above the age of 40, migrants struggle to get a foothold in the labor market (see Gustafsson, Innes, and Osterberg, 2017 for Sweden).

Figure 115. Total Returns to Education by Age at Migration, U.S., 2017



Notes: For more information on the regression used here, see Appendix 2. Data includes only full time employed individuals.
Source: Citi Research; CEPR-CPS

Figure 116. Marginal Effect of Migration on Returns to Education by Age at Migration, U.S., 2017



Notes: For more information on the regression used here, see Appendix 2. Data includes only full time employed individuals.
Source: Citi Research; CEPR-CPS

Many of the relative benefits associated with younger migration appear to be the product of inter-occupational movement

Interestingly, many of the relative benefits associated with younger migration appear to be the product of inter-occupational movement. We adopt the same strategy we used previously to look at the effect of education on intra-occupational vs inter-occupational wages. We find that controlling for occupations lowers the returns to education across migrant age groups. This, as in Chiswick and Miller (2008) note, reflects the central role of education amongst migrants in facilitating access to high paying occupations in the U.S.. Hence returns are often disproportionately based on the inter-occupational channel, in comparison to natives.[19]

Notably, this shift also erodes much of the additional benefit that comes from younger migrants, compared to old, implying that the relatively stronger return on skills among this group reflected a superior capacity to get into higher-paying occupations and reduce the degree of mismatch. This further strengthens the fiscal case for younger migrants, especially among skilled groups, given the aggregate and distributional costs (see below) of de-skilling.

[19] This, however, is not uniform across the OECD with, in many cases, education not facilitating access to higher paying occupations (see Dell' Aringa et al., 2015 in the case of Italy, for example).

It seems that returns to out of country experience are more heavily penalized based on the time period in which an individual migrated

Second, we look at the effect of cohorts. In these findings, again, we cannot dismiss the risk of self-selection and endogeneity (namely, the results for older cohorts' results being biased (downwards) by selective return migration). However, it does seem that returns to out of country experience are more heavily penalized the earlier the cohort in which a given individual migrated.

This could mean that human capital reflected in foreign work depreciates more rapidly than that gained within country

How to interpret this precisely is difficult without further data, but we suspect it may reflect two possibilities. One is that the human capital reflected in foreign work experience is not just recognized less, but also depreciates more rapidly than that gained within country. The second is, as the world has become more globalized, recognition of more recent foreign experience may have improved, even if older, different, forms remain penalized. The 'migrant penalty' on different levels of education seems to differ substantially between cohorts (when measured in 2017). Again, this may reflect endogeneity and selective return. On the other hand, this may also reflect a changing structure to skills recognition.

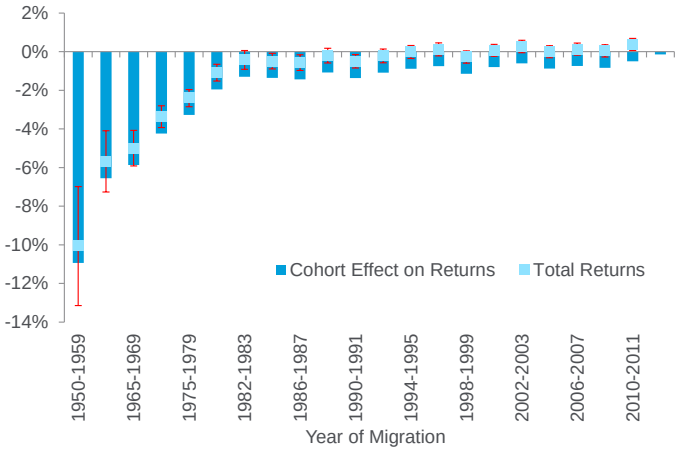
What is particularly notable here in the case of the U.S. is that the changes in these migrant education penalties are dependent on when migrants first entered the U.S. In other words, there are persistent differences in returns to skills depending on when a migrant entered the U.S. These divergences are likely, in part, to reflect differences in demand for such skills in the U.S. economy (with the growing demand for high skills, in particular, being well noted[20]) at the time an immigrant entered the United States, with subsequent occupational path dependence. However, it is unclear why this results in such extensive, sustained, migrant penalization, especially when factors related to age and (cohort specific) experience are controlled for.

These differences may reflect changes in the initial manner in which migrant skills were recognized. There is scope for substantial path dependence here. In a case where the true skill level reflected in a qualification is (more) uncertain, the initial judgment made about formal qualifications and the associated skill level might be expected to be self-reinforcing.[21] Given the specific qualifications also vary over time (if not the skill levels they reflect), this can mean the same skill level can yield enduringly different migrant divergences for the given migration cohort.

[20] See, for example, Acemoglu and Autor (2012).

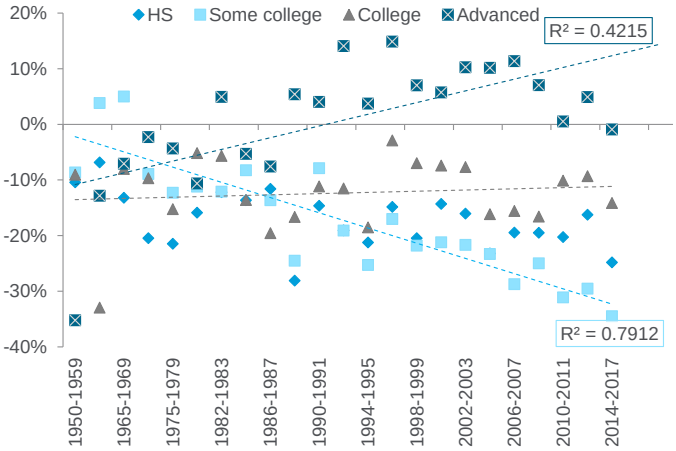
[21] Evidence for such dynamics can be found in capital markets. Banerjee (1992) explains that, in cases of heightened uncertainty, investors are typically incentivized to reinforce the judgements made by others before them. Such 'herding' dynamics may also apply to migrant skills.

Figure 117. Returns on Out of Country Experience by Year of Migration, U.S., 2017



Notes: For more information on the regression used here, see Appendix 2. Data includes only full time employed individuals.
Source: Citi Research; CEPR-CPS

Figure 118. Marginal Effect of Migration on Returns to Education by Year of Migration, U.S., 2017



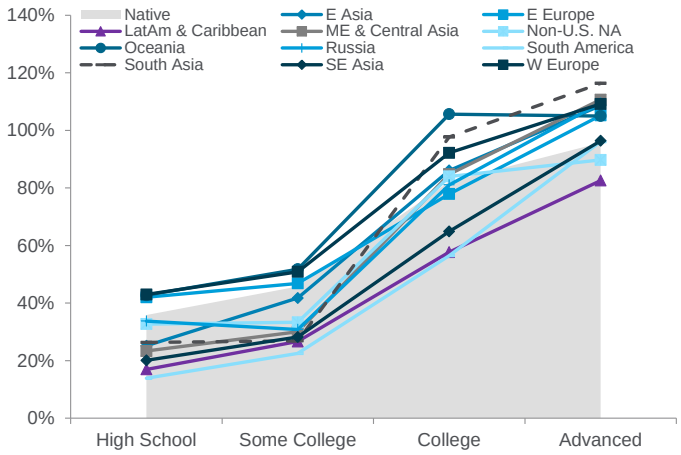
Notes: For more information on the regression used here, see Appendix 2. Data includes only full time employed individuals.
Source: Citi Research; CEPR-CPS

Evidence for the latter effect is further bolstered when we control for occupation. In this case, controlling for occupation results in almost all of the effects observed in Figure 118 disappearing. The implication is that these differences are largely the result of differential access to different occupations over time, with returns otherwise far more consistent between cohorts. This reflects our narrative above in the sense that, over inter-occupational distances, we would expect in work skill 'discovery' to be less effective. So these divergences between different cohorts are the product of sustained occupational mismatches.

Migrant origin seems to be a variable within education levels

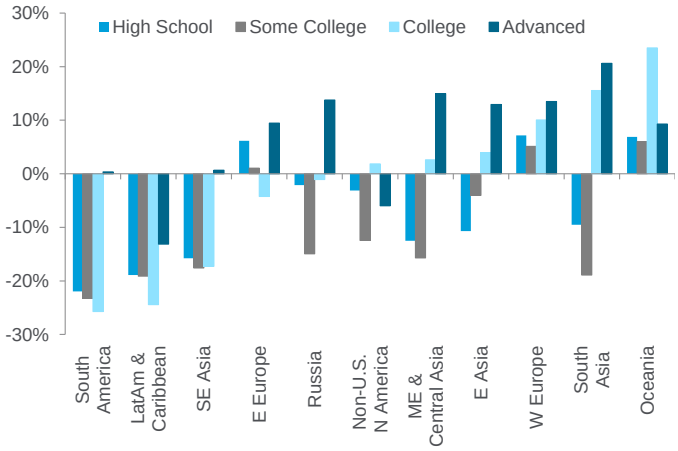
Turning lastly to origin, here there is also substantial variation, including within education levels. Looking at the United States, different migrant origins seem to reflect three patterns of migrant return. First, migrant returns to education consistently exceed domestic returns, this seems to hold for migrants from Oceana and Western Europe. Second, there are some that exhibit a steepened return profile, with higher returns for high levels of education and lower, otherwise. Asian migrants often fall into this category. Lastly, there are countries where returns consistently lag across the income distribution, with South and Latin American migrants often being penalized here.

Figure 119. Total Returns to Education by Origin, U.S., 2017



Notes: For more information on the regression used here, see Appendix 2. Data includes only full time employed individuals.
Source: Citi Research; CEPR-CPS

Figure 120. Marginal Effect of Migration on Returns to Education by Origin, U.S., 2017



Notes: For more information on the regression used here, see Appendix 2. Data includes only full time employed individuals.
Source: Citi Research; CEPR-CPS

Differentiated access to occupations plays an important role here

Here, too, differential access to occupations plays an important role in the different rates of observed skill return. Adding in controls for occupation reverses the strongly positive returns for advanced qualifications in Oceana and South Asia, for example, suggesting that much of the strong returns we observe here are the product of better access to high paying occupations.

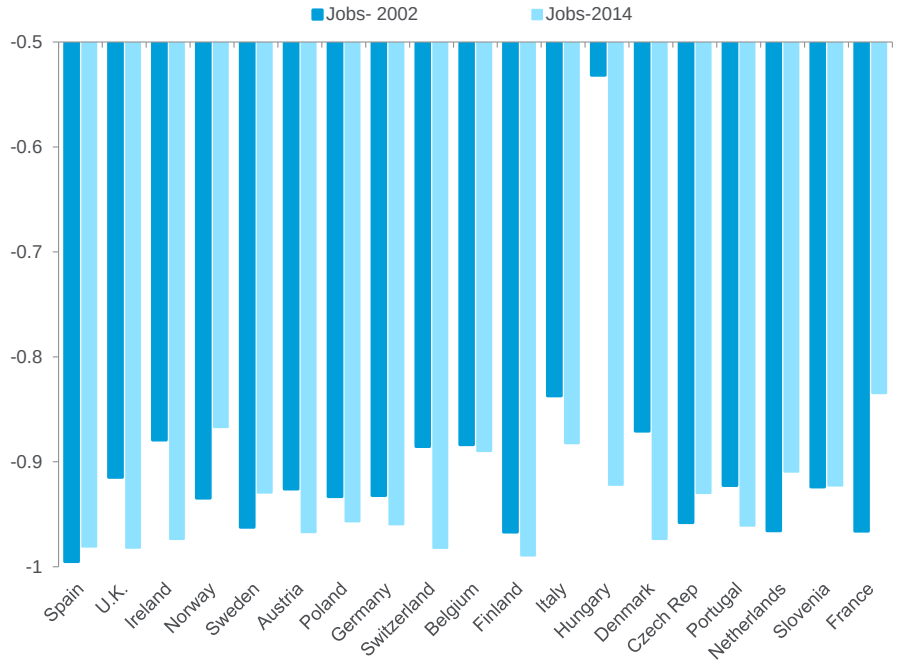
Impact on Domestic Earnings: Increasing Inequality?

Correlation is strongest between attitudes to migration and the impact of migration on domestic wages and employment

The impact of migration on domestic wages and employment is now the central issue in contemporary immigration debates. Alongside the perceived fiscal impacts, views on these issues are the strongest correlates to attitudes towards migration, and increasingly dominate in discussions around the issue. Here we focus primarily on the shorter-term impacts of migration, though we also discuss the long-term distributional concerns resulting from the differential rates of productivity growth across regions, implied above in “Destination Countries: Spreading the Benefits of Migration Innovation.”

The canonical model for the impact of migration on native workers is, essentially, a basic supply and demand story; as the supply of migrants goes up the price (in the short term) comes down. Among certain types of labor we find evidence of this, with higher migrant supply driving lower wages and higher unemployment. But this is also offset by complementarities elsewhere and ultimately not evidenced on an aggregate scale. Across the existing literature, there are few examples of aggregate effects on wages and employment resulting from migration. To the degree that national level impacts are found on employment and wages, these are small and seldom significant.

Figure 121. Correlation Between Attitudes on the Desirability of Making Migration More or Less Permissive, and Perception of Migrant impact on Jobs, 2002 and 2014



Notes: Attitudes regarding the perceived impact of migration on jobs is derived from answers to the question of whether migrants take jobs away from natives. Attitudes towards migration are measured using views on whether the respondent favors more restrictive migration policy towards immigrants from all sources.
Source: Citi Research; European Social Survey

Migration has increased the degree of wage inequality

Instead, our focus here is on the distributional impact of migration. Unlike at the aggregate level, in local geographies, and amongst certain skill and occupational groups, negative effects are notable. These effects have been concentrated among lower-skilled, less well-paid, workers, while positive effects focused among the more skilled. As a result, in many contexts, migration has increased the degree of wage inequality. We suspect these asymmetric impacts are linked to migrant de-skilling noted above.

The impact of migration on domestic wage and employment outcomes depends on how substitutable migrants are to domestic workers and how the broad economy adjusts

The impact of migration on domestic wage and employment outcomes depends on two main sets of factors. First, domestic labor market outcomes depend on how substitutable (or complementary) migrants are to domestic workers. Second, wage and employment outcomes depend on how the broader economy adjusts. This is likely to vary substantially at a local level, and also depends on wider institutional variables including minimum wage levels and the degree of wider welfare support.

We note a disproportionate competitive pressure on lower-skilled workers in many OECD economies in comparison to higher-skilled workers

The implication of this is that the labor market reactions to migration are hard to generalize, and instead are likely specific to a given time and space. However, we suspect that several trends, including migrant de-skilling, are placing disproportionate competitive pressure on lower-skilled workers in many OECD economies, in comparison to higher-skilled workers. When accompanied by other distinctions such as technological differences, and subsequent greater inherent complementarity among higher-skilled natives in many cases, these suggest different experiences of recent migration. There also seems to be differences in the capacity to adjust, in which public institutions also often play an important role.

In this section, we discuss these themes by first introducing the different methodologies used to examine the impact of migration on domestic wages and employment. We then go on to discuss what these respective findings illustrate. We then conclude with a discussion on how the effects likely differ between communities and regions, owing to factors that affect both the local impact, and the capacity to adjust.

Estimating the Wage and Employment Impacts of Migration

Migration is increasingly complementing high-skilled workers, and competing with less-skilled workers

The effect of migration on wages and labor market outcomes of natives is often more evidently negative among lower income, less skilled natives, a reflection of the apparent greater substitutability between lower-skilled natives and migrants. This asymmetry has not obviously changed even as migration into OECD economies has become increasingly skilled. Instead, with growing aggregate migrant flows, these consequences have worsened with migration increasingly complementing high-skilled workers, and competing with less-skilled.

Key variables determining wage and employment outcomes of migration flows are (1) scale; (2) substitutability between new migrants and existing workers; and (3) the rate at which workers and the broader economy can adjust

The key variables determining wage and employment outcomes of migration flows are their scale, the substitutability between new migrants and existing workers and the rate at which workers and the broader economy can adjust. Local wage and employment impacts are then subject to three different sets of factors:

- The workplace characteristics of native workers including their skill level, the recognition of such skills, and their elasticity of labor supply.
- The workplace characteristics of immigrants including their skill level, the recognition of such skills, and their elasticity of labor supply.
- Wider economic characteristics affecting the economic adjustment to greater labor supply. This includes the response of investment, the elasticity of labor demand, production technology, and other factors. Wider economic connectivity and factor mobility play important roles here.

Four different ways to measure the labor impact on migration yield different results and each type of estimates has limitations

Current estimates of the wage impact of migration vary substantially. Typically, there are four ways in which estimates of the labor market impact of migration have been derived.

First, natural experiments (cases in which immigration has exogenously/ randomly increased) have often been used to examine the marginal impacts for local markets. The most widely studied (the Mariel Boatlift of Cubans into Miami) has yielded conflicting conclusions. Card (1990), for example, argued that this had little impact on domestic labor market outcomes, despite increasing the labor force by around 7%. Others, such as Borjas (2003) argued that there had, in fact, been an effect but that this was missed as migrants often caused others to move away.

The capacity for wider inter-regional migration ('native flight') is a central methodological problem here. This is not limited to Card's 1990 study. Several others who have used natural experiments, and subsequent regional variations, come up against the same difficulty. Hunt (1992) used the migration of Algerians into France, for example, and Kugler and Yuksel (2008) used the impact of Hurricane Mitch. A more fundamental problem is that many of these studies, by their nature, are actually looking at the impact of refugee, rather than migrant, flows. The first are more often subject to 'random' shocks, but this can render their implications less applicable to instances of labor migration. New migrant flows owing to European integration have sometimes appeared more promising in this respect, but these have not yielded clear conclusions (Longhi et al., 2010).

A second approach is to take the 'first difference' of wages and migrants for skills groups across nationals. This looks at changes in the number of migrants in specific skill sets, and compares this to the change in average native wages. Often, these studies also find a strong impact among lower-skilled migrants. This approach also often shows strongly negative aggregate wage effects (e.g., Borjas, 2014).

This approach, however, yields results that can be difficult to interpret in a case when labor supply varies heterogeneously with wages. This is a problem. Labor supply 'elasticities' (sensitivity to price changes) differ across different parts of the workforce, with those near retirement or with low wage rates exhibiting the greatest propensity to leave the labor force. This is evidence that those with extra-labor market commitments (such as single mothers) are also more likely to leave (Dustmann et al., 2016; Ljungquist and Sargent, 2007; Rogerson and Wallenium, 2007). In short, this is not a realistic assumption, often making the results difficult to interpret.

A third approach is to look directly at the variation in migrant numbers across regions, and its association with labor market outcomes. This spatial approach, exploits the regional variation in migrant distribution, and looks for correlations with local labor market outcomes. Given the endogeneity to migrant movements, these approaches often use 'instruments' to try and control for these effects. These can be imperfect, but when included, the results often suggest quite substantial effects (Longhi et al., 2010). These studies have found some positive and negative aggregate wage effects on a local level, with Germany showing a negative association between migrants and local wages (Dustmann et al., 2016), the U.K. and U.S. a positive (if sometimes insignificant) one (Dustmann et al., 2013; Card, 2007).

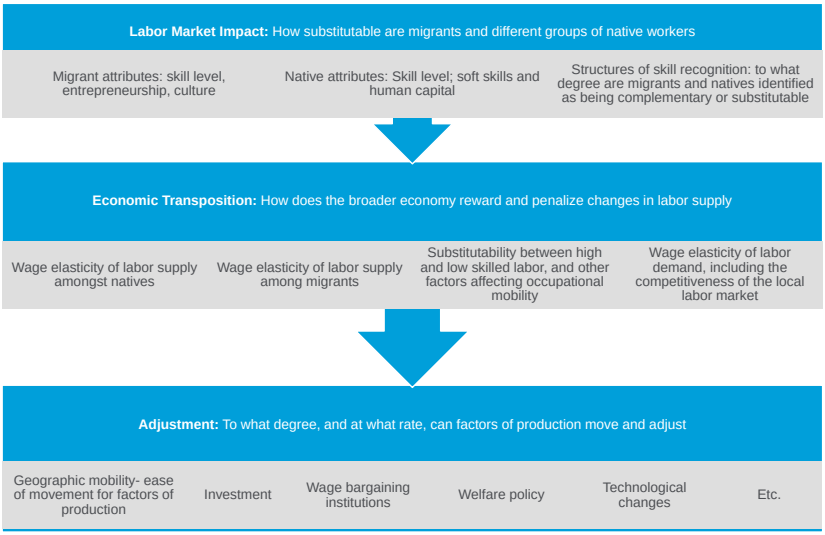
Lastly, a more structural model takes the assumptions associated with a standard economic model of supply and demand (a standard production function), and seeks to calculate the associated real parameters associated with it, and then derives the impact of migration on this basis. These models often look closely at how demand for different forms of labor co-varies, including across skill level and native and migrant groups. These models often suggest positive native wage impacts in the short run, with a very low degree of substitutability between migrant and native workers. Instead, the first tend to complement and increase the wages of the latter.

The Unequal Distribution of Migration's Short Term Costs

Regional labor market impact depends on (1) the degree of substitutability; (2) the character of the regional economy; and (3) how easy it is for workers, investment, and wider production to react and adjust

The regional labor market impacts of migration depend on three steps. First, within the labor market, this depends on the degree of substitutability, and subsequent competition vs. complementarity between migrants and native workers. Second, it depends on the character of the regional economy, and how this mediates wage outcomes depending on changes in the skill distribution. Third, it depends on how easy it is for workers, investment and wider production to react and adjust. We examine the factors behind each of these steps below (see Figure 122).

Figure 122. Factors Determining the Economic Impacts of Migration



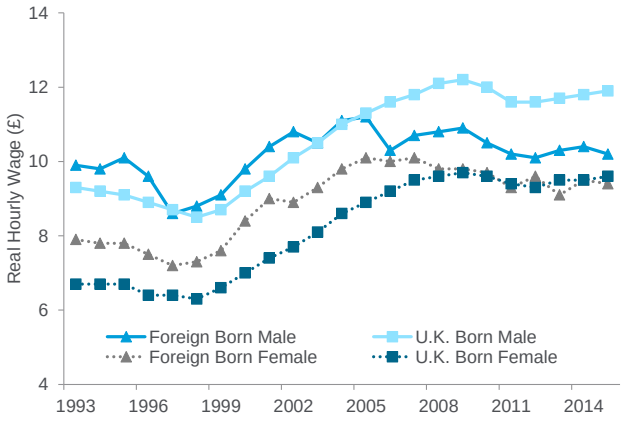
Source: Citi Research, Longhi et al. (2010)

Existing workers who are consistently most exposed to further migration are migrants themselves and migrant wages are more sensitive to changes in migrant flows

Existing workers who are consistently most exposed to further migration are migrants themselves. These workers are usually most easily substituted for new arrivals, especially if additional migrant flows contain similar skills. Migrant wages display the greatest subsequent sensitivity to changes in migrant flows.

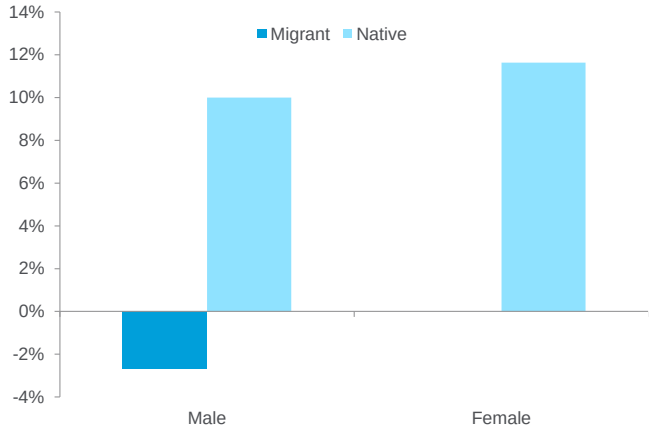
Evidence from Britain suggests that immigration of skilled workers, despite not depressing wages of British graduates, changes the wage structure of the labor market, influencing primarily other immigrants' wages (Manacorda et al. 2012). With the accession of the A8 economies in the mid-2000s, the group that suffered most acutely seems to have been other migrants (see Figure 123). In amongst an increase in migrant inflows, native wages between 2004 and 2008 grew by 10 percent and 11.6 percent for native men and women respectively, while falling for migrants overall (see Figure 124). In general, it seems that the degree of substitutability between native and migrant workers is much less extensive by comparison, across all skill levels. This is true in the U.K., and elsewhere (Peri and Sparber, 2011).

Figure 123. Real Hourly Wage for Male and Female Foreign and U.K. Born Workers, 1993-2017



Source: Citi Research; Rienzo (2018); Labor Force Survey

Figure 124. Total Real Wage Growth for Male and Female Foreign and U.K. Born Workers, 2004-2008



Source: Citi Research; Rienzo (2018); Labor Force Survey

Studies on migrant substitutability with natives and resulting wage impacts initially conclude increases in high-skilled immigration has next to no impact on domestic wages, but these studies may not capture things like de-skilling

When it comes to the degree of substitutability (and resulting wage impacts) with natives, however, results quickly become more contested. We suspect immigration has a asymmetric impact, with the degree of substitutability greatest amongst lower skilled workers and occupations.

This, however, is far from a consensus. Manacorda et al. 2012, for example, conclude that large increases in high-skilled immigration (in particular) into the United Kingdom had next to no impact on domestic wages. Ottaviano and Peri (2012) find similar results in the United States, using a similar method. They conclude that this is the product of imperfect substitutability between migrants and natives.

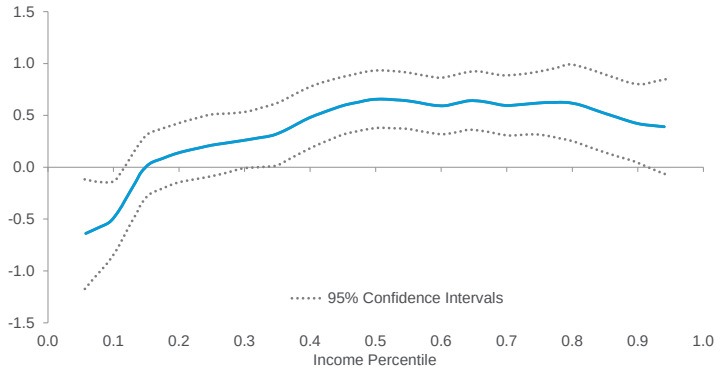
The issue with some of these estimates is that they tend to pre-assign migrant and native skill levels, based on formal educational achievement.[22] If migrant graduate skills are not recognized, or have otherwise been downgraded, then substitutability would likely be low, but also substitutability between graduate migrants and natives with a secondary education may be high. These approaches do not capture these effects (Dustmann et al., 2016).

Other studies have found the effect of immigration on wages is particularly significant for semiskilled or unskilled workers

Other studies that also look at the impact of migrants for specific groups of workers, but avoid preselection in this way, show a stronger negative impact among lower skilled workers, and positive effects for higher skilled. For example, Nickell and Saleheen (2015), find that immigration has a negligibly small negative impact on average wages in Great Britain. When the authors differentiate between occupational groups (rather than assumed skill levels), they find that the effect of immigration on wages is particularly significant for semiskilled or unskilled workers.

Studies using a spatial approach typically make fewer assumptions about migrant's skills and their subsequent position within the labor market. Dustmann et al. (2013), for example, find a strong negative wage impact of migration in those areas where migrant numbers are most dense, and an increase elsewhere. They find de-skilling, and an associated concentration of migrants among lower earning people, means that immigration has had regressive implications in the U.K., with low-skilled migrants forced to compete with growing numbers of skilled immigrants who are precluded from higher skilled occupations. By increasing the supply of low-skilled labor, this also complements high-skilled labor in many instances; as lower-skilled migrants find their wages depressed, others find theirs receiving a mild boost.

Figure 125. Impact of Immigration Across the Wage Distribution, U.K., 1997-2005



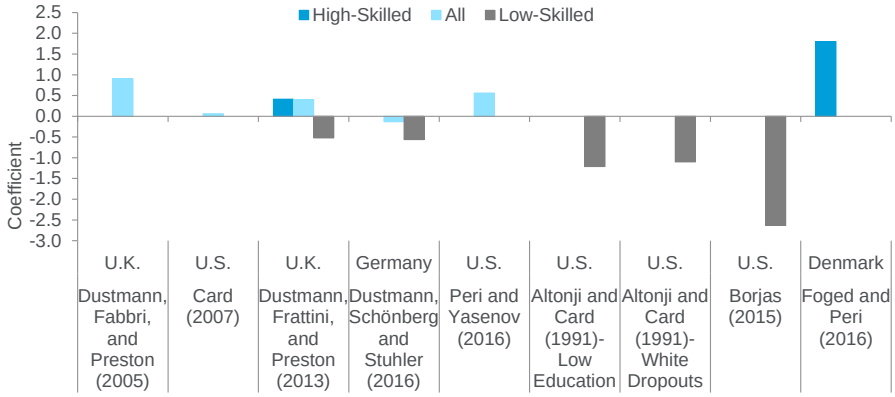
Note: The figure shows the estimated IV regression coefficients and the 95% confidence interval
Source: Dustmann et al., (2013)

[22] For example, Manacorda et al. (2012) use a model that compares the degree to which migrant graduates can be substituted for graduate natives, secondary for secondary etc.

This trend is unlikely to be just limited to the U.K. The notable conclusion of these studies cross nationally seems to be that lower-skilled migrants suffer disproportionately in these local settings in the short run.

For example, in the U.K., Dustmann et al., (2013) show that while the aggregate wage impact for natives is positive, there is a strong negative impact for lower-skilled groups. Similar results are found in Germany, and the aggregate effect here is also negative; Dustmann et al. (2016) show that the negative impact among low-skilled natives in German regions is around four times greater than that for high-skilled workers. In the U.S., while no one study has constructed a common set of estimates for this, comparing existing work also suggests a greater negative wage effect for lower-skilled workers (see Figure 126).

Figure 126. Selected 'Spatial' Studies: Estimated Wage Impact of Migration Among Native Workers



Source: Citi Research, Dustmann et al. (2016)

Evaluating labor market outcomes requires looking at both wage changes and unemployment, especially in the shorter term. Here too there is evidence of such cross national effects, with an increase in the share of migration being associated with an increase in unemployment, in this case, amongst lower-skilled groups (Jean and Jimenez, 2010).

The differences in all of the studies mentioned above highlights the significance of de-skilling

The disparity between these studies, and those associated with more structural approaches, highlights the significance of de-skilling. There is less substitution between those with similar levels of educational attainment, and rather more between high-skilled migrants only being able to compete with lower-skilled workers.

In the U.S., studies have found a strong association between high numbers of immigrants and higher inequality

The inequality increasing effect of this seems to be manifest across different local areas, with a strong association in the U.S. between high numbers of immigrants, and higher inequality. For example, Hibbs and Hong (2015) find immigration is responsible for about 24 percent of the increase in income inequality among U.S. metropolitan areas between 1990 and 2000. On a state level too, Xu et al. (2016) find low-skilled immigration in the U.S. is associated with increased income inequality within states.

Here, though, there are likely to be several different factors at play. For one thing, asymmetry in the impact of migration is not just dependent on the respective substitutability of different natives as compared to the respective migrants, but also how substitutable different native workers are for one another both across occupations and skill levels. This is where the character of the regional economy becomes central.

Borjas (2012) for example argued that low-skilled migration should have relatively little impact on the labor market outcomes of low-skilled natives as the latter should be able to move into other occupations areas of a similar skill level, but where the very nature of the job will reduce the degree of competition (communications roles and so on) there is less substitutability.

There is evidence of such horizontal occupational movement. For example Ortega and Verdugo (2015) find that increased immigration has a small effect on occupational mobility, with some evidence that blue collar immigration correlates with natives being employed in less 'routine intense' jobs. Occupational mobility mitigates the adverse effect of immigration on natives' wages, increasing the degree of complementarity. But the ease, and even the plausibility, of being able to move to such an occupation will depend on the nature of migration, and the structure of the economy.

Outcomes also depend on the capacity for 'vertical' occupational movement. This depends on the degree to which skilled labor can be substituted for less skilled, and subsequently low-skilled workers can be brought in when inequality starts to increase.

Other structural factors have important implications too, affecting the wage impact across different industries and sectors. For example, the extent of tradability will likely have important implications for the manner in which migration impacts wages. Burnstein et al. (2017) find that influx of low-skilled immigrants within commuter zones in the U.S. affects non-tradable sectors' workers more, where a 1 percent increase in their measure of immigration generates a 0.8 percent crowding out effect of unskilled workers in non-tradable occupations, but has an insignificant effect on workers in the tradable sector.

Some evidence in the U.K. suggests similar dynamics. Nickell and Saleheen (2015), for example, note that the negative native wage effects of migration are much greater in the unskilled service than manufacturing sectors. This may be, in part, because adjustment in the labor market in tradable sectors occurs through changes in output, not in prices - which do not affect relative wages. In the U.K.'s case, a greater degree of labor substitutability also appears to have been a factor.[23]

Migrant effects on consumer demand are also important here too. In general, this helps boost aggregate wage levels. But if this is associated with a change in tastes, especially among non-tradable goods, this can impact demand between different types of labor, and therefore equality in general. Even looking at the very initial, short run, first order impacts of migration, the ultimate impact on migration is then very heavily mediated.

[23] Lower migrant- native wage gaps observed in these sectors suggests a higher degree of substitutability (see Nickell and Saleheen, 2015).

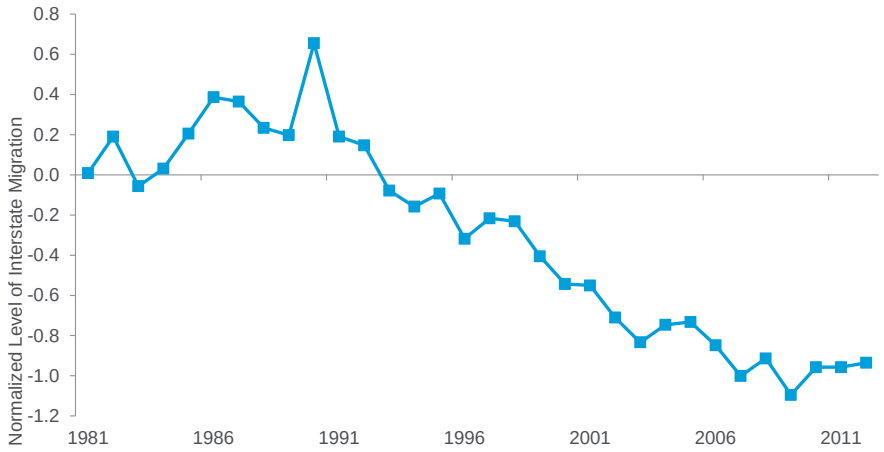
On a local level, the short-term labor market outlook is also affected by a range of different factors that affect how the economy reacts and adjusts. These can have important distributional implications too, while also affecting the speed at which the economy returns to equilibrium. The reaction of investment is key, with good financial institutions playing an important role in investment, and subsequent re-capitalization.

This can be important in facilitating both re-capitalization, as well as technological adjustment. The latter can mitigate the wage impacts of immigration by increasing the relative intensity with which new gluts of labor oversupply are used. Card (2005), for example, finds that while migration has increased the proportion of low-skilled workers in U.S. cities; this has not had a significant impact on relative wages in general. This is seen as the result of changes in the adoption of labor saving and labor complementing technologies, with employers adjusting and using low-skilled labor more intensively (Lewis, 2005). In some cases, migrants can play a direct role in this given their generally more entrepreneurial character. Higher rates of firm formation can accelerate this process, both fostering more rapid adjustment, and generally increasing substitutability between low and high-skilled workers (see, for example, Waugh, 2018).

Levels of migrants mobility within an economy are important

Labor mobility also plays an important role. As we noted above, when migrants move out of a region with extensive concentrations of their skills, this spreads the wage impact more broadly, often reducing its severity. This is common, particularly in the face of rapid immigrant flows, and can mitigate the welfare impact. In a long-term study on blue-collar immigration into France, for example, Ortega and Verdugo (2015) find that an inflow of low-skilled workers into specific localities on average generates a small but significant outflows of unskilled natives (around 0.4 percentage points per 10 percentage point increase in immigration). The outflow of natives is not random: there is evidence of self-selection of workers at the bottom of the wage distribution leaving areas that are popular among immigrants, which influences local wage imbalances. The impact on wages is small (around -1.3 percent in median annual wage for every 10 percentage point increase in immigration) and limited to workers in the non-tradable goods sector. Interestingly, in the U.S. at least, internal mobility has been falling in recent years, potentially reflecting the erosion of this capacity among some (Molloy, 2014).

Figure 127. Rate of Inter-state Migration in the United States



Source: Molloy et al. (2014)

Wage setting institutions also play an important role. In fact the effect of these can be split into three areas: wages, unemployment, and participation. Longhi et al. (2010) show a strong positive relationship between wage rigidities and unemployment in the case of migrant inflows, for example. Namely, they suggest that in cases where wage rigidities are in place, the impact of migration is felt more through unemployment. This highlights the importance of looking at the impact of immigration on native wages and employment simultaneously (Dustmann et al., 2016). Evidence from France, for example, supports this conclusion (Edo, 2016).

Importantly, however, this is not just because resilient wages depress labor demand from where it otherwise might be, but also because it increases labor supply, reducing labor market exit. Whether the demand or supply effects predominate on aggregate employment, however, is a function of local factors.

A number of factors highlight the central role public wage and welfare policies

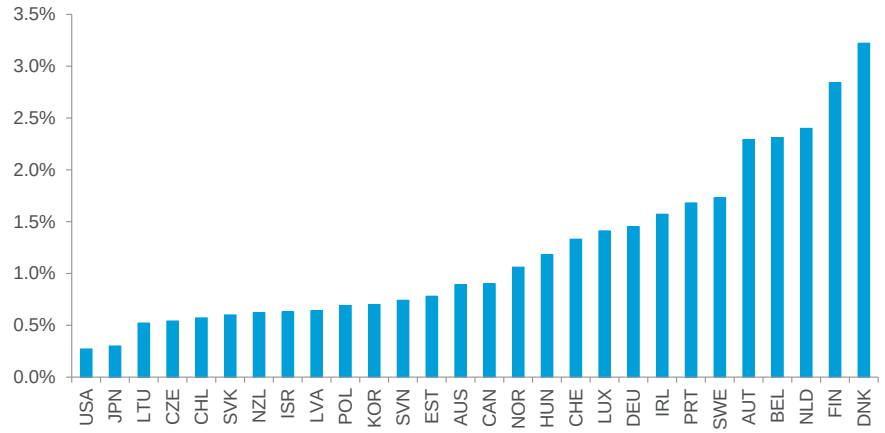
These same factors also highlight the central role of the public wage and welfare policies. Minimum wage rules and other regulations can also have important effects. Edo and Rapoport (2017) look at the effect of changing minimum wage levels across U.S. states, finding larger increases to be positively associated with aggregate employment in cases where there are large inflows of migrants. This is no surprise. The elasticity of labor supply is often most sensitive to changes in wages among lower earners. Given the depressive impact of low-skilled migration on wages, in particular, migrant driven reductions in low wages tend to depress participation in the U.S. (Dizioli and Pinheiro, 2017). By putting in a hard wage floor, higher minimum wages may reduce exit from labor markets.

This puts other related policies in the spotlight. While having a less direct effect than minimum wage legislation, other factors such as access to proper public welfare systems can increase reserve wages (the minimum wages at which people are willing to work) and push up wage levels, at least, in the same manner. In these cases, there is unlikely to be a positive impact on employment as labor market participation is not necessary for the benefit. Such factors may, however, have played a role in observations around the lower average earnings of non-European Economic Area (EEA) migrants in the U.K., for example, in comparison to EEA migrants. The former do not have access to many public benefits while the latter (currently) do.

Government policy also plays an important, additional role, in reducing the costs of occupational and geographical transition. This can play an especially important role when skill transitions are needed.[24] Support here differs substantially between OECD countries, with low spending on active labor market policies, in particular, worsening long term inequalities and impacts.

[24] Some countries, such as Denmark, are relatively successful in both supporting affected workers and helping them transition into new jobs, often crossing skill barriers. In 2006, the Wall Street Journal reported on the closure of a meat packing factory as a result of intense foreign competition. Within 10 months almost 90% of the 500 workers were employed, making varied career moves, often with no loss of income. Alden (2017) notes that Denmark spends 2% of GDP annually on active labor market policies that help train and transition unemployment workers. This is twenty times the level of spending (relative to GDP) in the U.S.

Figure 128. Spending on Active Labor Market Policies, 2016, % GDP



Source: Citi Research, OECD (2016)

As we note above, the impact of immigration on wages is heavily dependent on labor market institutions and the educational attainments of natives. In many OECD economies, the impacts for low-skilled workers may also be particularly severe as a result of the relatively high native education levels. Lumpe and Weitgert (2010) suggest that immigration might widen the wage gap between high- and low-skilled native workers depending on the average level of educational attainment in the country. Particularly, they argue that the higher the average educational attainment of natives, the higher impact of low-skilled immigration on income inequality: this effect is generated by the changes in median income of low-skilled workers being skewed more heavily by the influx of low-skilled migrants if the group of low-skilled workers in the economy is small. This may be further extenuating the disproportionate impact on lower-skilled people.

Long Term: The Future Isn't What It Used to be

A common assumption, as far as the domestic impacts of migration are concerned, is that while it can generate short term costs, in the long term all benefit from its growth generative impacts. For example, Ruhs and Vargas-Silva (2018) conclude 'any declines in the wages and employment of U.K.-born workers in the short run can be offset by rising wages and employment in the long run.'

The assumption of broad, shared increases in aggregate prosperity owing to migrant productivity gains and the propensity of the economy to adjust, is similar to equivalent assumptions made about trade. However, as Xu et al. (2016) show, the disruptive effects of short-term disruption can have much more lasting consequences on communities and regions. While we do not suggest that the same mechanisms might be at play with respect to migration, it is dangerous to assume that economic adjustment will inherently prevail. In local areas, for example, labor market exit and unemployment can result in lasting consequences for native (and migrant) capacity.[25]

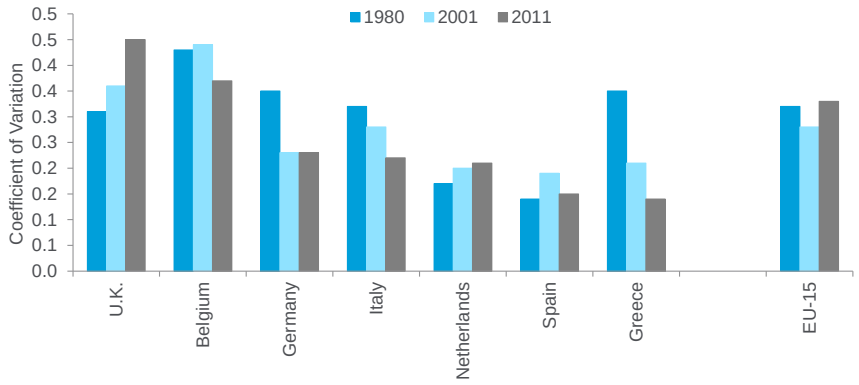
Importantly, in this case, the propensity of highly-skilled migrants to concentrate in large, productive, urban areas creates a risk of growing, migrant-driven regional disparities even in the long term. This is the product of migrants to self-select into, often, the most productive geographical areas. As we note above, this creates clustering effects, with feedback into further productivity.

[25] See Blancard and Summers (1986).

The clustering of migrants in large, productive urban areas could lead to a widening of regional income disparities

Institutional failings within many economies undermine these productivity benefits diffusing across the economy as a whole (or at least mean this is slower than the rate of frontier innovation). This could see migration contribute to a more rapid widening of regional income disparities. Migration is not the fundamental problem here. However, as with the shorter-term impacts discussed above, when migration is combined with poor domestic institutions, the results can be damaging. Greater assistance is likely needed to better distribute the productivity gains from migration.

Figure 129. Spatial Imbalance in Selected EU Countries, 1980-2011



Note: Spatial imbalance measured here using the coefficient of variation in regional GDP per capita (PPS). This is measured over NUTS2 Regions in each country.
Source: Citi Research; Martin et. al. (2015); Cambridge Econometrics; European Regional Database

Fiscal Impacts of Migration

Evidence suggests the fiscal impact of migration is either positive or, if there are fiscal costs for immigrants, the effect is small, short-lived, and localized

Taxpayers are understandably concerned about the potential fiscal costs of immigration. Overall, the evidence suggests that the fiscal impact of migration is either positive or, to the extent that immigrants produce fiscal costs, these tend to be small, short-lived, and localized. The overarching difficulty is that the fiscal impact of migration is a contested question. As the OECD concluded, "the fiscal impact of immigration cannot be pinned down to a single and undisputable figure." The answer depends not only on a range of migrant and country specific variables, but also the fundamental question being asked, and the methodology and assumptions used to explore it. In this chapter, we provide an overview of some of the different approaches taken, and present some tentative conclusions.

We see evidence of a positive fiscal case on a national level for migration

Overall, it seems that there is no strong fiscal case against migration. We also see evidence of a positive case on a national level in many instances. The extent of this, however, depends amongst other factors, on the characteristics of migrants, the success of their integration, and the structure of public support in the destination country. It is also worth noting that while there may be a net positive impact on aggregate this is subject to potential regional variation.

In almost all OECD countries, the marginal fiscal lifetime net contribution of admitting an additional labor migrant under the age of 40 appears positive

In most cases, the net fiscal contribution of current migrants in OECD countries is likely to be positive year-on-year. While this sometimes lags the net positive contributions of native households, we suspect that the fiscal impact of labor migrants remains positive, especially when looking over their time in the destination economy as a whole. To the extent they arise, short-term costs are usually compensated for by the dynamic contributions of migrants over time, particularly in those countries which are experiencing rapid aging.[26] Most relevant for policy, in almost all OECD countries, the marginal fiscal lifetime net contribution of admitting an additional (average) labor migrant under the age of 40 appears positive.[27]

In general, it appears there are extensive fiscal benefits for migration

In general, migration appears more beneficial the more comprehensive the approach, implying there are extensive fiscal benefits that extend beyond the direct benefits paid to and taxes received from migrants. In the U.S. and Europe, the direct fiscal contributions of migrants are estimated between +/- 1 percent of GDP year-on-year. However, using an approach that looks (1) over a longer time horizon and (2) takes into account the wider economic impact of migration, the numbers quickly become both more uniformly positive and extensive. A study of France, for example, finds that if net migration falls by half, annual government spending as a share of GDP could be as high as 2.2 percentage points greater than expected by 2065.[28]

There is a considerable degree of cross national variation in the net fiscal contribution of migrants. The composition of the migrant stock differs, labor market outcomes differ, and impacts are transposed through different welfare systems. Nordic countries often look less good, especially on a year-on-year basis, as their migrant stock is both more elderly, includes fewer labor migrants, and is coupled with a deeper welfare state. In Spain and Italy, however, current fiscal outcomes among immigrants are often better than natives.

[26] Golding (2014), pp 169-73.
[27] This is even when the given migrant in question is assumed to stay in the country until the end of their lives, or benefits are perfectly transferable.
[28] See Chojnicki and Ragot (2011).

In most cases, migrants consume fewer benefits and receive less from the public purse vs. natives in similar circumstances

Despite these differences, there are several conclusions that seem to apply across the OECD. Two characteristics of migrants are particularly essential in explaining the net fiscal position of migrants compared to natives. The first is their employment status, the second is their age. Importantly, the level of benefits received by migrants rarely determines their net fiscal impact. In most cases, migrants consume fewer benefits and receive less from the public purse in comparison to a native in similar circumstances, and overall the level of deviation is small.

It seems that if more was done to improve labor market integration among migrants, the impact on fiscal balances would be a substantial positive. As if to illustrate this point, 'mixed households' (that include both native and migrant parents) typically outperform both natives and migrant households in terms of their net fiscal positions (OECD, 2013). This may partially reflect the benefits of socio-economic integration.

In this chapter, we will present three different ways of looking at the fiscal impact of migration: a so called 'static cash flow model' looking at the net annual direct cash contributions and transfers; a dynamic approach based on a discounted cash flow of future net contributions; and a macroeconomic approach evaluating the fiscal impact by looking at both the direct fiscal and wider economic impacts of migration in tandem. In addition to these traditional models, we will also discuss the impact of migration on the costs of state provision, a factor often missed in existing commentary.

Why the Figures Matter

When it comes to public spending, questions of 'who gets what', especially around welfare, are always contentious.

Public welfare systems perform two distinct but functionally inseparable jobs. On the one hand, they allow individuals to (collectively) transfer resources across time (Barr, 1989). On the other, they are also used to transfer essential resources between individuals, providing more unconditional forms of social protection and support.[29] In reality, it is almost impossible to do one, without doing both.

Almost fifteen years ago, Alesina and Glaeser (2004) argued that support for welfare policies in Europe would fall as European countries became more ethnically diverse. The reason was a fundamental question of social solidarity: as society came to be more diverse, they thought people would find it harder to identify with the struggles of others. This, they argued, would erode support for systems that inherently transfer money and resources across society.

Thus far, this has not proved generally true.[30] However, for a range of reasons, exclusive nationalist political forces have grown in recent years across the OECD.[31] These are trying to generate support along ethno-nationalistic political lines, often employing populist political tactics to do so.[32] In many cases, these groups have increasingly used assertions regarding the distribution of benefits between migrants and natives, emphasizing differences in respective fiscal outcomes, as a means to do this (see Ennser-Jedenastik, 2018).

[29] This is also, in many cases, socially essential (Polanyi, 1947).
[30] http://blogs.lse.ac.uk/eurocrisispress/2018/03/19/immigration-welfare-chauvinism-and-the-support-for-radical-right-parties-in-europe/
[31] See, for Europe: European Economics View - European Political Hysteresis: The New Normal.
[32] See Ford and Goodwin (2014), for example in the U.K.

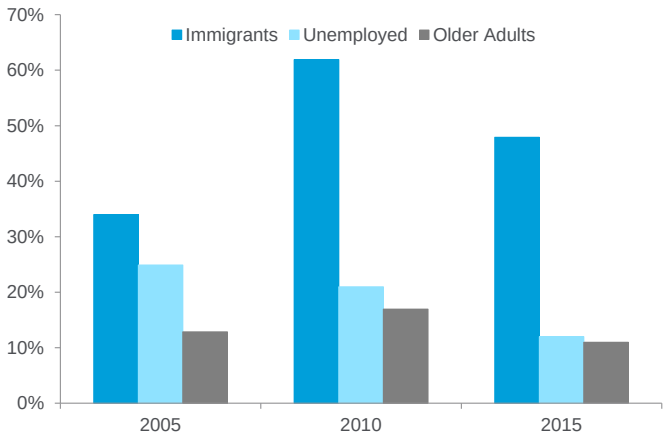
Such political approaches are usually associated with blaming recent difficulties in public provisions on migrants. The power of these approaches during a period of economic downturn is shown in Figure 130 below, with the proportion of people singling out migrants as a group government was providing too much support to peaking during acute post crisis periods. In response, these groups often advocate so called 'welfare chauvinism',[33] restricting access to welfare on ethno-nationalistic grounds.

Debates surrounding the distribution of public benefits between natives and migrants are powerful forces on attitudes towards migration

As we discuss below, this reflects wider political themes that are increasingly disrupting migration-related policy making. However, the political effects are often particularly acute when it comes to fiscal questions. Debates surrounding the distribution of public benefits between natives and migrants (as well as debates on the impact on native labor markets) are powerful forces on attitudes towards migration in many cases, driving both individual attitudes and the subsequent manner in which the policy debate is framed (Boeri, 2010).

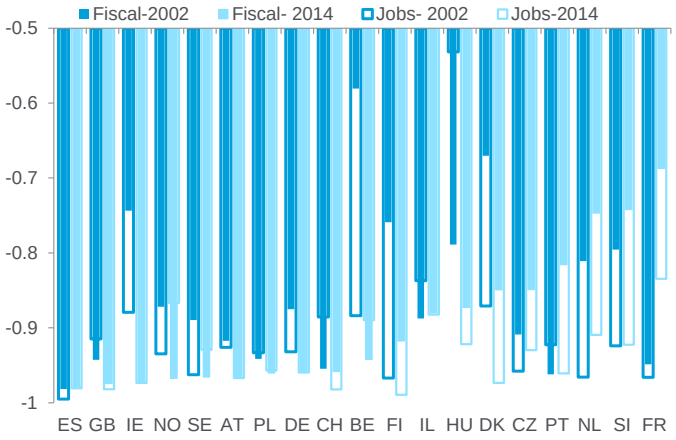
There is a strong association amongst voters between the self-reported, perceived, fiscal contribution of migrants and support for migration (Card et al., 2012), with the correlation between attitudes on the fiscal impact of migration (and support for further migration) as strong as the perceived impact of immigration on employment (see Figure 131).

Figure 130. Proportion of Respondents Agreeing with the Statement 'People In these Groups Receive too Much Protection From the State', 2008



Source: Citi Research; Center for Sociological Research; European Social Survey

Figure 131. Correlation Between Preferences for Making Migration More Permissive, and the Belief that Migrants Take More Fiscally Than They Put in, or They Take Away Jobs, 2002 and 2014



Notes: 'Fiscal' refers to the perceived net contribution of migrants to an economies fiscal balance (net contributors or otherwise). Attitudes regarding the perceived impact of migration on jobs are derived from answers to the question of whether migrants take jobs away from natives. Attitudes towards migration are measured using views on whether the respondent favors more restrictive migration policy towards migration from all sources.
Source: Citi Research; European Social Survey

[33] This is a populist political position that seeks to more aggressively restrict access to welfare based on nationality.

The direct link between these migration debates and other important areas of welfare spending and policy add an additional dimension to the salience of debates in this area (Alesina et al., 2018). While recent developments have generally involved using fiscal issues to impact attitudes towards migration (rather than the other way around), the two issues are intimately connected. Already, it seems there is an increasingly strong association between the perceived economic contribution of migration, and attitudes towards re-distribution (Alesina et al., 2018).

Alongside the risk that the fiscal debate around migration is skewed by other political agendas, an aging population, and high public debt levels make fiscal mis-steps of this scale costly. An intense global competition for talent also risks more extensive consequences of even small mistakes. Combined, a good understanding of the fiscal consequences of migration is both increasingly important, and urgent.

Understanding the Fiscal Consequences of Migration

The impact of migration on net fiscal balances can be broken down into three channels (Preston, 2014).

Migration can affect the per person (per worker) cost of many public goods by driving wider changes in the aggregate population and society

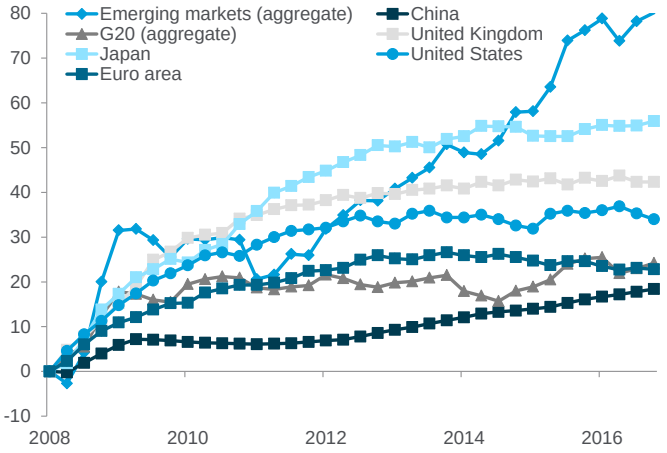
First, migration can affect the per person (per worker) cost of many public goods by driving wider changes in the aggregate population and society. The direction and scale of this effect depends on the nature of government spending. When dominated by public goods, a greater population (and workforce) reduces the scale of the liability per capita. On the other hand, if public spending is dominated by private goods, then an increase in the scale of the population (all else equal) makes no difference to the per person costs of public liabilities.

The reality is publically-provided goods are usually neither perfectly private, nor public. Instead, public spending is generally dominated by so called ‘congestible’ public goods. Here, costs may also increase or fall with greater numbers, making it hard to reach general conclusions.

However, one notable exception here is the scale of existing public debt. Additional migration can reduce the per person public debt burden (and servicing costs) even if the net year-on-year fiscal contribution is zero by dividing existing liabilities among a larger group. Interestingly, even if migrants have a net negative fiscal contribution (year-on-year) they can still reduce the per person liability[34] if the existing stock of public debt is large enough. These effects, then, can be notable. Especially when children are included in the analysis (see the Macroeconomic section below), this can be one of the main channels through which migration helps reduce per capital public liabilities (Razin and Sadka, 2004).

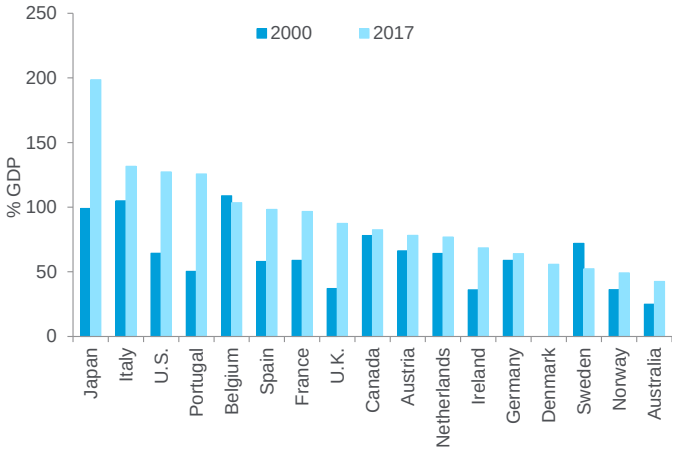
[34] As a rough example, the current stock of outstanding public debt in Italy, for example, is estimated (in May, 2018) at €2.3 trillion. The Italian population is estimated at roughly 60.1 million. Suppose a single migrant moves to Italy, and remains there for the rest of their life. Even if their net annual fiscal position was –€1000, and this is sustained for the rest of their life (over 60 years), at a discount rate of 2%, this adds €34,761 to the public debt. Public debt per person, however, still falls in Italy, as the current level of debt per person is €38,725

Figure 132. Cumulative Growth in Credit to General Government, % GDP, 2008-2017



Source: Citi Research; Bank of International Settlements

Figure 133. General Government Debt as % of GDP, 2017



Source: Citi Research; National Statistics Offices; Haver Analytics

Migration can also affect the cost of providing public services on a per user basis

Second, migration can also affect the costs of providing public services on a per user basis. These effects can be either market demand or supply driven. On one hand, by increasing the supply of certain skills, migration can often reduce the costs of providing particularly labor-intensive services, such as care services, while also allowing destination economies to reduce their training costs. On the other, migrants may be more intensive users of certain public services, or require additional support (such as linguistic assistance).

Migration can affect net fiscal balances owing to differences between natives and migrants in tax payments and services used

Lastly, migration can affect net fiscal balances owing to differences between natives and migrants in tax payments and service use. This is where the vast majority of the literature focuses, and where we start.

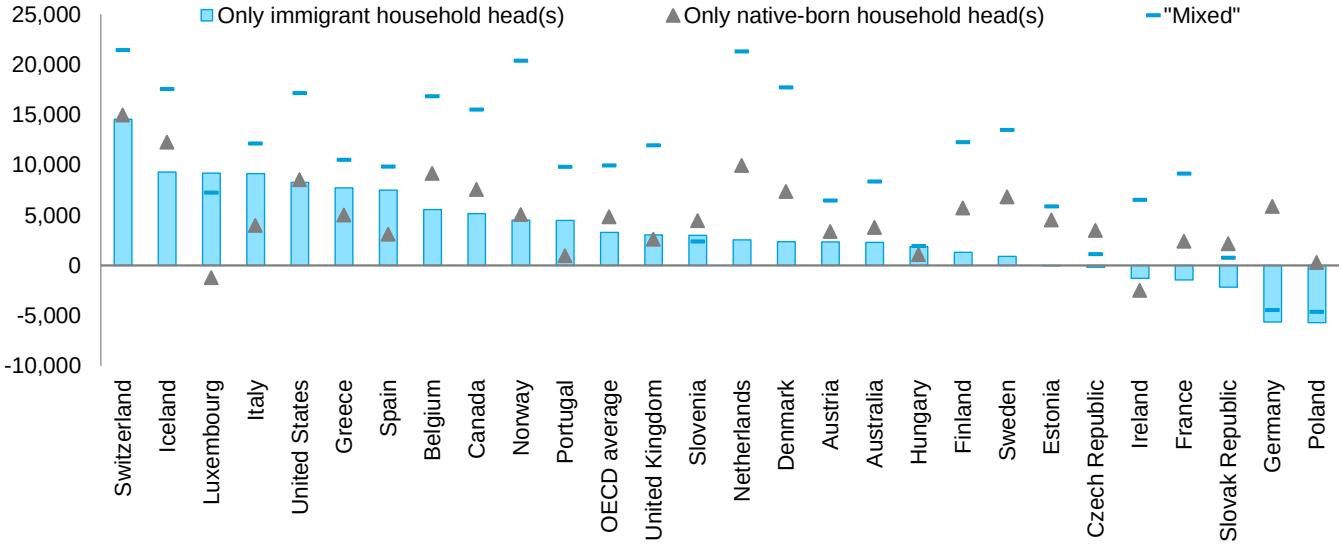
A Static Cash Flow Approach - How Do Migrants Contribute Year-on-Year?

The OECD (2013) provides the most comprehensive, static, cross national analysis of the fiscal impact of immigration to date. The authors draw on data collected in 2007-2009, largely referring to years 2006-2008, and employ a 'static cash flow' methodology to then derive the net fiscal impact of migration. This evaluates the net economic impact of migration by looking at the direct net fiscal contributions of migrants in a given year or period.

In most countries, the net fiscal contribution of migrants lags that of native households — however in the U.S. and U.K. they are almost identical

With the notable exception of some of the Southern European economies, in most countries the net fiscal contribution of migrants lags that of native households. This gap seems to be widest in Germany and several of the Nordic economies. In contrast, however, net fiscal contributions in both the U.S. and the U.K. are almost identical, while gaps elsewhere in the OECD are also relatively narrow.

Figure 134. Average Net Direct Fiscal Contribution of Households by Migration Status of the Household Head, 2007-2009 Average (€)

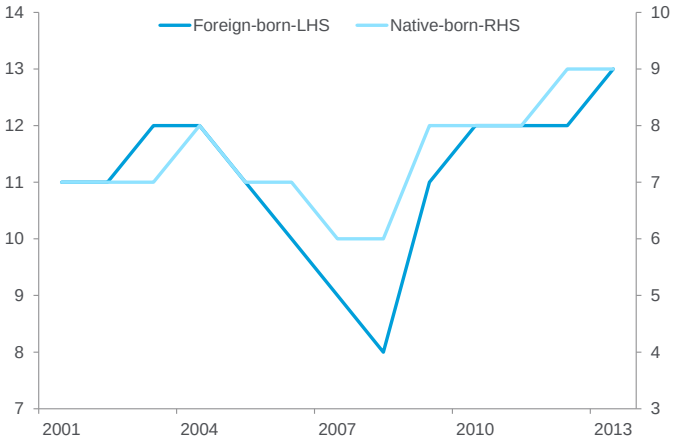


Source: Citi Research, OECD (2013)

However, this is likely due to the greater cyclicality of migrant net fiscal contributions and therefore the gap can be heavily biased by the year of analysis

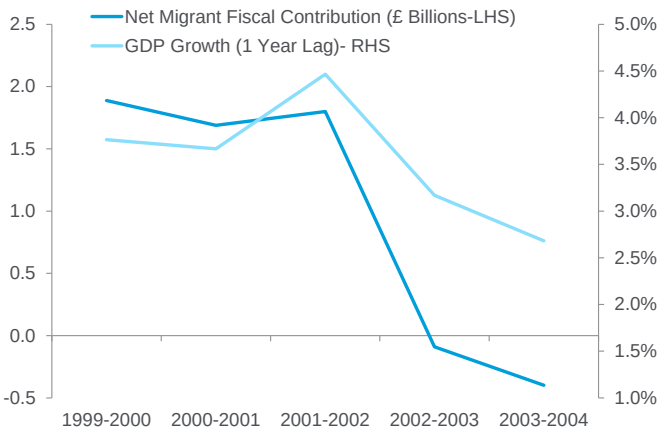
However, these data should be treated with caution when trying to reach broader conclusions. The use of a single year can often give a misleading impression. Sriskandarajah et al. (2005) showed, in the case of the U.K., that migrant net fiscal contributions often exhibit greater cyclicality than those of natives, the result of greater cyclical variations in unemployment among migrants (OECD, 2009) (see chart below). The gap between migrant and native contributions can therefore be heavily biased by the year chosen. Rowthorn (2008) shows that, by using different base years and changing assumptions about the likely distribution of fiscal costs related to migration, the net fiscal impact of migration year-on-year can vary between -0.7 percent and 0.7 percent of GDP.

Figure 135. Unemployment Rate, OECD, 2001-2013, %



Source: Citi Research; OECD (2018)

Figure 136. GDP Growth (Lagged by One Year) and the Net Fiscal Contribution of Migrants, 1999-2004



Source: Citi Research; Sriskandarajah et al., (2005); Haver Analytics

More Benefits or Less Tax?

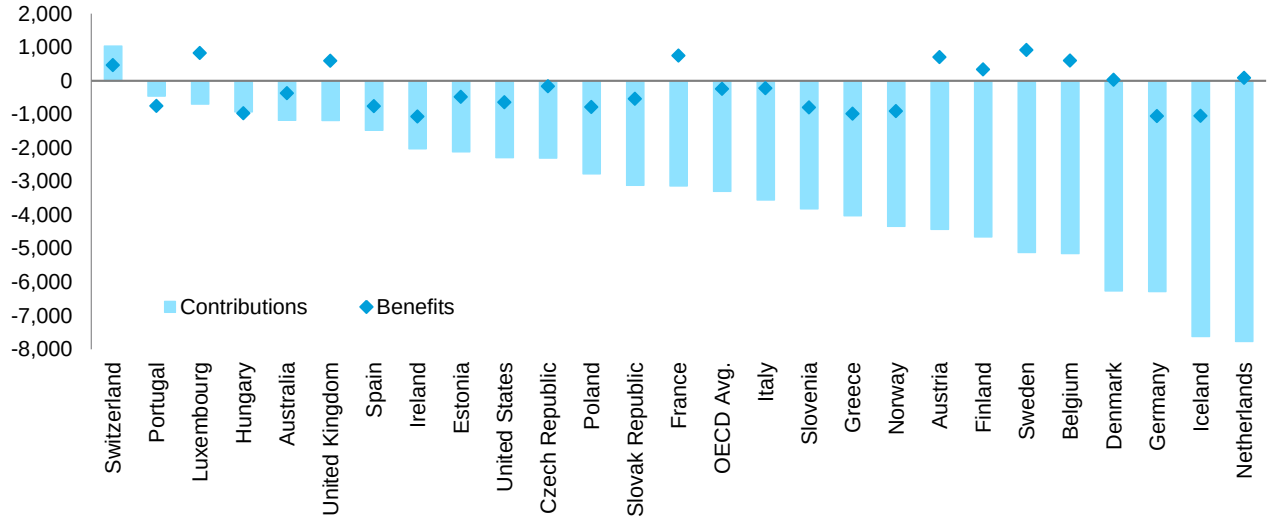
Migrant consumption of services is much more compressed in comparison to natives than contributions

These caveats and limitations aside, these OECD data do reveal several notable trends. Firstly, while there is a degree of variation between countries in terms of migrant consumption of social services, these are much more compressed in comparison to natives (in respective economies) than contributions (see Figure 137).

The gap between migrant and native benefit receipts reflects the net of two countervailing trends. On the one hand, migrants, all else being equal, typically receive less social security than natives in the same economic position (OECD, 2013). On the other hand, migrants find themselves in positions, such as unemployment, where they would typically receive more social security more often.

The data below implies that, in most cases, the first effect predominates. In Canada, for example, non-refugee immigrants use less unemployment benefits, social security, and housing support than domestic residents, despite the employment rate for migrants being lower. In Germany, Greece, Portugal, Spain, and the U.K., migrants are less or equally dependent on social services as EU citizens. Dustmann and Frattini (2014) show that over the period 1995 to 2011, immigrants in the U.K. on average were less likely than natives to receive state benefits or tax credits and less likely to receive social housing. These country-specific cases seem to characterize trends across the OECD.

Figure 137. Average Differences Between Immigrant and Native-born Households Regarding Taxes/Contributions & Benefits, 2007-2009 Avg. (€)



Note: Pension contributions and expenditures have been excluded from the calculations.
Source: Citi Research; (OECD, 2013)

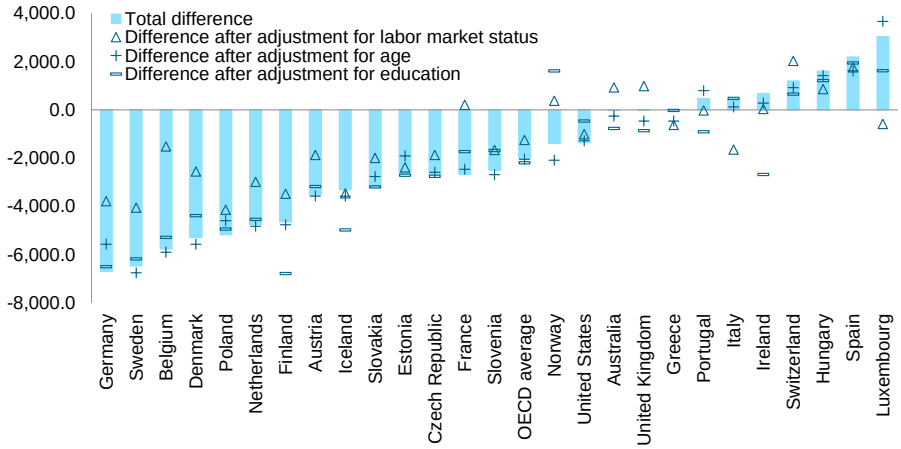
The major exception to this general trend is the Nordic countries. During the period studied at least, Sweden, Denmark, and the Netherlands all had higher rates of benefits consumed by migrants than by native households. This reflects the combination of particularly poor labor market outcomes among migrants compared to the native population, combined with more generous, accessible, benefit systems. In Sweden, 25 percent of immigrants are below the poverty line (compared with 15 percent of natives).This largely reflects the differing composition of the 'migrant stock' in these economies; in particular, the relatively elderly composition of labor migrants. Studies (especially in Europe) have generally shown that having controlled for individual labor market characteristics, international migrants do not consume more welfare than natives.

Evidence on Europe is mixed (Barret and McCarthy 2008). Some studies focusing on Europe also conclude that immigrants from outside the EU are net recipients of welfare benefits (Boeri 2010, Hansen and Lofstrom 2003) but note that the relationship is weakened by adding individual controls, and failing to account for self-selection (Pellizzari, 2011).

The key factor behind the difference in native and migrant net fiscal contributions lies in differences in tax paid, with lower contributions for migrants driven by poorer labor force outcomes

More generally, however, the key factor behind the difference in native and migrant net fiscal contributions lies in differences in taxes paid. Lower contributions are generally driven by poorer labor force outcomes, especially among highly-skilled migrants. Differences in native/migrant employment rates are central to this. With a few notable exceptions, including the United States, employment rates for migrants typically lag those of native-born individuals (OECD, 2018). If employment rates alone were equalized between migrants and natives, this would remove between 25 percent and 50 percent of the disparity in fiscal contributions in most cases (in both directions) (see Figure 139 and Figure 138).

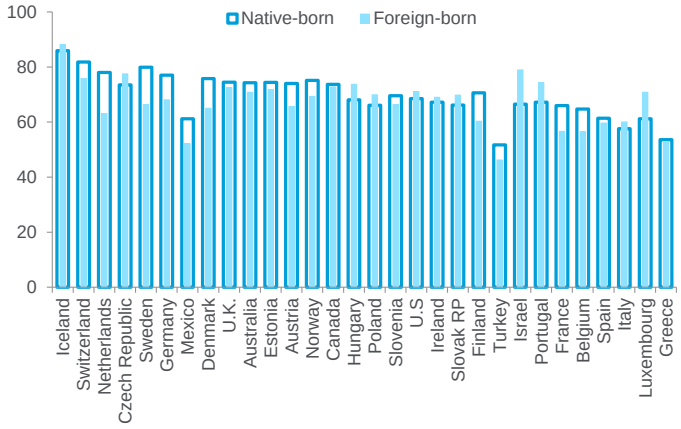
Figure 138. Differences in the Net Direct Fiscal Contribution of Immigrant and Native-born households and the role of different characteristics, in Euros (PPP adjusted), 2007-2009



Note: Chart refers to working age households only.
Source: OECD (2013)

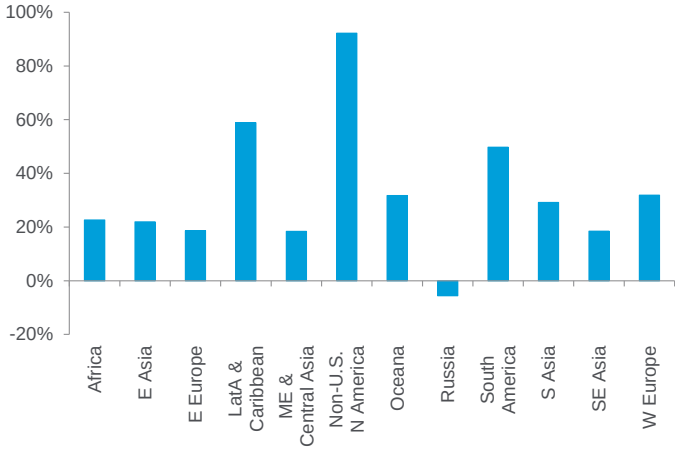
Levels of inactivity and unemployment often vary dramatically from one expatriate group to the next, driving wide differences in fiscal contribution. In the U.K., 85 percent of Poles and Canadians are employed, whereas around 50 percent of migrants from Pakistan, Iran, and Bangladesh are employed – reflecting the cultural constraints on many female migrants from these countries. Furthermore, while about 1 percent of Poles and Filipinos in Britain claim income support, about 39 percent of Somali immigrants (many of whom are refugees) do. Looking at wage outcomes, rather than employment, it is a similar story in the United States (see Figure 140). A U.K. House of Lords report noted, however, that “the positive contribution of some immigrants is largely or wholly offset by negative contributions of others.”

Figure 139. Employment Rate, Total, OECD Economies, 2017, %



Source: Citi Research, OECD (2018)

Figure 140. 'Residual' Effect of Wage Outcomes by Origin, U.S., 2017



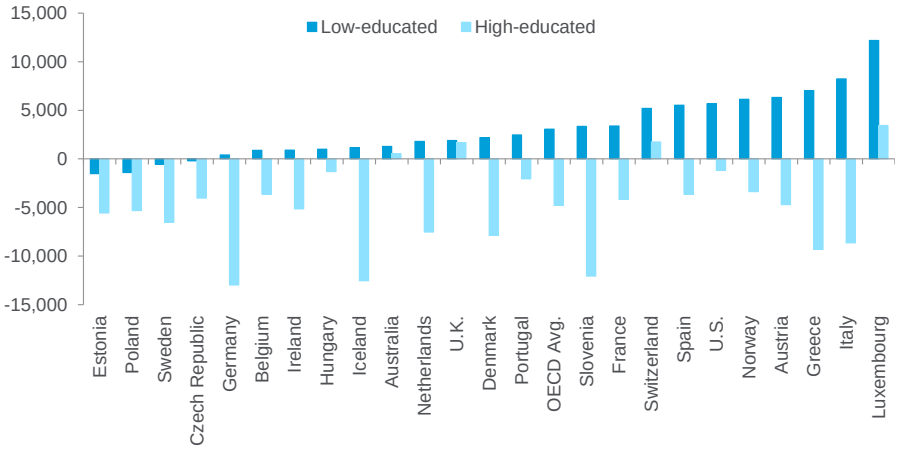
Note: Derived using a regression model controlling for human capital. See Appendix 3 for more details.

Source: Citi Research; CEPR-CP

Across the OECD, lower participation rates seem to be concentrated among two groups. The first is women who, in many cases, have migrated through family channels. As we discuss in the labor market section, participation rates for migrant women often lag those of migrant men (see Figure 89 and Figure 90).

The second group is highly-educated migrants. Among this group, fiscal contributions are usually lower than those of highly-educated natives, the result of both lower employment and lower earnings. In contrast, the fiscal contributions of lower-educated migrants exceed those of lower-educated natives, often matching better labor market outcomes. This difference is not just the product of lower female labor force participation, with employment and wage outcomes also lagging for highly-skilled male migrants. Lower wage outcomes here in part reflect intra-occupational wage differences, but also differences in occupational outcomes. Occupational findings from the U.S., which show little difference in the occupational structure of similarly-skilled migrants and natives (see Figure 49), do not always generalize (see Dell' Aringa et al., 2015 in the case of Italy, for example).

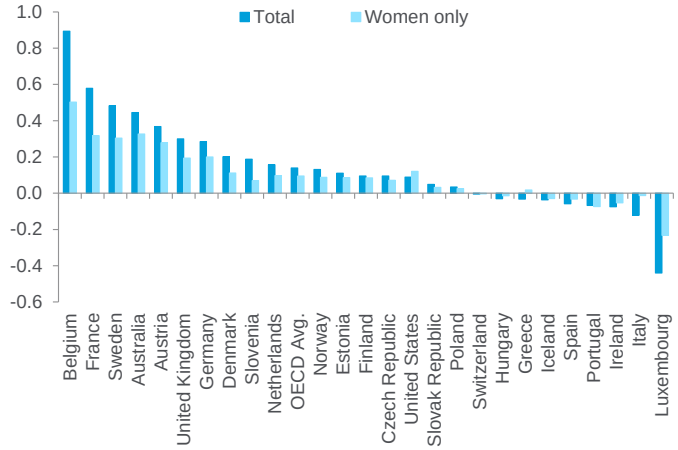
Figure 141. Difference in Net Direct Fiscal Contribution Between Immigrant and Native-born Households, by Education Level of the Household Head, 2007-2009 Average. Euros (2013, PPP)



Note: "High-educated" refers to ISCED-level 5 and above; "low-educated" to ISCED-level 2 and below.
Source: Citi Research; OECD (2013)

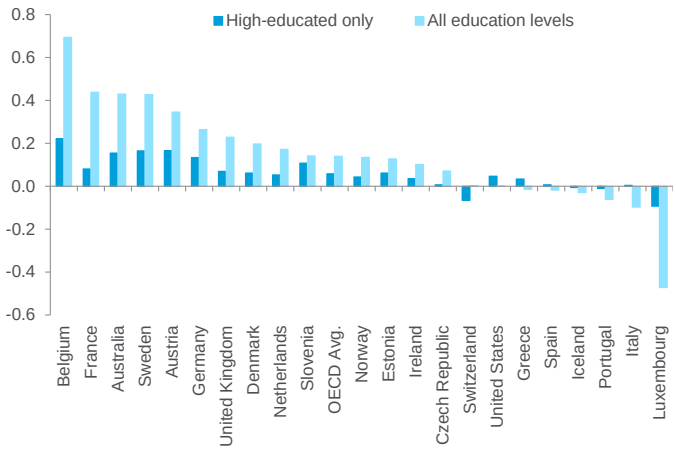
In both cases, if employment rates among both groups were increased to the equivalent rates among natives there would be a substantial positive effect on year-on-year fiscal balances, even at their current wage levels. The effect of increasing participation among migrant women is particularly substantial. If this were also associated with better occupational matching and less skills downgrading, especially among better-educated migrants, the net fiscal benefits could be substantial.

Figure 142. Estimated Budget Impact if Immigrants had the Same Employment Rate as Native-born, in % of GDP, 2007-2009 average



Source: Citi Research, OECD (2013)

Figure 143. Estimated Budget Impact if Immigrants had the Same Employment Rate as Native-born, in % of GDP, 2007-2009 average



Source: Citi Research, OECD (2013)

A range of other country-specific studies largely corroborates these findings, in many cases addressing the concern noted regarding the impact of cyclical economic circumstances on the measured fiscal impact of migration. In the U.K., for example, Dustmann and Frattini (2014) look over a 10-year period between 2001 and 2011, capturing a range of cyclical environments. They find immigrants made a net positive contribution irrespective of their origin, whereas over the same period the natives' fiscal cost was £617 billion. For those arriving between 1995 and 2011 Dustmann and Frattini estimate that immigrants saved the U.K. £49 billion.

Their conclusion is that immigration to the U.K. since 2000 has been of substantial net fiscal benefit, with immigrants contributing over £20 billion more than they received in benefits and transfers.[35] The positive impact of migrants on the U.K. budget balances found by Dustmann and Frattini (2014) echoes earlier work by Gott and Johnston (2002) and Sriskandarajah et al. (2005). Similar conclusions have been reached elsewhere, for example in Sweden (Ruist, 2014) and New Zealand.[36]

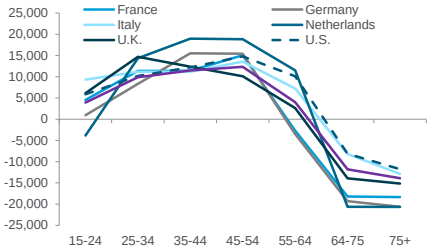
Dynamic Approach - How Do Migrants Contribute Over Their Lifetime?

The static methodology has several deficiencies. Importantly, it often rewards younger migrants and penalizes older ones. This is manifest in the analysis above, for example, in the outperformance of Southern European migrants, and the relative underperformance of some in Continental Europe.

[35] Economic Journal, 2014 and FT (2014b).

[36] The United Nations notes that each migrant from Asia and the Pacific Islands to New Zealand makes a net annual fiscal contribution of about $2000, compared with $1800 for a New Zealand-born person.

Figure 144. Net Contribution of Immigrant Households by Age of Household Head, 2007-2009 Average (Euros, PPP Adjusted)



Source: Citi Research, OECD (2013)

In part, the degree to which the static model can be labeled as 'deficient' depends on the question being asked. The net contribution of migrants on a year-on-year basis can be an important policy question in many cases, especially given imperfections in public debt markets. As Clements et al. (2015) note, the age profile of migrants, and their subsequent year-on-year net contributions, is relevant when the native population is growing older, helping to avoid the rapid accumulation of potentially expensive public liabilities.

However, as a basis for wider policy, a more holistic view is often necessary. The static model's inadequacies, in this respect, are notable in the conclusions of Dustmann and Frattini (2014). Using a static model stretched over several years, they show that while most migrants have made net positive fiscal contributions, migrants from within the European Economic Area (EEA) and more recent migrants have made a larger positive net contribution to public finances than older migrants.

While noteworthy, this is entirely to be expected given the propensity of migrants to make their largest fiscal contributions when younger and during their (longer) working life. This should not be taken to mean current migration flows are more economically positive overall, as it misses the contribution older migrants may have made historically. Even if they have paid much more into the U.K. Treasury than they currently take out over the course of their time in the country, based on a static model they still appear as negative at the time the measure is taken.

Given countries have (rightly) limited abilities to deport migrants, from a policy point of view, the question becomes the net contribution of migrants over their stay in the economy once admitted. This, and effective policy evaluation more broadly, requires taking a more dynamic approach.

Such an approach also allows other important and predictable variations in migrant earnings to be accounted for. For example, some migrants can be a burden on public services in the short run, but in the long run most will make a net positive contribution. This is especially important when it comes to certain forms of active labor market and integration policies that are specifically designed for migrants and which will increase the contribution of migrants over time. Immigrants also often need time to adjust to the labor market demands of a destination country. As their linguistic proficiency improves, as a consequence they earn more and pay more in taxes (Preston, 2014). In the medium term, migrant wages also often grow more rapidly as initial downgrading and mismatching is corrected (Peterson, 2014). As Razin and Sadka (1999) argued: "in a static set up, one cannot fully grasp the implications of migration for the welfare state."

We use two different sets of observations to account for these dynamics. First, we use OECD estimates of how the net fiscal contributions of migrants and natives develop over their lifetime. Second, we look at the current and likely future age distribution of migrants, including incorporating likely migrant return. From this, and assuming invariance in future contributions, we can then derive a discounted set of cash flows for the current migrant and native population. This indicates the net fiscal contribution of migrants on a forward looking basis.

Unsurprisingly, given the younger age of migrants, looking at the average net expected fiscal contributions of migrants tends to yield stronger positive contributions, on average, than simply looking year-on-year.

Age and the Expected Lifetime Fiscal Contributions of Migrants

Research has pointed to the large positive net fiscal impact of migrants over the course of their stay

Research has pointed to the large positive net fiscal impact of migrants over the course of their stay. In the U.S. a group of economists assembled by the National Academies has looked into the economic impact of immigration and concluded that immigrants with at least a high school degree had a positive impact on the Treasury, and the higher the level of education the higher the fiscal gain. The net contribution of an immigrant with a bachelor's degree was estimated at over $200,000 in 2017, whereas someone who does not have a high school degree was estimated to cost the treasury $115,000 over their lifetime. Research on Germany has shown that a migrant who arrives at aged 30 would make a net contribution (taxes minus services consumed) of $150,000 during his or her lifetime.

Looking at the present value of net fiscal contributions of migrants and natives over their working lives, while still generally lagging natives the gap (proportionally speaking) is generally much smaller. For example, the present value of a native's fiscal contributions, at age 33 in Australia is around €66,000. The equivalent value for a migrant is around €54,000 (see Figure 147). This is in comparison to a 25 percent gap in the static framework above.

In the data below, we are primarily interested in the likely future fiscal contributions of new migrants across respective age groups. We do not account for the likely endogeneity between government borrowing costs, migrant age distributions, and ultimate borrowing levels. Clements et al. (2015) note this this is likely an important benefit to migration, with migrants preventing a rapid expansion in government debt stocks. The OECD data discount future net contributions by 3 percent per year.

Two common trends stand out from the data below. First, even assuming all migrants stay until their death, there is no case in which the present value of the net expected cumulative fiscal payments of the average migrant under the age of 40 is negative. This means the average labor migrant under the age of 40 is likely to make a positive contribution via their taxes and benefit consumption over the course of their life, assuming they stay until their death. To the degree that they leave earlier, and benefits are nontransferable, this increases the net present value further (see Figure 145).

Second, in all of these cases, net expected future payments converge towards the end of life, with migrants often comparing favorably with natives in this part of the curve. This reflects some of the conclusions noted above from the static data. Namely, as net fiscal contributions become more defined by benefit consumption, rather than contributions (and employment), there is little difference between migrants and natives, with the latter often comparing favorably at the margin. Notably, in the numbers presented below, no adjustment is made for the fact that migrants often have better health outcomes than natives, even in older age. This suggests that the relative outperformance of migrants here could be greater than it otherwise appears.

In these figures, it is also worth noting that the likely future contributions of migrant children are not included. As Preston (2014) notes this is somewhat inappropriate in that the costs of education are included, but their future contributions are not. This biases these estimates against migrants who typically have higher fertility rates. In most cases, the inclusion of migrant children tends to improve the net lifetime fiscal contribution of migrants compared to natives.[37]

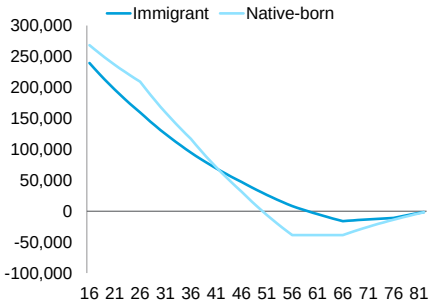
[37] See, for example, Wedensjo (2000); Gerdes and Wadensjo (2008) and Wadensjo (2007)

Three distinct patterns are discernible in comparing the lifetime net contribution profiles of natives and migrants across the OECD

Three distinct patterns are discernible in comparing the lifetime net contribution profiles of natives and migrants across the OECD: a Southern European pattern, an Anglo Saxon pattern, and a Continental/ Nordic pattern.

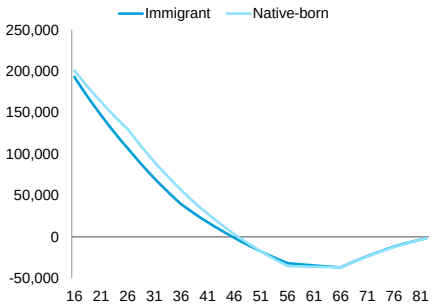
Looking at Southern Europe, in both Spain and Italy, the net earnings profiles of migrants very closely match those of natives. This is especially true in Spain where the earnings profiles are almost exactly the same, and very close in terms of their respective values. In Italy, the profiles of migrants and natives are also relatively close. However, here, migrants perform notable better in older ages, with the present value of future net fiscal payments exceeding those of native born over the age of 43 and only turning negative for those in their early 60s.

Figure 145. Estimated Net Present Value of the Lifetime Net Direct Fiscal Contributions by Age, Italy



Note: By age of the household head. Future payments have been discounted at a rate of 3% per year. Based on figures from 2006-2008
Source: OECD (2013)

Figure 146. Estimated Net Present Value of the Lifetime Net Direct Fiscal Contributions by Age, Spain



Note: By age of the household head. Future payments have been discounted at a rate of 3% per year. Based on figures from 2006-2008
Source: OECD (2013)

Among the Anglo-Saxon economies, migrants seem to more consistently and extensively lag natives. Here again, however, the profile of contributions among each respective group is relatively similar. In all three cases, the net future contributions remain positive well into migrants' 40s. While this balance turns negative in the U.K. sooner, it also remains relatively shallow. By contrast, natives' net future contributions look more negative once they reach their mid-50s. In the U.S. and Australia, net future contributions turn negative at a similar age.

Figure 147. Estimated Net Present Value of the Lifetime Net Direct Fiscal Contributions by Age, Australia

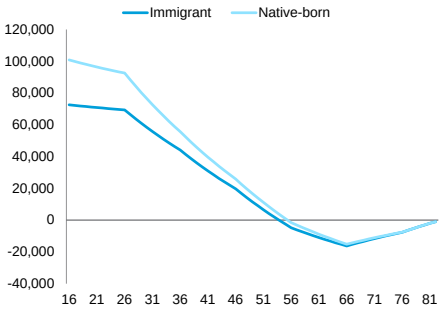


Figure 148. Estimated Net Present Value of the Lifetime Net Direct Fiscal Contributions by Age, U.K.

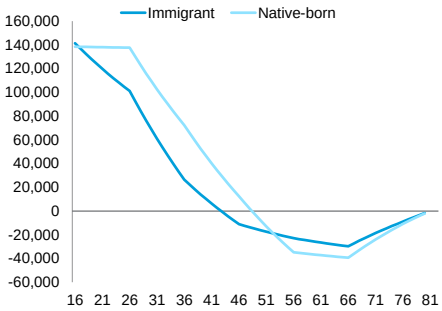
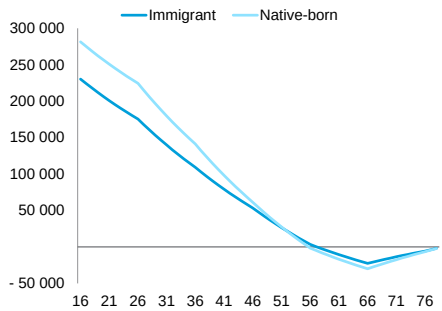


Figure 149. Estimated Net Present Value of the Lifetime Net Direct Fiscal Contributions by Age, U.S.



Note: By age of the household head. Future payments have been discounted at a rate of 3% per year. Based on figures from 2006-2008
Source: OECD (2013)

In Continental/ Nordic countries, migrants compare least favorably compared to natives. Lifetime contributions, especially of younger migrants, appear to be between 25 percent and 50 percent those of natives. Despite this, in all three cases, net lifetime contributions remain positive into migrants' 40s.

Figure 150. Estimated Net Present Value of the Lifetime Net Direct Fiscal Contributions by Age, Germany

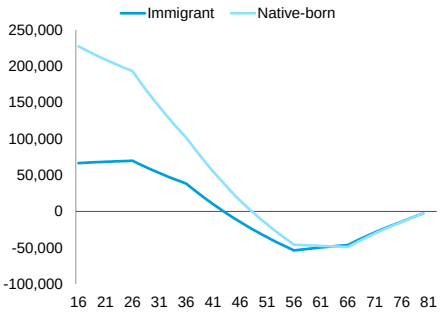


Figure 151. Estimated Net Present Value of the Lifetime Net Direct Fiscal Contributions by Age, France

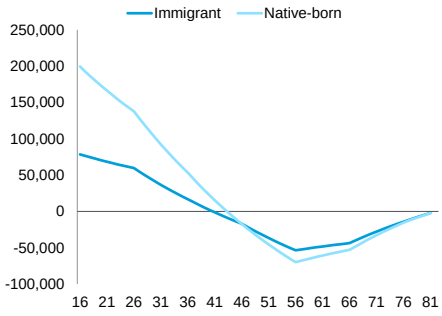
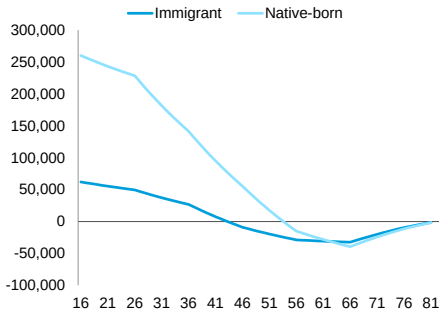


Figure 152. Estimated Net Present Value of the Lifetime Net Direct Fiscal Contributions by Age, Sweden



Note: By age of the household head. Future payments have been discounted at a rate of 3% per year. Based on figures from 2006-2008
Source: OECD (2013)

The Net Present Value of Migrant Fiscal Contributions

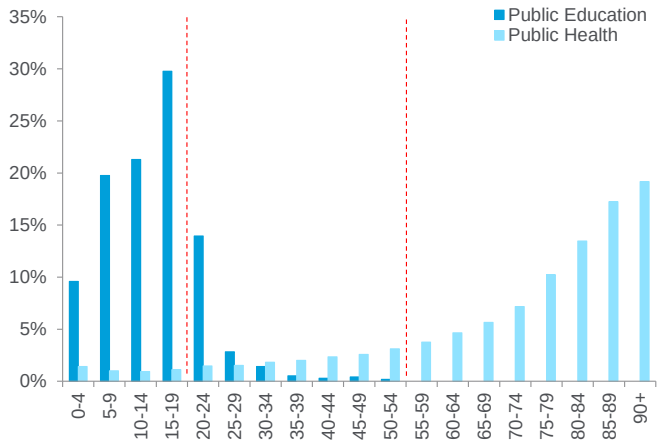
Education plays a particularly important role in determining the lifetime contribution of migrants

In the studies quoted above, education seems to play a particularly important role in determining the lifetime contributions of migrants. In part, this potentially reflects higher earnings and better old-age health outcomes, but it also reflects the greater propensity of more educated migrants to return home in older age (Dell' Aringa et al., 2015).

In many cases, migrants generally return home in older age (de Coulon and Wolff, 2006; Constat and Massey, 2002). In particular, it is generally thought that migrant return is greatest at the point of retirement. Without the continued attraction of higher returns to work, returning home appears more attractive. This is especially true for the voluntary migration flows we discuss here.

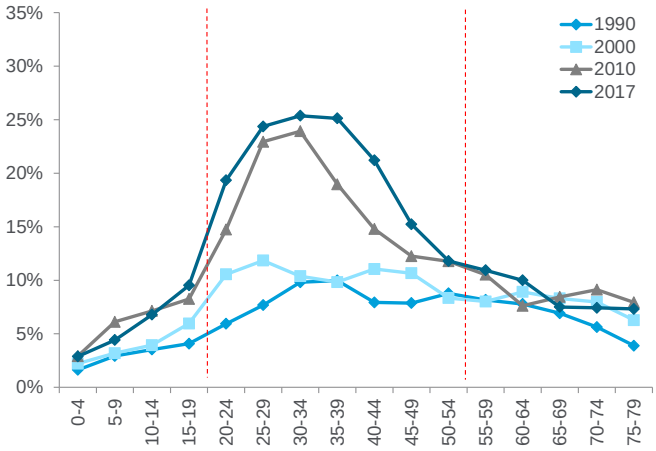
To derive the ultimate impact of these expected future cash flows on respective economies fiscal positions, account has to be taken of the net fiscal contributions of migrants, their current age, and the number who return home. We do this by multiplying the net expected future fiscal contributions of migrants by the number of migrants of each respective age group. By adjusting these estimates for anticipated changes in migration numbers and age distribution, we calculate a set of net present value estimates of future migrant and native fiscal contributions, and how these change given migrant returns and other changes in the migrant stock.

Figure 153. Spending on Health and Education by Age, % of Category Total, U.K., 2010



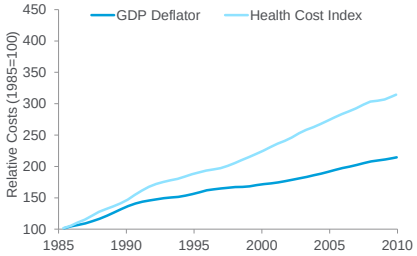
Source: McCarthy and Sefton (2011)

Figure 154. Age Distribution of Migrants, % of Population in that Age Category, U.K., 1990-2017



Source: Citi Research, UNPD (2018)

Figure 155. NHS Hospital and Community Health Services Cost Index, U.K., 1985-2011



Source: Citi Research; Stoye (2017); Institute for Fiscal Studies

Here we assume that the net fiscal contributions of migrants and natives are (1) consistent over time (relatively speaking) and (2) unaffected by changes in the age distribution and size of the workforce. We make the same independence and invariance assumptions for natives, assuming their net contributions to be unaffected by changes in the migrant or native workforce. We also assume that government expenditures are constant over time (relatively speaking) on a per person basis.

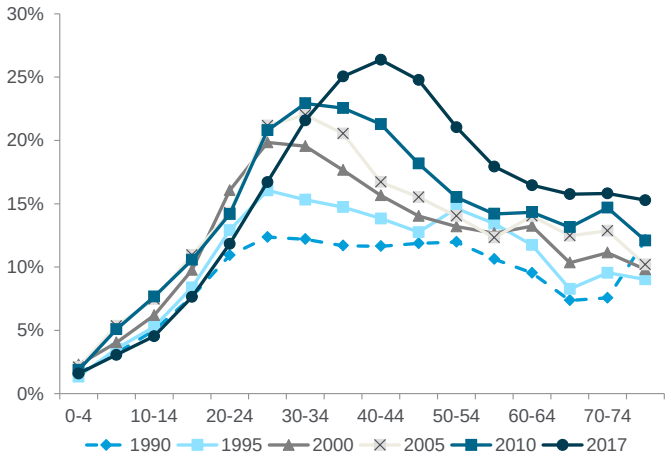
This last assumption likely biases our results against migrants. In many cases, health costs are increasing at a faster rate than inflation and other components of public spending. It is becoming more expensive, relatively, to provide healthcare services to the same individuals (see Figure 155). Our model only includes the effects resulting from increased numbers of users, rather than changes in per user costs. Given the disparity between health and other areas of public spending, this may be biasing our estimates for older natives upwards, in comparison to migrants.

We apply the population estimates that we used in our growth estimations, based on the UN population estimates and forecasts (here we use the medium fertility variant, zero migration variant, and historical population and migrant stock estimates). Using these data, we can again differentiate the outcomes into three distinct groups.

Firstly, the U.S., the U.K. and, to a more limited degree, Australia have all seen strong recent growth in their working age migrant stock. Notably, for the U.K. and the U.S. in particular, high levels of recent growth in working age migrants mean that the net present value of migrants' fiscal contributions are, overall, strongly positive and growing stronger still. In addition, high anticipated return among those of older ages alongside continued working age inflows means the net present value of migrant's fiscal contributions is expected to continue to increase. In short, migrants are making a net positive fiscal contribution over the course of their lifetime, and we expect this to grow more positive still.

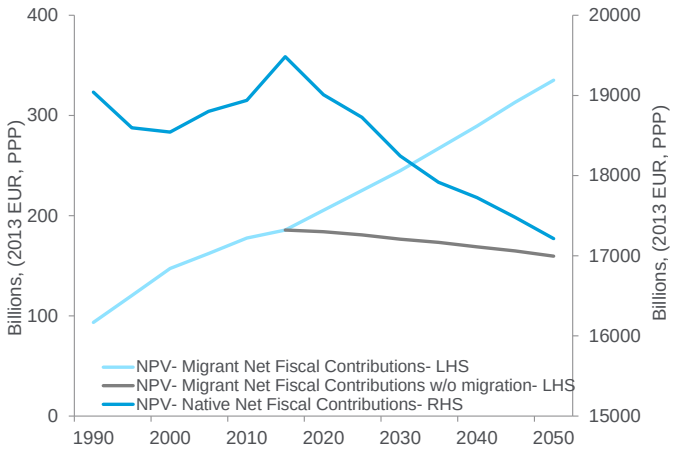
In both the U.S. and the U.K., this is combined with acute recent and expected further declines in the present value of native's fiscal contributions as the native populations in both economies continue to age. In such a context, we expect the lifetime fiscal contributions of migrants to both grow in absolute and proportional terms.

Figure 156. Distribution of Migrant Stock by % of Native Age Cohort, U.S., 1990-2017



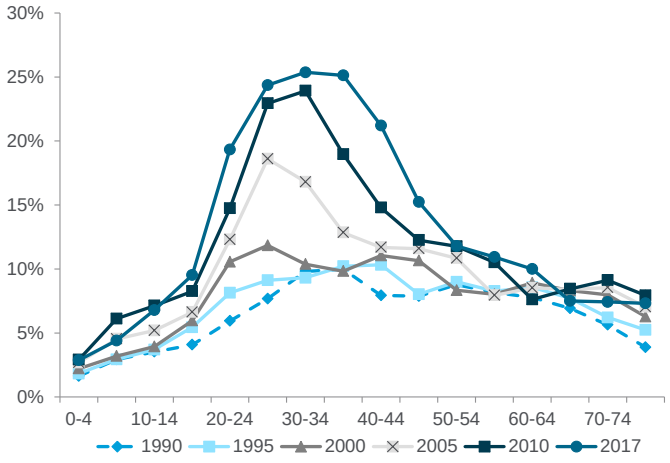
Source: Citi Research, UNPD

Figure 157. Aggregate Net Present Value of Direct Fiscal Contributions, Migrants and Natives, U.S., 1990-2050



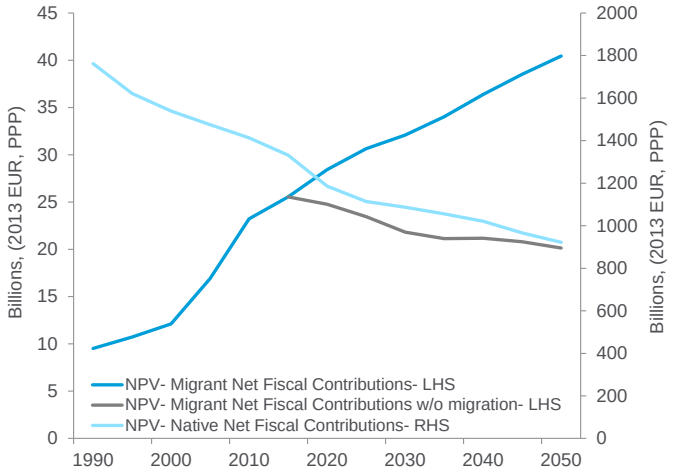
Note: 'No further migration' refers to a zero net migration population scenario. Based on OECD net contributions profiles- these are assumed to be constant.
Source: Citi Research, UNPD, OECD (2013)

Figure 158. Distribution of Migrant Stock by % of Native Age Cohort, U.K., 1990-2017



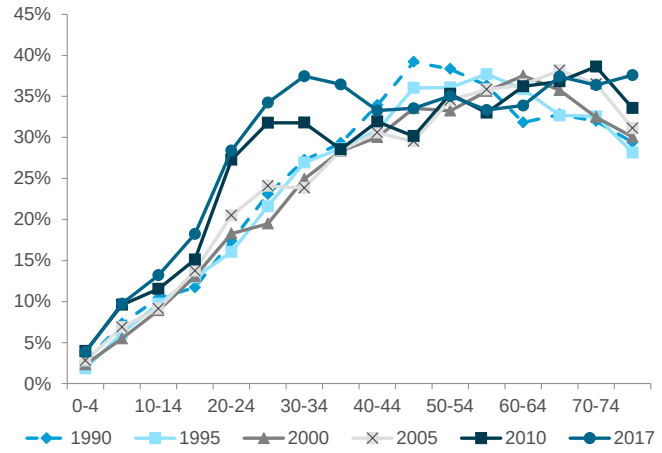
Source: Citi Research, UNPD

Figure 159. Aggregate Net Present Value of Direct Fiscal Contributions, Migrants and Natives, U.K., 1990-2050



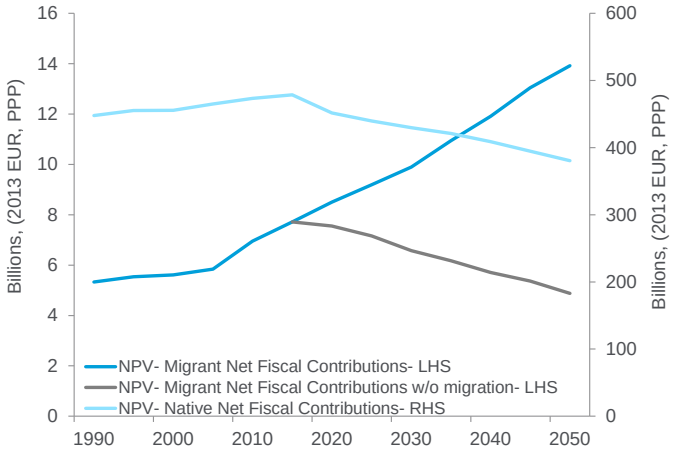
Note: 'No further migration' refers to a zero net migration population scenario. Based on OECD net contributions profiles- these are assumed to be constant.
Source: Citi Research; UNDP; OECD (2013)

Figure 160. Distribution of Migrant Stock by % of Native Age Cohort, Australia, 1990-2017



Source: Citi Research, UNPD

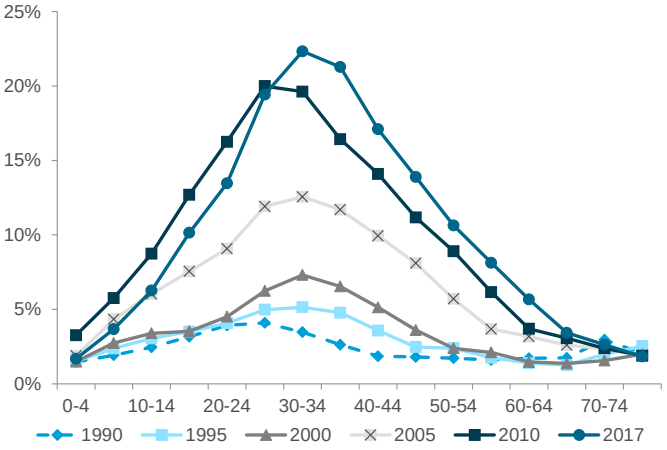
Figure 161. Aggregate Net Present Value of Direct Fiscal Contributions, Migrants and Natives, Australia, 1990-2050



Note: 'No further migration' refers to a zero net migration population scenario. Based on OECD net contributions profiles- these are assumed to be constant.
Source: Citi Research, UNPD, OECD (2013)

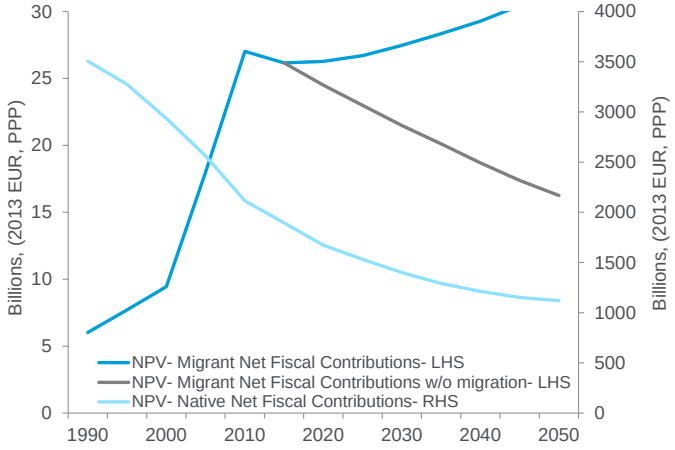
In both Italy and Spain, the large numbers of recent (young) migrants have also rapidly pushed up the net present value of migrant's expected lifetime fiscal contributions. Meanwhile the net present value of native fiscal contributions has also fallen rapidly in the same period (the product of population aging). In this case, however, we expect the net present value of future migrant fiscal contributions to level off somewhat, either as a result of slowing further working age migration or larger numbers of elderly migrants.

Figure 162. Distribution of Migrant Stock by % of Native Age Cohort, Italy, 1990-2017



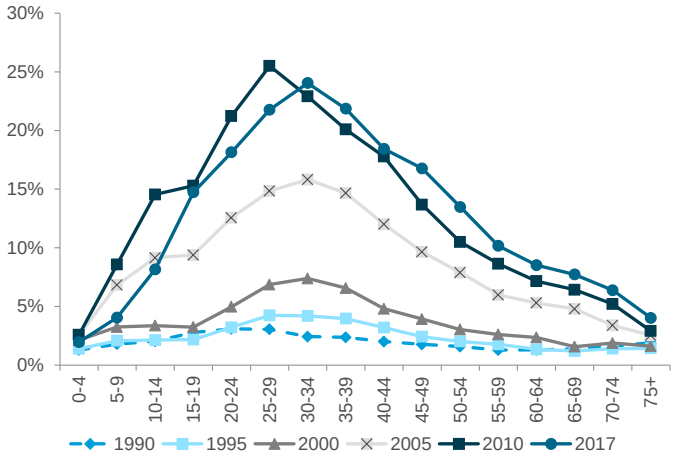
Source: Citi Research, UNPD

Figure 163. Aggregate Net Present Value of Direct Fiscal Contributions, Migrants and Natives, Italy, 1990-2050



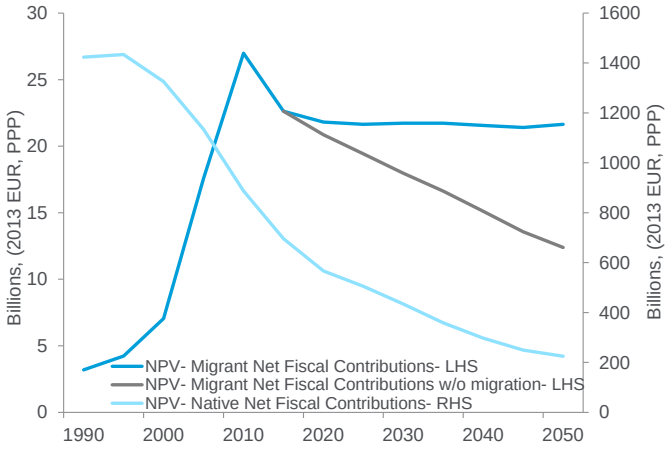
Note: 'No further migration' refers to a zero net migration population scenario. Based on OECD net contributions profiles- these are assumed to be constant.
Source: Citi Research, UNPD, OECD (2013)

Figure 164. Distribution of Migrant Stock by % of Native Age Cohort, Spain, 1990-2017



Source: Citi Research, UNPD

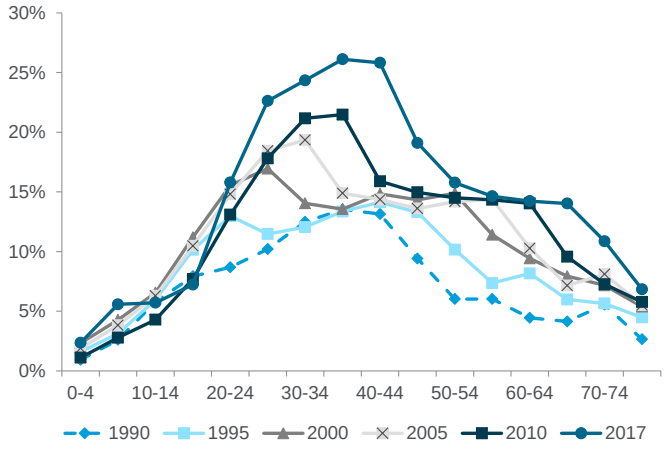
Figure 165. Aggregate Net Present Value of Direct Fiscal Contributions, Migrants and Natives, Spain, 1990-2050



Note: 'No further migration' refers to a zero net migration population scenario. Based on OECD net contributions profiles- these are assumed to be constant.
Source: Citi Research, UNPD, OECD (2013)

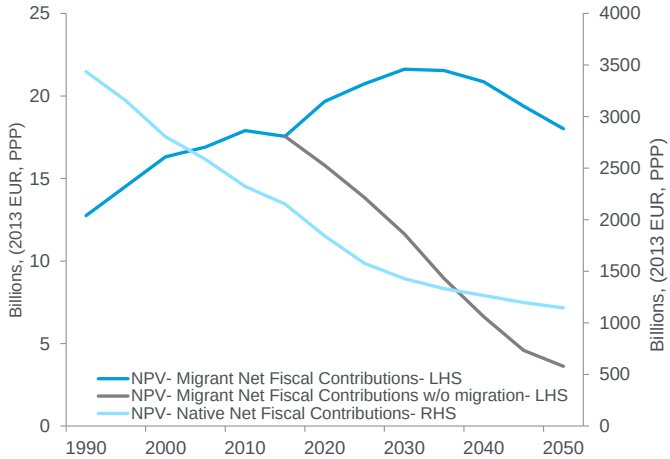
Lastly, in both Germany and France, there has been relatively little recent change in the net present value of migrants' fiscal contributions. These nevertheless remain positive in both cases. What is notable here is the severity of the decline in migrants' lifetime fiscal contributions in both countries in a 'zero-net migration' scenario. This reflects the relatively lower rate of return in these economies, in many cases, and the subsequent effect on the age distribution of migrants if net immigration is not permitted.

Figure 166. Distribution of Migrant Stock by % of Native Age Cohort, Germany, 1990-2017



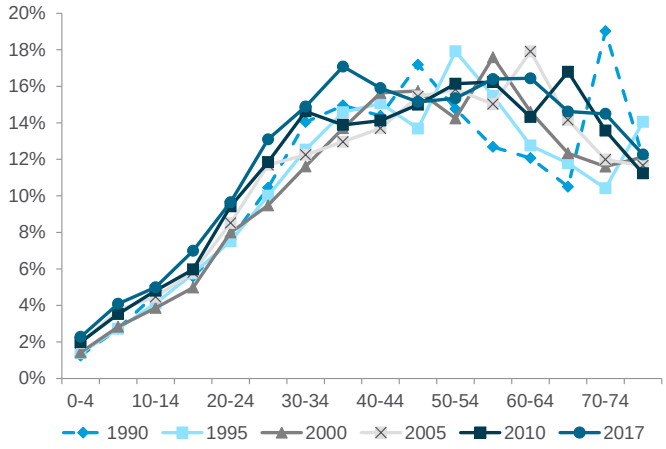
Source: Citi Research; UNPD

Figure 167. Aggregate Net Present Value of Direct Fiscal Contributions, Migrants and Natives, Germany, 1990-2050



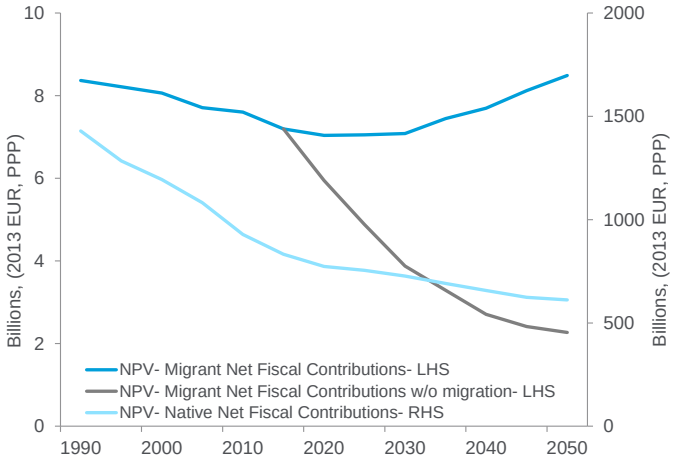
Note: 'No further migration' refers to a zero net migration population scenario. Based on OECD net contributions profiles- these are assumed to be constant.
Source: Citi Research; UNDP; OECD (2013)

Figure 168. Distribution of Migrant Stock by % of Native Age Cohort, France, 1990-2017



Source: Citi Research, UNPD

Figure 169. Aggregate Net Present Value of Direct Fiscal Contributions, Migrants and Natives, France, 1990-205



Note: 'No further migration' refers to a zero net migration population scenario. Based on OECD net contributions profiles- these are assumed to be constant.
Source: Citi Research, UNPD, OECD (2013)

Accounting For Differences in Public Expenditure

As we noted above, an important limitation to these estimates is the inconsistency regarding the treatment of children. This is discussed in more detail below. There are, however, other issues with the way in which spending is attributed, much of which biases estimates against migrants.

The methodological issues here can roughly be grouped into two areas. The first reflects failures to adjust for additional, direct impacts made by migrants on the costs of providing public services that are included in these estimates. The second reflects failings regarding the impact of migration on the costs of providing public goods, many of which are omitted in the data entirely. In both cases, we suspect the net effect is to understate the net fiscal contribution of migrants.

The Effect of Migrants on the Cost of Providing Public Services

Migrants can affect not just the cost of providing public services by altering aggregate demand, but also by changing the 'per unit' cost of public services

Migrants can affect not just the cost of providing public services by altering aggregate demand, but also by changing the 'per unit' cost of public services. Here, again, potential effects can be further split into two areas. The first concerns the impact of additional, and sometimes qualitatively different, migrant demand on public services (demand effects). The second concerns the different profiles of migrant workers, and subsequent direct impacts on the costs of providing public services (supply effects).

In the data, and in many other cases, differences in the per capita use of public services (enrollment and so on) are not adjusted for between migrants and non-migrants. This often misses the less intense use of such services by migrants, but can also often be conceptually inconsistent with some of the other measures that do differentiate between migrants and natives.

Taking education, Liebig and Widmaier (2010) show that, in many cases, migrant enrollment in the early years of education is much lower than natives, which is likely to reduce the per capita cost. Given the link between this issue and differences in female labor force participation, the failure to disaggregate reflects a bias in the resulting estimates.

Other important omissions are made with health spending. Typically, better migrant health outcomes[38] are also not accounted for in this data, or in other more advanced studies such as by Dustmann and Frattini (2014). Notable is that these effects do appear to be reflected in health spending outcomes. Giuntella et al., (2015) found that a high density of migrants in local areas often reduced (particularly outpatient) waiting times. Additionally, Scheider and Holman (2010) find that migrants with health issues often prefer to return home for treatment than stay, especially if their home country is within Europe. None of this is accounted for.

However, in addition to the effects of lower enrollment, migrant demand may also affect the cost of providing services on a per unit basis. Some necessitate additional resources, such as linguistic services. In addition, depending on the country in question, they can also necessitate different kinds of labor market support. Rowthorn (2008) includes such costs in some of their estimates with respect to the U.K.

Largely speaking, however, these numbers are often relatively small, especially with respect to language assistance.[39] In addition, only a portion of these costs are attributable to labor migration specifically, rather than refugees and other groups that countries' are obligated to provide such services for. Hence the marginal cost is likely to be small in comparison to other elements of public spending.

Additional migrant demands, however, may not just be reflected in greater costs but a wider deterioration in service quality owing to the greater per student or patient demand associated with migrants. This, again, however, is not widely evidenced.

This debate is particularly relevant in education. Gould et al. (2009) find, for example, a negative impact of immigration on native examination results in Israel. Jensen and Rasmussen (2011) find the same in Denmark. However, this result does not seem common to every jurisdiction. Hunt (2012), for example, finds that in the U.S. higher shares of immigrants contribute to higher completion rates. Similarly, Geay et al. (2013) suggest that native effects of linguistic diversity among pupils on native educational outcomes can be ruled out.

Educational outcomes can often be given a net boost by migration in many cases. Hunt (2017) shows that migration can improve native human capital by increasing the incentives to complete education.[40] George et al. (2011) come to the same conclusion with respect to the U.K., highlighting a positive relationship between the proportion of pupils with English as an additional language and resulting achievement. In health services too, in the case of the U.K., there is a negative association between immigration density and many National Health Service (NHS) waiting times; better health service quality, on these measures, is often associated with more migrants (Giuntella et al., 2015).

[38] Antecol and Bedard (2006) – U.S.; Chiswick et al. (2008) - U.S.; McDonald and Kennedy (2004) – Canada; Johnson (2006) finds the same for the U.K.
[39] Local government spending, in 2014, on translation services for schools, courts and health services was around £140 million in the U.K., the combined health and education budgets, in 2017, totalled £166 billion.
[40] An increase of one percentage point in the share of immigrants in the population aged 11-64 increases the probability that natives aged 11-17 eventually complete 12 years of schooling by 0.3 percentage points, and increases the probability for native-born blacks by 0.4 percentage points in the U.S. (all else being equal).

Concerns and congestion within local areas owing to migration are an important reality. But rather than reflecting greater resource demands on providing services to migrants (on a per capita basis), they instead seem to reflect the slowness of government, in many instances, to respond and plan effectively to changes in local population size. Economic migration, in particular, is manageable; governments enjoy discretion over who they let in when (in contrast to say refugees). Poor planning does not just erode quality, but can also increase the subsequent marginal cost of expanding resources, independent of any characteristics of service users.

While the overall national fiscal cost of immigrants tends to be low, the concentration of migrants in certain localities or regions can strain local government resources

Hence, while the overall national fiscal cost of immigrants tends to be low, the concentration of migrants in certain localities or regions can strain local government resources. An influential study of migration in the U.S. found that while the fiscal impact of migration is "strongly positive at the national level" it can be "substantially negative at state and local levels." There is scant evidence, however, that this is the product of migrant characteristics.

Managing the fiscal costs of migration will require redistributing tax benefits to address the excess burden placed on particular local and regional authorities more proactively. While localities can expect to reap long-term wage benefits from immigration, in the short term many will experience increased congestion and infrastructure overload.

The persistence and severity of this overload is likely to be even worse in cases where the locality in question is already relatively poor and disempowered. In Giuntella et al.'s analysis of the effect of migrant numbers on health service waiting times, while they find a negative association between migrant numbers and waiting times nationally, they do find a positive association in the most deprived communities (outside London).This disparity, it seems, reflects policy incapacity, rather than inherent impacts associated with migration.

Second, and missed in much of the modelling, is the potential contributions of migrants in cutting wage costs in public service provision. Two areas stand out here. One is the importance of migrants to care and healthcare services. The second is the contribution of skilled migration, in particular, to state administration.

The U.K.'s recent decision to leave the EU has revealed the importance of migration in the provision of health service

The U.K.'s recent decision to leave the EU has revealed the importance of migration in the provision of health services, in particular. Migrants make up roughly 62,000 (5.6 percent) of the English NHS's 1.2 million workforce and an estimated 95,000 (7 percent) of the 1.3 million workers in England's adult social care sector. This proportion has been growing over time and this has come under pressure since the referendum.[41]

Dependence on foreign workers for both social and health care is common to many advanced economies

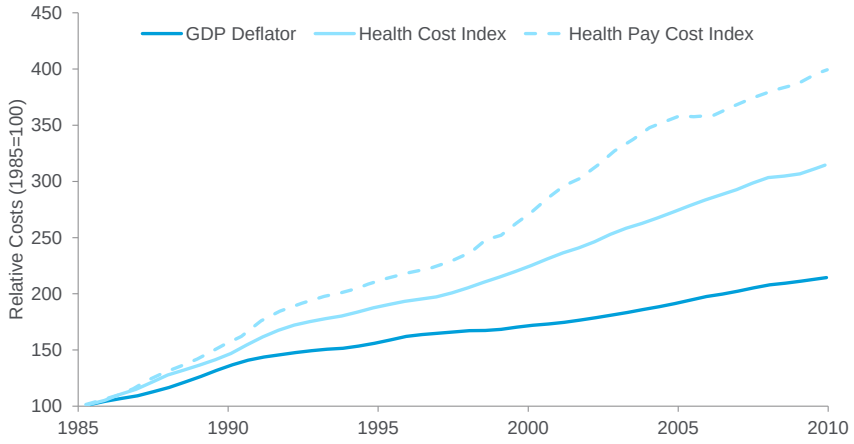
Such dependence on foreign workers for both social and health care is common to many advanced economies. As Da Roit and Weicht (2013) show, migrants make an outsized contribution to the care work portion of public services in Europe. Without these migrants, two sets of public costs would likely increase. First, in the absence of migration, OECD economies would internalize the costs of funding a large, additional portion of their public employees. This is especially notable with regards to health. In every country in the OECD, the state provides subsidies for medical education.

[41] Since the U.K. Brexit Referendum, the number of nurses and midwives from Europe leaving the Nursing and Midwifery Council's register between October 2016 and September 2017 increased by 67 per cent compared to the 12 months before, while the number joining it fell by 89 per cent (Nursing and Midwifery Council 2017), though this is also partly attributable to new English language requirements.

Given most of these economies import more doctors and nurses than they export, in a case where such migration was stopped, this would substantially increase public training costs.

Further, many of these economies are already struggling to hold onto workers in these sectors. In the U.K., the National Audit office has highlighted existing difficulties in filling open posts in the NHS, while the vacancy and job turnover rates in the social care sector are already 6.6 percent and 27.8 percent respectively (Skills for Care, 2017). At the same time, since 1985, pay-related cost growth has been growing more rapidly than (already high) aggregate health costs (see Figure 170), implying high worker demand and potential skill supply constraints here already. Further cuts to migrant numbers would likely make this worse.

Figure 170. NHS Hospital and Community Health Services Cost and Health Pay Cost Index, U.K., 1985-2011



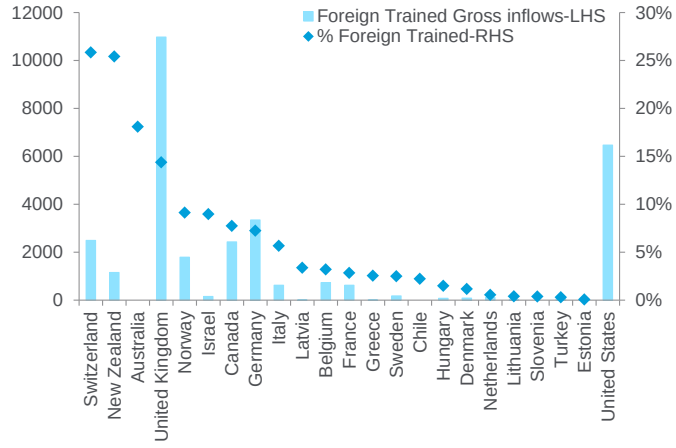
Source: Citi Research, Stoye (2017); Institute for Fiscal Studies

Recent estimates suggest that both the U.K. health and social care sectors will face a considerable shortfall in staff in future if EU migration is limited after Brexit. Modeling from the Department of Health published in the Health Service Journal (HSJ) projects (under a worst case scenario) a shortage in the U.K. of between 26,000 to 42,000 nurses (full-time equivalents) by 2025/26 (Lintern, 2017). Projections from the Nuffield Trust suggest a shortfall in England of as many as 70,000 social care workers (headcount) by the same date (Dayan, 2018) under the same circumstances. It is inconceivable such large gaps could be filled without increasing wages in these areas.

Figure 171. Total Foreign Trained Nurses, 2013

Source: Citi Research, OECD (2018)

Figure 172. Total Foreign Trained Doctors, 2015

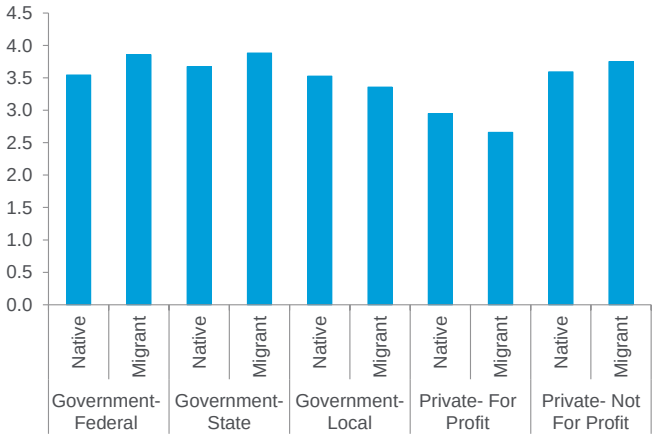


Source: Citi Research, OECD (2018)

Beyond health, migrants make outsized contributions to public sector skills

Beyond health, while often underrepresented in the public service workforce as a whole (Preston, 2014), migrants make outsized contributions to public sector skills. In both the U.S. and U.K., for example, human capital levels for migrants working in the public sector are consistently higher than natives (see charts below). Given human capital can often be disproportionately expensive, this may be playing an important role in keeping state costs down both by ensuring necessary human capital is available and also potentially increasing operational governmental efficiency by making greater use of this. Such skills might be expensive and hard to replicate in a case in which migration numbers were to fall, with government again likely to face additional training and wage costs.

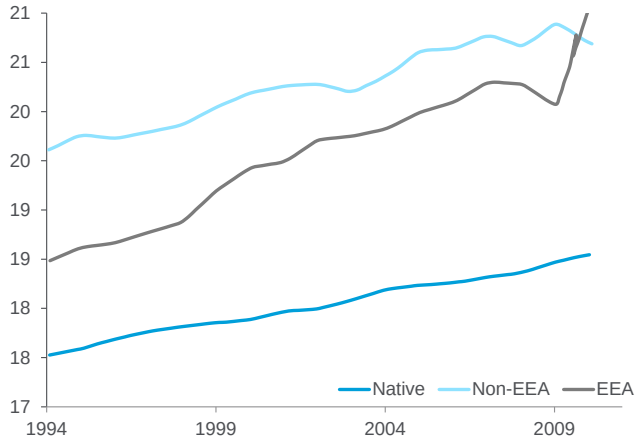
Figure 173. Average Education Score of Those Employed in Public and Private Employment, U.S., 2017



Notes: This figure reflects the average level of education among full time employees in each labour market segment. The score is derived using the 1992 numeric scheme of education levels.

Source: Citi Research, CEPR-CPS

Figure 174. Average Age at Which Worker Left Education, U.K. Public Sector Employees, 1994-2011



Notes: The figure shows the average age at which public sector workers in the UK left full time education.

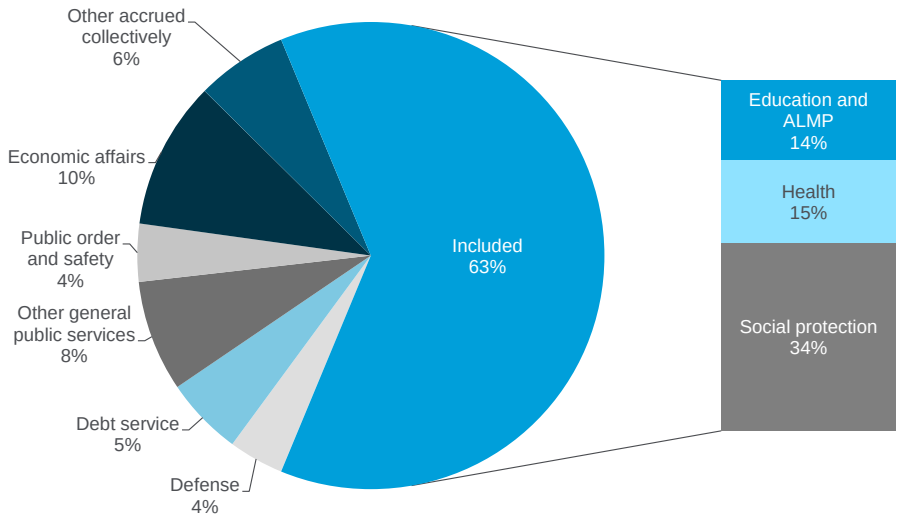
Source: Dustmann and Frattini (2011); UK Labour Force Survey

Estimating the Impact of Migration on the Costs of Providing Public Goods

In the OECD data above, only a portion of public costs are included. While services such as health, education, social protection, and active labor market policies are included, many others, such as debt servicing and defense, are not.

Such an approach likely biases the resulting estimates against migrants. This is because many of these goods are likely to more closely resemble public goods, and therefore increases in the population, associated with migration, should lower the per capita cost (the first channel we referred to at the start of this chapter).

Figure 175. Structure of General Government Revenue and Expenditure and Inclusion in the Fiscal Impact Calculations, OECD, 2008



Note: Simple average of OECD economies
Source: Citi Research, OECD (2013)

In areas such as defense and debt service, we suspect these effects could be relatively substantial. Other studies have included these costs, often on a pro-rata basis (see Rowthorn, 2008). However, this is likely not a good reflection of the marginal costs of migration. As Orrenius (2017) concludes, when discussing the U.S.:

> *"If immigrants are assigned the average cost of public goods, such as national defense and interest on the debt, then immigration's fiscal impact is negative in both the short and long run… However, marginal cost calculations are more relevant for policy decisions, and the report shows that if immigrants are assigned the marginal cost of public goods, then the long-run fiscal impact is positive and the short-run effect is negative but very small (less negative than that of natives)."*

Certain characteristics of migrant populations also mean that when goods are more congestible, the marginal costs imposed by additional migration may still lag that of natives. The concentration of migrants in urban areas, for example, likely lowers the infrastructure costs on a per person basis. As Ahrend et al. (2016) note: "since most infrastructure investments include fixed costs that are to some degree independent from the number of users, larger cities with a higher number of users can use infrastructure more efficiently on average."

While it is also true that the concentration of migrants in these areas may increase costs associated with congestion, these are often more consequential for private adjusted income rather than public spending. The main effects are often felt through housing and other costs, though public finances are affected in the most severe cases where there is a significant increase in the burden migrants place on social and other services.[42]

Hence, we suspect that including some of these services, alongside a proper evaluation of the marginal costs of additional migration, would also likely improve the estimated fiscal impacts of migration further.

Macro-Modelling

In the figures presented above, no account is taken of the potential impact migration may have on the fiscal contributions of natives. While some, such as Rowthorn (2008) have thought these effects potentially significant, we do not think there are any such substantial effects on either native employment, or wage outcomes at the aggregate level. Instead, while migration can have important consequences for wage and employment outcomes on a localized, occupational level and on the income distribution more broadly, we have not seen significant evidence of wider, persistent labor market impacts, especially outside of a downturn.

However, as we noted when discussing the impact of migration on growth, migration can have important impacts on the wider economy, increasing the female labor force participation rate and improving the rate of productivity growth. While these effects are generally not included in macroeconomic models presented here, these do adopt an approach that looks at the impact of migration on wider economic growth (here restricted usually to the labor market impacts) and changing fiscal demands simultaneously.

When considered in this light, migration has a more favorable impact than appears when looking at the direct fiscal payments made by migrants alone. Looking at the U.K., for example, Barrell and Riley (2007) and Iakova (2007) as well as Bass and Brucker (2011) all find that migration is beneficial overall, increasing economic growth, income, investment, and public finances, using macroeconomic general equilibrium models. In many cases, this can often be a more appropriate measure too, by considering the effects on fiscal balances alongside the impact on the wider economy, it provides a better picture of how liabilities are evolving as a result of migration compared to social capacity to meet them.

In many cases, this also facilitates a more consistent treatment of migrant children. This is usually done using a ‘generational accounting approach’ and often increases the marginal estimated fiscal contribution of migrants, especially in the longer term.

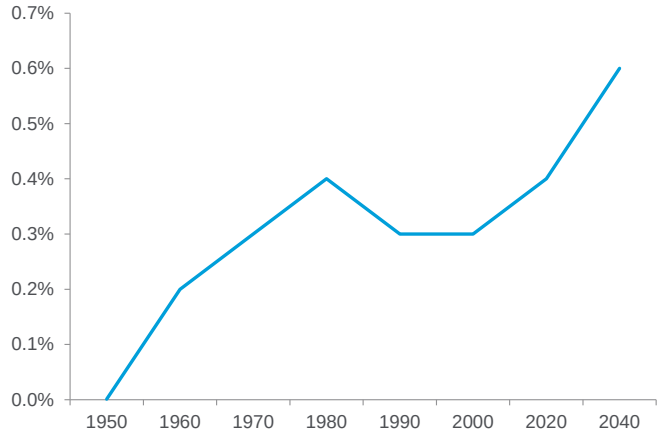
Lee and Miller (2000), for example, suggest substantial net gains from high-skilled migrants in particular. In Spain, Collado et al. (2004) find migration has had a significant, net positive fiscal impact. Mayr (2005) finds a similar effect in Austria. Notably, in the U.S., Storesletten (2000) finds migrants of all varieties to compare favorably in terms of their fiscal impact compared to natives. Interestingly, Storesletten estimates that the fiscal demands associated with the aging of American baby boomers could be potentially resolvable with a net annual inflow 1.6 million immigrants (given their current age profile).

[42] See OECD (2013).

This is not always the result. For example, Fehr et al. (2004) find that migration makes almost no difference to an economies fiscal balance as a share of GDP. However, few studies show a negative impact and more recent comparable studies have continued to reiterate similar conclusions.

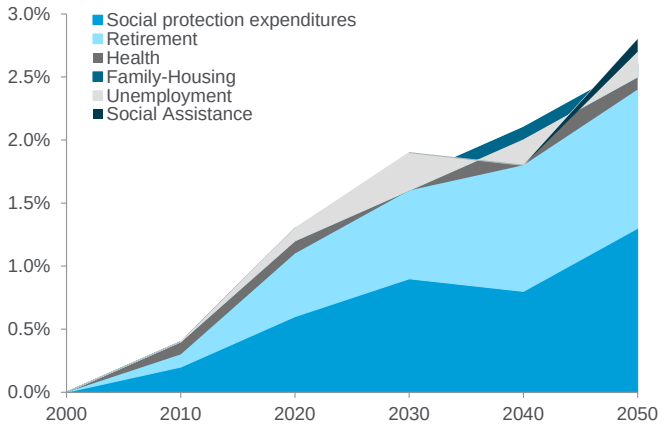
In the U.S., Chojnicki and Docquier (2011) find that public transfers would have been larger as a share of GDP since 1950 in a case where there had been no migration (assuming policy invariance). Similarly, in France, Chojnicki and Ragot (2011), use a generational accounting approach and find that net zero immigration rate would damage net fiscal balances extensively (see Figure 177).

Figure 176. Percentage Point Change in Public Transfers in Case of No Migration, U.S., 1950-2040



Source: Citi Research; Chojnicki and Ragot (2011)

Figure 177. Percentage Point Change in Public Expenditure in Case of No Migration, France, 2000-2050

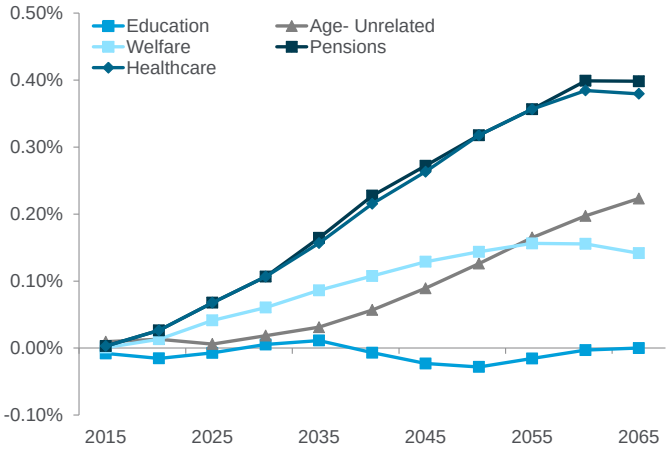


Source: Citi Research; Chojnicki and Ragot (2011)

Interestingly, similar results come from more realistic policy scenarios too. Lisenkopva and Sanchez-Martinez (2016) model the impact of changes in net migration on the U.K. associated with Brexit. In this framework, they expect migration from the EU to drop by roughly 66 percent, with migration from outside the EU remaining unchanged.

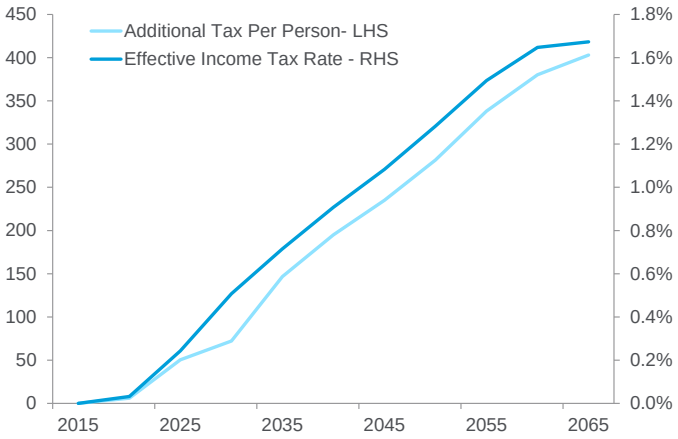
Modelling from 2015 through to 2065, they find such a change has a substantial impact. Through both the associated changes in per capita fiscal spending, and aggregate economic performance, this increases public spending as a share of GDP, by roughly 1.1 percentage points, with the largest impacts coming from pensions and healthcare (see Figure 178).

Figure 178. Government Spending as a Share of GDP in a 'Leave Scenario' Case, U.K., 2015-2065



Source: Citi Research; Linenkova and Sanchez-Martinez (2016)

Figure 179. Additional taxation in a 'Leave Scenario' Case, U.K., 2015-2065



Source: Citi Research; Linenkova and Sanchez-Martinez (2016)

The Politics of Migration

The politics of migration is becoming an increasingly pressing issue

The politics of migration is becoming an increasingly pressing issue. Across the OECD, higher numbers of migrants are now associated with increasingly restrictive migration policies (Hatton, 2014). In recent general elections across the West, radical right wing parties have gained increasing vote shares on the back of strongly anti-immigration platforms (amongst other policies). The political viability of migration is under pressure.

Attitudes to migration can be distilled down to two interacting factors: solidarity and scarcity. Solidarity here reflects differences in social values. The greater the degree to which individuals define themselves, and those they identify with, in an exclusive, nationalist fashion, the more likely they are to oppose migration.

Scarcity here reflects the degree to which individuals see resources, such as jobs or public services, as under pressure. The greater the belief that resources are limited, the more likely they are to oppose further migration even if, as we discussed throughout this report, migration is rarely a net economic drain.

Resistance to migration is greatest when scarcity and exclusive nationalism coincide

Resistance to migration is greatest when scarcity and exclusive nationalism coincide. This has been reflected in the rallying cries of traditional anti-migrant parties, such as the French National Front's now infamous 1978 slogan 'Two Million Unemployed is Two Million Immigrants Too Many!' If scarcity is high and solidarity limited, then sensitivity, and likely hostility, to even anecdotal news of migration imposing economic and social costs is likely to engender opposition.

This coincidence has occurred in a number of OECD economies where countries (and regions) with stronger, exclusive nationalist views are also witnessing lower growth (fueling a sense of scarcity). Austerity may have also played a more specific, recent role in fueling an acute sense of scarcity in public service provision, driving anti-immigrant sympathies (Wren-Lewis, 2017).

It is notable, however, that certain countries – such as Greece and Spain – which suffered particularly acute financial crises have been comparatively tolerant of migrants, whereas others, such as Poland, Hungary, the United Kingdom, and France, where the crisis had a less dramatic impact, have seen rising anti-migrant sentiment. The contrast between Italy, which has restricted arrivals, and Spain and Greece, which have been more tolerant, is also instructive. Radical parties in Italy have used migration to rally voters, whereas in Greece and Spain anti-migration sentiment has not been really wielded as a source of political power.

This reflects the fact that the emergence of anti-migrant views and parties at a political level has been primarily driven by changes in elite party politics, rather than broader social attitudes. Developments here, as we argue below, have made a specific subset of existing views on migration politically consequential. This is the result of a change in the manner in which parties are competing. Migration, especially when framed in nationalistic terms, has been both a force for, and product of, these political trends. Re-emphasizing economic factors around migration could help offset broader disruptive trends to political stability, as well as putting migration policy itself on a more sustainable political footing.

In this chapter, we begin by highlighting some of the important trends in public attitudes towards migrants. Second, we discuss patterns in individual attitudes, and factors often associated with less or greater support for migration. Third, we discuss recent changes in party politics and the place of debates around migration within these.

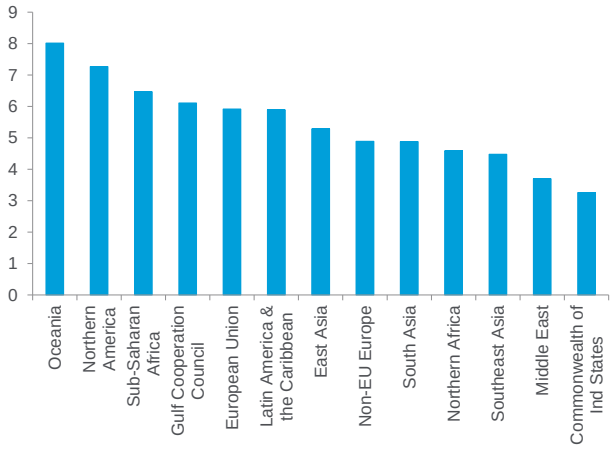
We conclude with a short discussion of the risks associated with these wider political changes, and the subsequent importance of debates around migration for wider policy making.

The arguments in this chapter, especially with respect to individual attitudes, focus attention on some of the institutional factors discussed in the previous chapters. The concentrated, and asymmetric, impact of migration has also played a role in driving an increasingly polarized debate around migration between high-growth (dynamic cities) and low-growth (rural and decaying towns) areas. To put migration on a more even, viable footing, more must be done to share the growth benefits. In addition, governments must be more responsive to re-distributing the benefits of migration to those communities bearing the costs, including by relieving the pressure on public services in communities with relatively high levels of migrants.

Public Perceptions and Attitudes to Migration

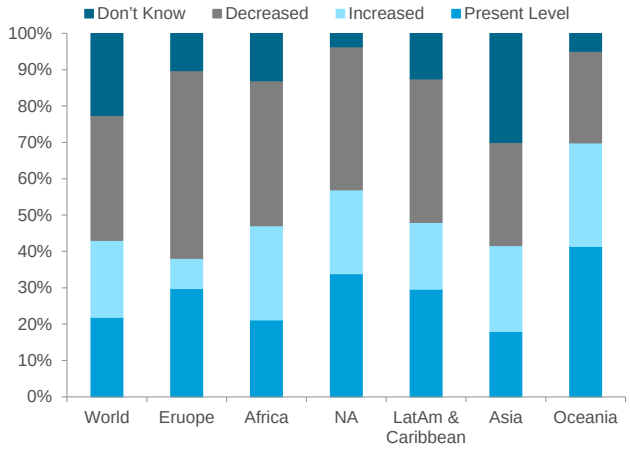
There are few obvious links between development level, existing migration, and domestic acceptance. Asian economies tend to exhibit the least accepting attitudes towards migrants, though naturally there are substantial variations within such a large region. More and less accepting attitudes are evident in both developed and developing economies. Notably, the proportion of people supporting an expansion in migration is now lower in Europe than any other global region.

Figure 180. Migration Acceptance Index, 2017



Source: Gallup 2016, World Migration index

Figure 181. "In Your View, Should Immigration in this Country Be Kept at its Present Level, Increased, or Decreased?" 2015



Source: Gallup 2016, World Migration index

National Attitudes: Disconnected from Policy Needs

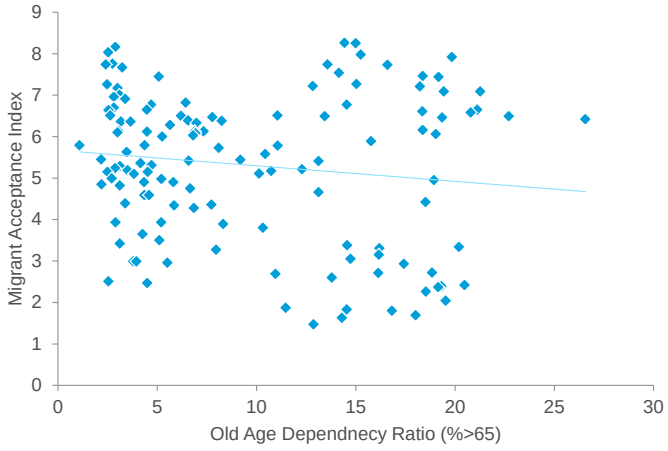
Globally, acceptance of migration varies substantially

Globally, acceptance of migration varies substantially. But there is notably little association, even among similar economies, between attitudes towards migrants, and likely or potential economic benefits to the economy in question. For example, more rapidly aging societies may be assumed to require more migrants to sustain their economies. Examining old age dependency, for example (the percentage of the population over the age of 65) as an indicator of the likely benefits, one finds no correlation between this and attitudes to migration. This reflects the complexity of the factors underlying attitudes. Experiences of a growing elderly population, especially in relatively poor countries, are likely to differ from those in rich countries, with a lower capacity to attract migrants. In addition, attitudes towards migrants are likely to display substantial fixed effects.

Across Europe, there is a low correlation between the old age population and attitudes towards migrants

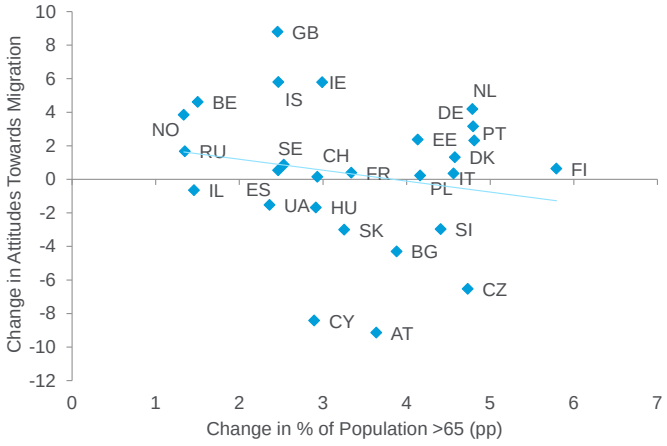
Changes in both attitudes and elderly dependence are likely better measures. However, even looking at changes across relatively similar economies (in terms of wealth), there is still little correlation between attitudes and likely potential benefits of migration in dealing with issues of old age. Just across Europe, for example, there is both a low correlation between the old age population, and attitudes towards migrants, and changes in both (see Figure 183). In fact the relationship seems, at the margin, to be negative, implying countries with greater numbers of elderly people are increasingly taking a less favorable view of migration. Clearly, this is just one measure of the potential marginal economic benefits associated with migration, but it suggests that neither need, nor dependence on migration, is driving recent attitudes on a cross national basis. Other factors are at play.

Figure 182. Old Age Dependency Ratio and Attitudes Towards Migration, 2016



Source: Citi Research, World Bank, Gallup

Figure 183. Change in the Old Age Dependency Ratio and Attitudes Towards Migration, 2002-2016



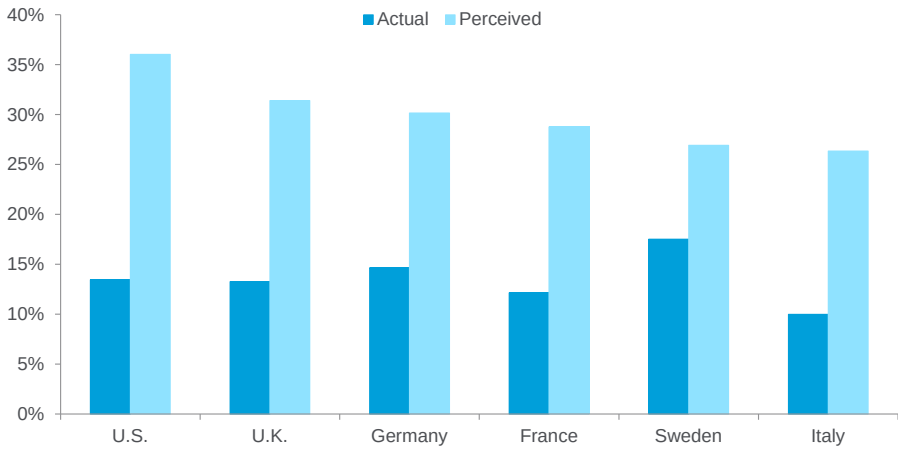
Note: Here attitudes towards migration are measured using a composite indicator relating to attitudes regarding migrations economic and cultural contributions.
Source: Citi Research, World Bank, ESS

Perception vs. Reality – Migration in the OECD

Perceptions are that migration is generally (1) larger in comparison to the population than the reality and (2) in almost every sense, less productive in labor market terms than in reality

Within the OECD, public perceptions are that migration is generally (1) larger in comparison to the population than the reality and (2) in almost every sense, less productive in labor market terms than in reality. Among the largest OECD economies, the perceived proportion of migrants compared to the total population is usually around twice that of the actual proportion of migrants (see Figure 184).

Figure 184. Perceived Versus Actual Share of Total Migrant Population, 2017

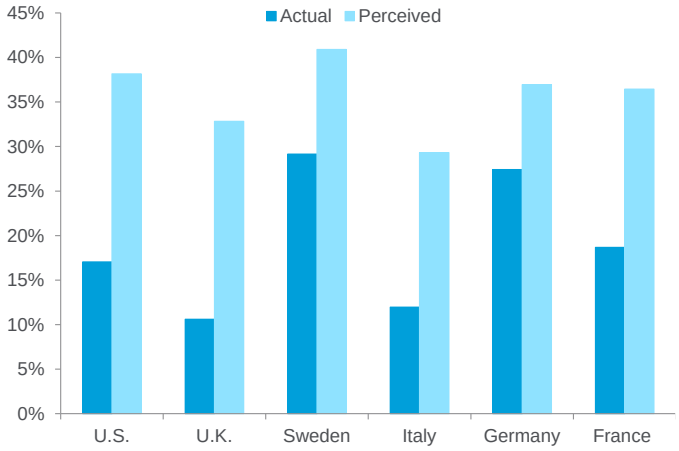


Source: Citi Research, Alesina et al. (2018)

The proportion of migrants amongst the lowest earners, and the less educated is also systematically overestimated

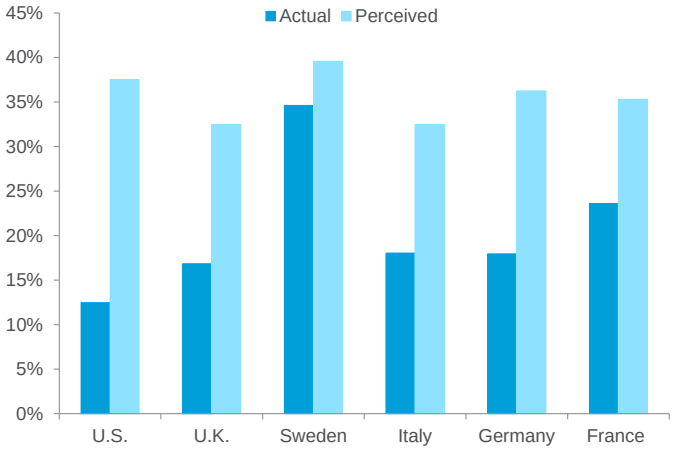
In addition, the proportion of migrants amongst the lowest earners, and the less educated, is also systematically overestimated, with many estimating the proportion of migrants among both of these groups is three to four times larger than is actually the case (see Figure 185 and Figure 186). The share of migrants unemployed is also systematically overestimated. Even if this proportion is greater than the unemployment rate among natives, estimates of migrant unemployment rates are in many cases also between three to four times the real number (see Figure 187). Except in Germany (where the government has made a major effort to correct public perceptions by displaying the evidence), the perceived fiscal transfers received by migrants (in comparison to natives) are well in excess of the reality (see Figure 188), reflecting the disconnect between views on skills, incomes, and unemployment rates of migrants and the evidence.

Figure 185. Perceived Versus Actual Share of Low Educated People that are Migrants, 2017



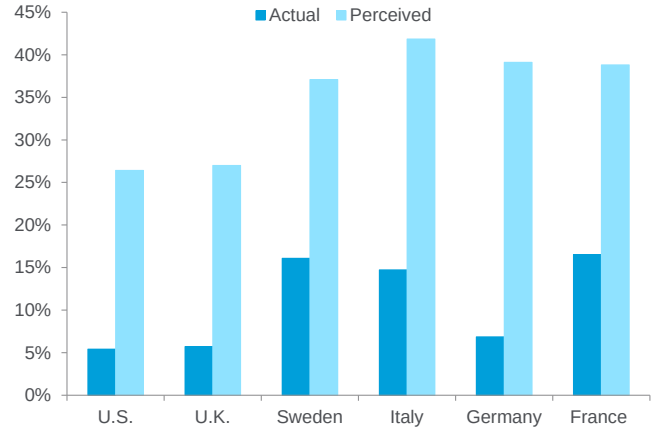
Source: Citi Research; Alesina et al. (2018)

Figure 186. Perceived Versus Actual Share of Low Earners that are Migrants, 2017



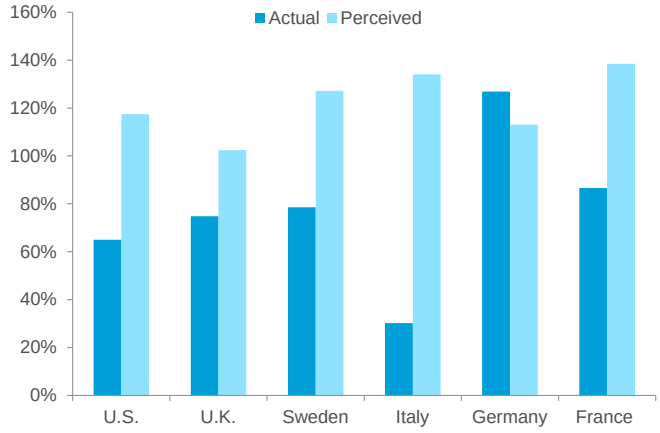
Source: Citi Research; Alesina et al. (2018)

Figure 187. Perceived Versus Actual Share of Migrants that are Unemployed, 2017



Source: Citi Research; Alesina et al. (2018)

Figure 188. Perceived Government Transfers Received by an Immigrant Relative to a Native, 2017



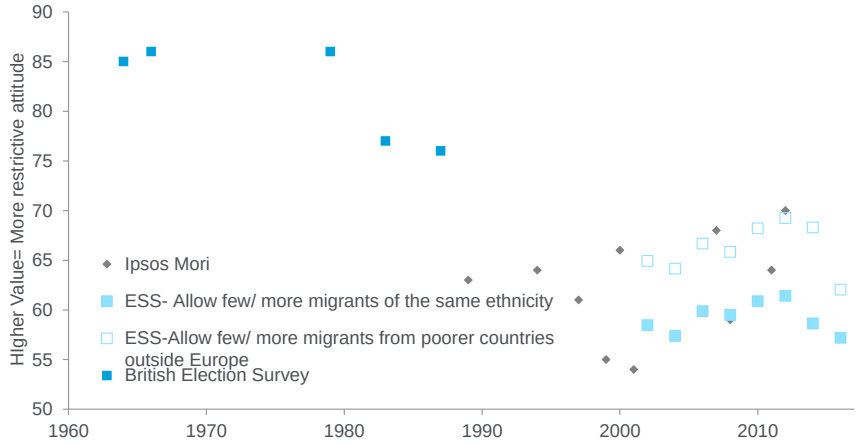
Note: Here we have included pensions in our measure of benefits received
Source: Citi Research; Alesina et al. (2018)

This provides a context for the public attitudes data shown below as it suggests current attitudes are founded on a much less favorable view regarding the outcomes of migration than is usually the case. Correcting some of these views, could change attitudes on the issue as a whole in some areas, especially when perceptions of economic scarcity have driven greater opposition to migration (see Alesina et al., 2018).

Recent Developments in Attitudes towards Migration in the OECD

There have been few obvious major developments in the headline data on public attitudes towards migration in recent years. In the U.K., for example, the period leading up to and during the acute financial crisis saw deteriorating attitudes towards migration. Since 2010, however, measured attitudes towards migration have grown more favorable in direct contrast to the political experience and policy outcomes. Attitudes towards migration are also notably more liberal than in past decades although there are comparability issues between the different data sources (see Figure 189).

Figure 189. Measured Attitudes Towards Migration in the Long Term, U.K., 1964-2016



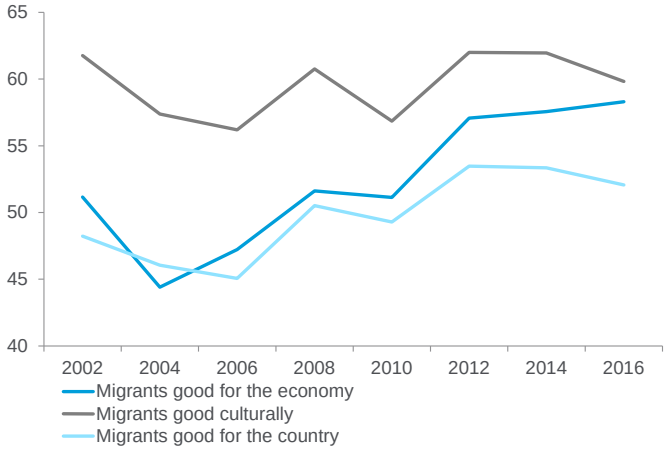
Notes: British Election Studies 1964, 1966, 1979, 2015, the question asked was: Do you think that too many immigrants have been let into this country or not? The data graphed above is the % who answered yes. 1983, 1987, the question asked was: Do you think that immigration has gone too far? The data graphed above is the % who answered yes. 1989-2017 data are from Ipsos-MORI. The question asked was: How much do you agree or disagree with the following statement? "There are too many immigrants in Britain" 5-point scale from 'strongly agree' to 'strongly disagree'. ESS data includes two questions depending on the origin of the migrant. Average response of 5 point scale answer reported, normalized to 100.

Source: Citi Research; Migration Observatory; Ipsos Mori; British Election Survey; ESS

In Continental Europe attitudes on migration have grown more positive on almost every dimension

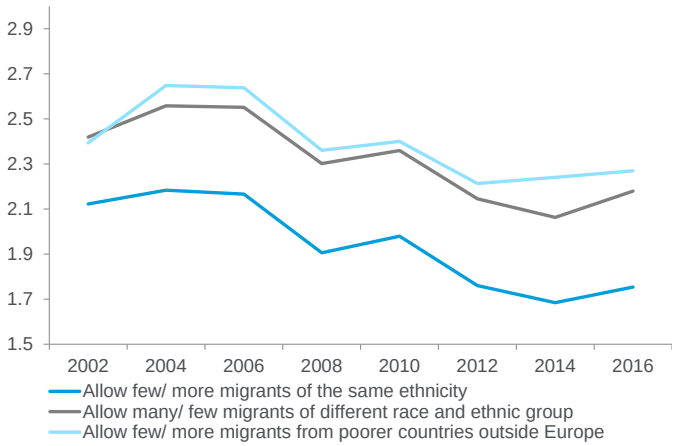
Across Europe, recent developments in the headline data also often look relatively favorable. In Continental Europe, attitudes on migration have grown more positive on almost every dimension. The number of people believing that more migrants from all backgrounds should be allowed has increased in both Germany and the Netherlands. Similarly, both countries have seen increases in people's attitudes on migrants' economic and cultural contribution.

Figure 190. Percentage of People Articulating a Positive Migrant Contribution, Germany, 2002-2016



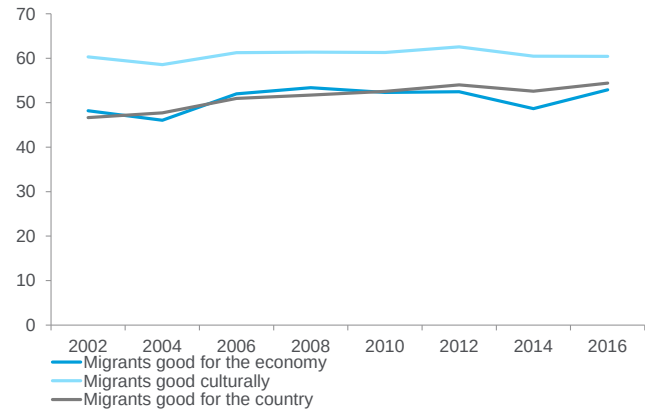
Source: Citi Research, ESS

Figure 191. Average View of Whether More or Fewer Migrants Should be Allowed, Germany, 2002-2016 (Lower Indicates Less Restrictive)



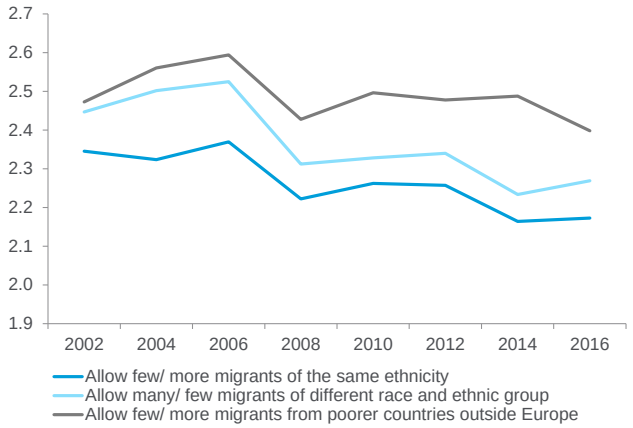
Source: Citi Research, ESS

Figure 192. Percentage of People Articulating a Positive Migrant Contribution, Netherlands, 2002-2016



Source: Citi Research, ESS

Figure 193. Average View of Whether More of Fewer Migrants Should be Allowed, Netherlands, 2002-2016 (Lower Indicates Less Restrictive)



Source: Citi Research, ESS

Perceptions have similarly improved in Italy and Spain, although views on whether to allow more migrants were heavily mediated by the crisis which led to a reduction in support for the expansion of migration (see Figure 197).

Figure 194. Percentage of People Articulating a Positive Migrant Contribution, Italy, 2002-2016

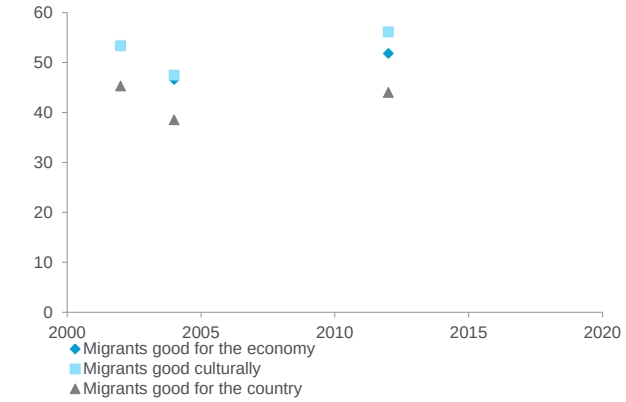


Figure 195. Average View of Whether More of Fewer Migrants Should be Allowed, Italy, 2002-2016 (Lower Indicates Less Restrictive)

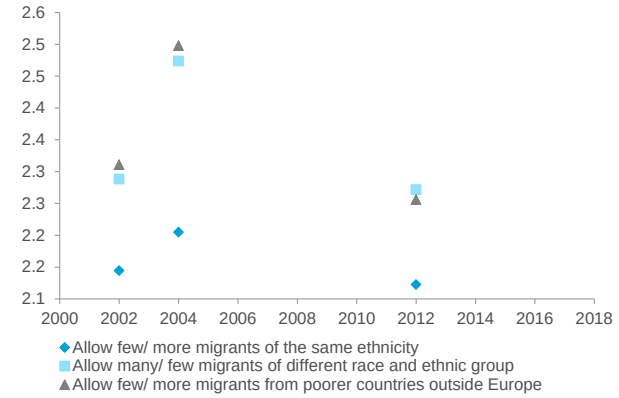
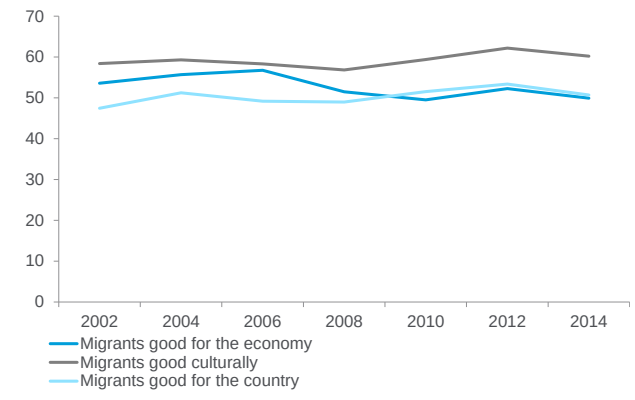
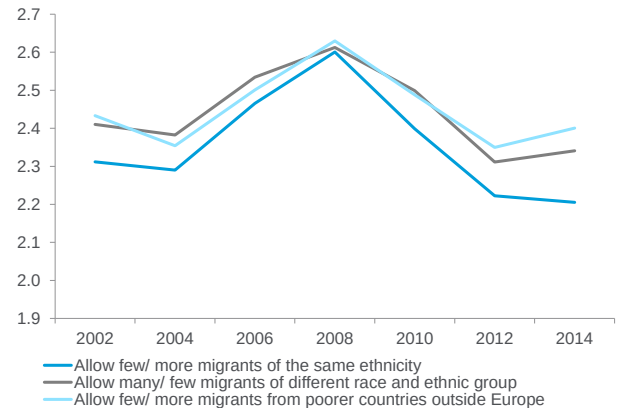


Figure 196. Percentage of People Articulating a Positive Migrant Contribution, Spain, 2002-2016



Source: Citi Research, ESS

Figure 197. Average View of Whether More of Fewer Migrants Should be Allowed, Spain, 2002-2016 (Lower Indicates Less Restrictive)



Variance in Individual Views on Migration

As we mentioned in our introduction, there are two main sets of factors that govern individual attitudes towards migration. One is the degree to which individuals hold exclusive-nationalist views. Such 'value' factors are very slow to change, although they become relevant when political structures change around them. However, perceptions of scarcity and migrant contributions can change rapidly. This has played an important role in driving change to attitudes among OECD economies, especially in the growing salience of migration as a policy issue among those who were already skeptical (something missed in the data above).

A direct implication of an economic downturn is often an increase in anti-migrant sentiment

A direct implication of economic downturn is often an increase in anti-migrant sentiment. Ruist (2014), for example, finds that the macroeconomic context matters significantly for attitudes towards migration. He estimates that support for further restrictions on migration was 40 percent higher in 2012 than it would have been if the macroeconomic environment had been the same as in 2006. Mayda (2007) also argues that cyclical economic conditions have a direct feed through into the restrictiveness of policy, with a downturn driving more aggressive enforcement of immigration controls.[43] A heightened perception of aggregate scarcity, and a sense that migration is costly, pushes attitudes towards more restrictive policies.

On a regional level, economic growth more generally is a key factor behind perceptions of economic scarcity across native populations. Many political causes closely associated with anti-immigrant attitudes seem to enjoy higher support in areas where economic growth has been lower. For example, Becker et al. (2017) show that support for Vote Leave in the U.K. Brexit referendum was typically stronger in areas with low-income growth on a local level.

In many cases, national and regional level growth statistics seem to play more of a role in driving attitudes to migration, rather than individual factors. As Hainmueller and Hopkins (2013) argue, this reflects the fact that attitudes towards migration vary more closely with 'socio-tropic economic' concerns. This means that changes in attitudes are more sensitive to individual perceptions of the macroeconomic environment rather than people's own personal economic circumstances. As a result, regional and national economic growth is often more significant than, say, individual native unemployment in driving attitudes towards migrants (Hainmueller and Hopkins, 2013).

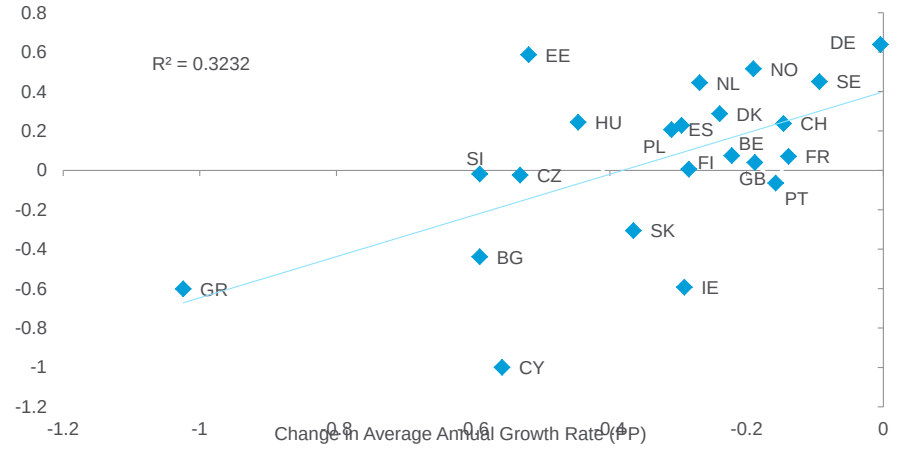
Personal vulnerabilities, including to aggregate changes, do not seem to affect the reaction to macroeconomic changes in a statistically significant manner (Van Stretten et al., 2016). Hatton (2014) comes to a very similar conclusion, looking at the impact of the crisis on attitudes towards migration, he concludes:

> "*… there is strong evidence that nation-wide indicators do affect opinion on immigrants and migration. The evidence suggests that these shifts in opinion occur across the board; they differ little across demographic groups."*

The impact of economic slowdown on attitudes towards migration is reflected across the population rather than among any subgroup in particular.

[43] See , for example, Hanson and Spilimbergo (1999).

Figure 198. GDP Growth Rate and Attitude Towards Migration changes by Country Between 2004/06 and 2010/12



Source: Ruist (2014)

Differences in economic concerns and exposure to migration drive structural differences in levels of support

While personal economic characteristics may not affect the reaction to cyclical economic conditions, differences in economic concerns and exposure to migration drive structural differences in levels of support. Among those with less formal education, support for more restrictive migration policies is generally higher (O'Rourke and Sinnott, 2004). This relationship reflects trends in both solidarity and scarcity, with nationalistic values overlapping with greater competition and economic scarcity.

Those with higher levels of education are generally less likely to define their own social sympathies by nationality…and higher skill levels also tend to reduce the intensity of migrant competition for jobs

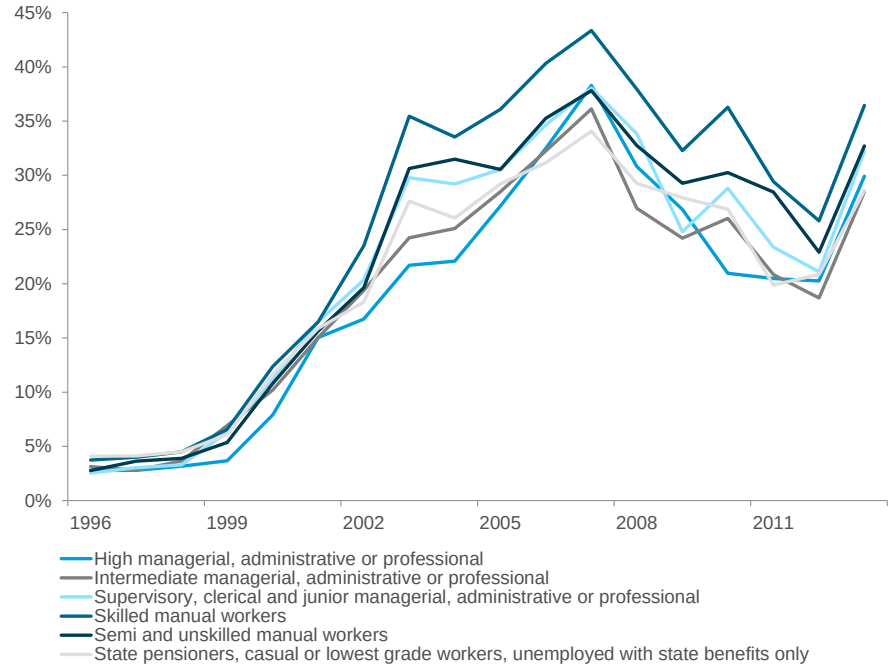
In terms of solidarity, those with higher levels of education are generally less likely to define their own social sympathies by nationality (or at least do so less strongly). In terms of scarcity, higher skill levels also tend to reduce the intensity of migrant competition for jobs. Across Europe, higher-skilled people tend to be more supportive of migration and less restrictive migration policies as a result.

Some have concluded that this is almost entirely the result of differences in social values. Muller and Tai (2016), for example, concluded that this 'value' channel and concerns over public services are the sole mechanisms linking higher levels of education with greater support for migration, with little evidence of a labor market impact.

In many cases, labor market concerns may also be playing a direct role

However, in many cases, labor market concerns may also be playing a direct role too. In the U.K., for example, concerns about immigration and race relations are strongly associated with occupational groups that are most exposed to migration. Notable, as evident in Figure 199, is the change in the level of concern among respective groups. The fact that concerns change between groups whose relative social values and education levels, in the shorter term, are relatively constant implies a place for economic exposure in driving changes in attitudes.

Figure 199. Proportion of Survey Respondents Saying Immigration is an Important Issue, U.K., 1996-2013



Source: Citi Research, Ipsos-Mori

Van Stretten et al., find a strong association between education, perceived economic strain (in general), and subsequent support for restrictive immigration policies across Europe. They use a different approach to Muller and Tai (2016). The latter use a similar skills matching model to that used by Manacorda et al., (2012) which controls for education level and missing impacts associated with de-skilling. As noted above, this is an important channel of migrant labor competition.

Van Stretten et al. use a self-reported measure of economic strain[44] that would, among other things, include cross skill competition from migrants. It should be noted here, though, that this does not control just for the impact of migrant competition, but also other factors influencing diverging economic wellbeing between education groups.[45] All of these, however, are relevant to feelings of scarcity and the resulting sense of economic strain does have important, direct impacts on support for more restrictive immigration policy.

Education sits at the center of a wider debate regarding the respective importance of values versus asymmetric economic exposure to the costs and benefits of migration in driving opposition to migration. Rather than thinking of these as competing explanations, we prefer to see them as complementary.

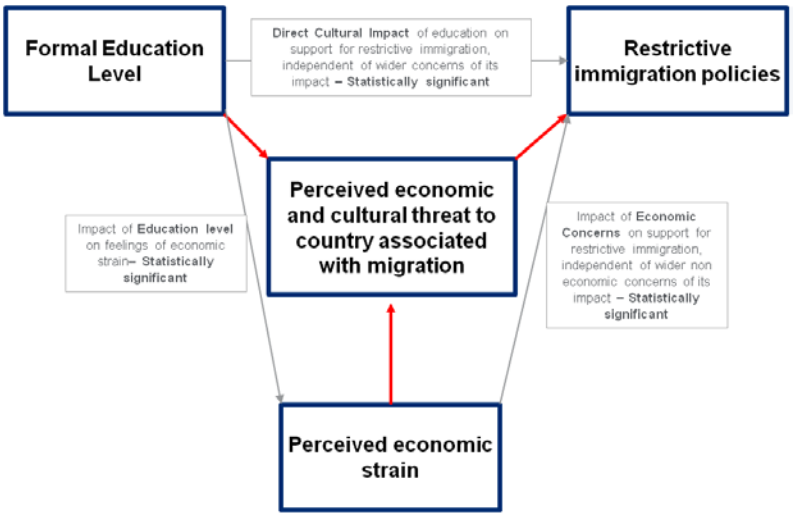
[44] Just like Visser et al. (2013), this measured by the answer to the question 'Which of the descriptions … comes closest to how you feel about your household's income nowadays?' (1) 'living comfortably on present income', (2) 'coping on present income', (3) 'finding it difficult on present income', and (4) finding it very difficult on present income'.

[45] For a fuller exploration of how economic fortunes for different education and income groups across the OECD has varied, see: Inequality and Prosperity In The Industrialized World: Addressing a Growing Challenge.

Cultural factors around nationalism do tend to be more important in driving differences in personal attitudes towards migration. This is true in general, and also with respect to the role of education. In cases where exclusive national attitudes overlap with economic exposure, this is where the strongest support for restrictive policies towards migration is manifest. The resulting effects here seem often to be stronger than the two mechanisms independently.

This is reflected in Figure 200 below, with education impacting support for restrictive immigration policies through both direct cultural and economic mechanisms. (Each arrow reflects a statistically significant relationship.) Interesting here are the red arrows, and the observation that the impact of feelings around economic strain and cultural factors associated with education are greater when they both coincide.

Figure 200. Links Between Anti-Migrant Attitudes and Migration



Source: Citi Research; Van Stretten et al., (2017)

In Europe at least, communities and individuals that traditionally had stronger authoritarian traits, have turned to anti-immigrant political cases more rapidly, in the face of economic malaise, compared to communities elsewhere (Dustmann et al., 2017).

The interaction of perceived costs, scarce supply, and weaknesses in common identification can also result in different personal reactions to perceived short run, migration-related costs across policy areas

The interaction of perceived costs, scarce supply, and weaknesses in common identification can also result in different personal reactions to perceived short run, migration-related costs across policy areas. Policy issues by their very nature can add or mitigate pressures associated with weak solidarity and scarcity. For example, employment may be interpreted as less immediately zero sum than some other areas, such as welfare benefits. They are also often seen as requiring less solidarity: natives do not feel that are paying for migrant jobs as they might in the case of welfare, for example, given the directness of the transfer.

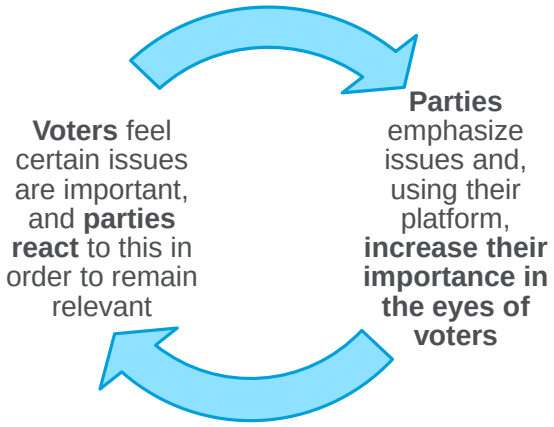
In many cases, this comes through in closer correlations between migration's fiscal impact, the perceived impact on public services and cash benefits, and public attitudes in general. Public services are often congestible. Fears regarding scarcity can come through more rapidly, and are more directly focused on migrants if these are not properly expanded to meet growing demand. In addition, as we noted above, welfare and social insurance requires some degree of solidarity as some transfer of resource between individuals. Emphasizing these issues can put pressure on already weaker levels of common identification.

There is a strong association between concerns about the viability of the welfare state and migration

These issues can drive strong anti-immigrant feelings when they are seen as being under pressure. There is a strong association between concerns about the viability of the welfare state and migration (Muller and Tai, 2016). Similarly, on a local level, there is a close association between migrant unemployment and negative attitudes on a local level, but interestingly not with native unemployment (Markaki and Longhi, 2013).

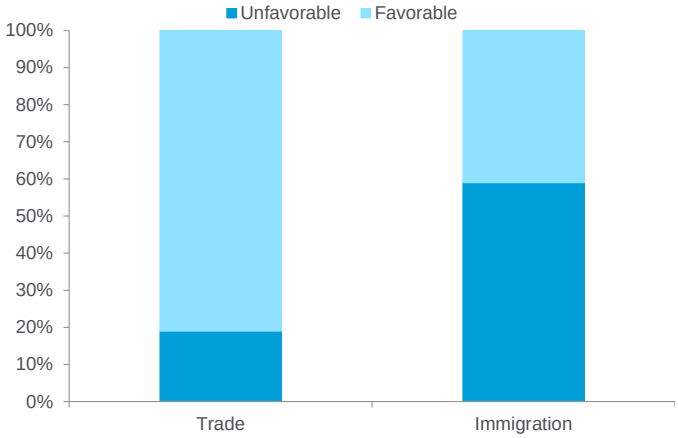
These effects hold at all education levels (Hanson et al., 2007), with different experiences of public provision also potentially driving differences in attitudes towards migration in cases where provision is less responsive to the concerns of poorer, less educated communities (Giuntella et al., 2015). This is also corroborated by the findings of Hatton (2014) who finds that effects on attitudes towards migration in cyclical downturns are more extensive when welfare spending is a large percentage of GDP. This suggests austerity could have had an impact on recent changes in attitudes towards migrants not just through its contested macroeconomic impacts, but also in driving more acute shortages in public provision (European Anti-Poverty Network, 2015).

Figure 201. The Symbiotic Relationship Between Party Agendas and Voter Emphasis



Source: Citi Research

Figure 202. Attitude Towards Trade and Immigration in Selected Advanced Economies, 2014



Notes: Countries included: France, Germany, Greece, Italy, Spain, U.K., U.S.
Source: Bruegel (2017); Pew Research; Gallup

Structural Changes in Party Politics

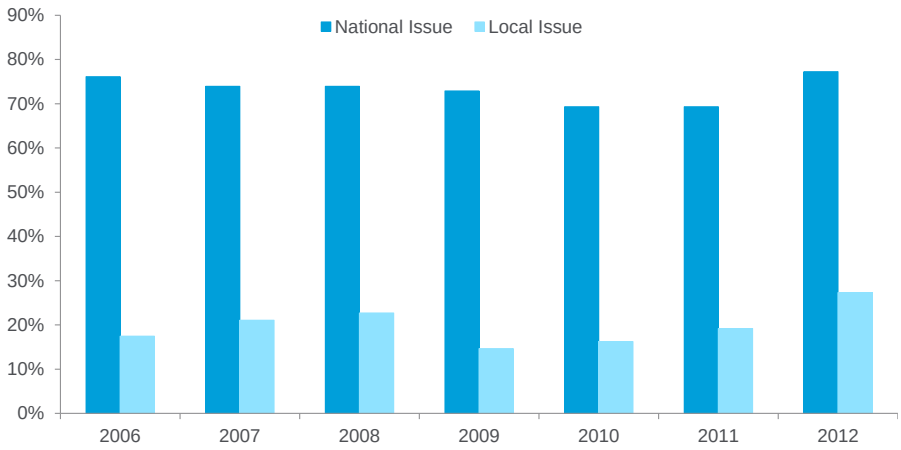
Both political positions and salience matter when analyzing public opinion around migration, and both vary independently over time (Hatton, 2014). Importantly, salience is not just a product of how important an individual believes an issue to be a priori. The ability to articulate a given point of view is heavily dependent on the party political options available. This not only affects how important an issue is in policy terms, but it also affects how important voters perceive it to be.

The political importance of a given issue is the product of a fundamentally symbiotic process: parties respond to voter preferences, and the party system shapes these

The importance voters attribute to a given issue is heavily guided by their ability to express a preference on it. At the same time, the emphasizing of a given issue by mainstream parties can also lead voters to think it important. The political importance of a given issue, then, is the product of a fundamentally symbiotic process: parties respond to voter preferences, and the party system shapes these. The combination of the two has been driving a growing political focus on migration (see Figure 201).

The importance of wider discussion is evident in some of the patterns above. For example, perceived national economic performance (and wider scarcity) is often more closely associated with changes in views on migration than personal experiences of economic hardship (such as falling earnings). In this sense, discussions framing the degree of economic scarcity, and how it links in with migration, are likely to be especially influential on personal attitudes. More generally, we suspect that perceptions created by wider debate are especially important in driving policy preferences on migration (see, for example, Figure 203), meaning the structure of political debate can be particularly influential.

Figure 203. Proportion of Respondents Identifying Migration as an Important National and Local Policy Issue, U.K., 2006-2012



Source: Citi Research, Ipsos-Mori

A major component of the growing political importance of migration has little to do with changes in aggregate views towards migration in general, and rather a lot to do with changes in the structure of party political competition. Recent changes here have resulted in a growing focus on non-economic, cultural issues. Immigration, and a specific framing of immigration in terms of national identity, has been central in this process. This has given existing, value-oriented views associated with migration a new means of political expression.

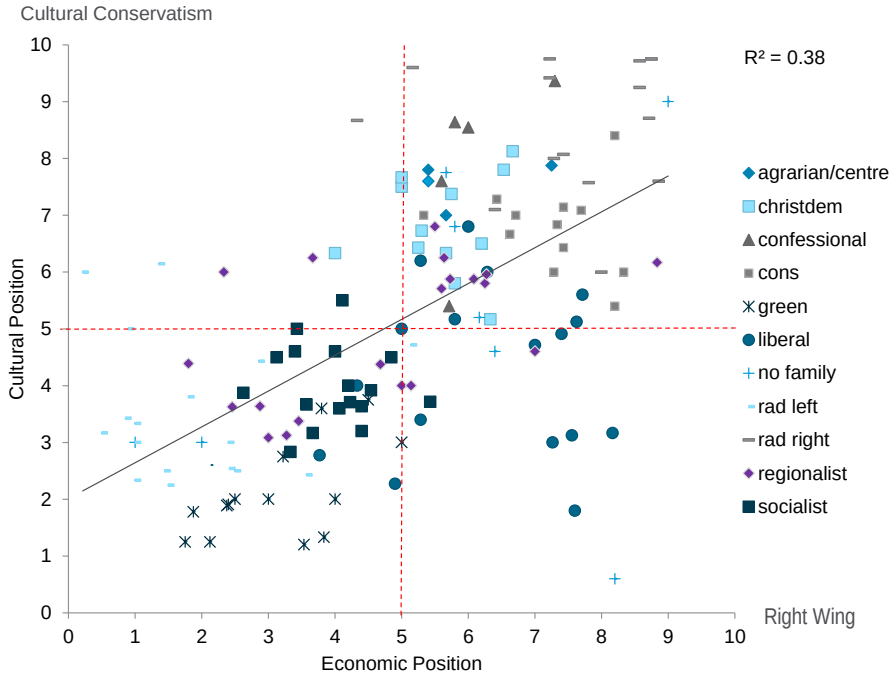
Traditionally, many OECD countries (especially the older, northern core countries) have had strong, stable and relatively consistent sets of cross national party systems loosely structured around socio-economic class. Party competition has primarily been around economic distribution.

Migration, in the manner it is framed in contemporary political debate, is disrupting these structures. Migration has traditionally always been somewhat different as a result of its close links with feelings of national identity. In distributional terms, migration and trade should engender similar concerns in many cases, with relatively unskilled workers fearing short-term losses (Facchini et al.,2017). However, migration has generally been more politicized, and less favorably viewed (see Figure 202).

Migration and trade have also often been emphasized by different political parties. Looking at the U.S. Congress, for example, Facchini et al. (2017), find that while trade and migration should generate relatively similar political economy concerns, instead migration is often viewed more favorably by Democrats, and less favorably by Republicans, even if trade generally behaved more conventionally.

The key to understanding this pattern is recognizing the importance of migration as a values-based issue, as well as an economic one. Cultural factors have always been relevant, to some degree, throughout European post war politics. However, these issues have been secondary, and consistently associated with economically left and right wing parties (see Figure 204). These cultural issues are reflected in the importance of solidarity, and exclusive nationalism, that we noted earlier in the chapter.

Figure 204. Ideological Positions of Political Parties on Economic and Cultural Issues, Europe, 1999



Notes: Countries included: Finland, Italy, Lithuania, Poland, Sweden, Australia, Germany, Ireland, Luxembourg, Netherlands, Romania, Slovakia, Denmark, Spain, France, Germany, Latvia, Malta, Portugal and the United Kingdom. Placement of parties based on survey data of published academics.

Source: Citi Research; Chapel Hill Expert Survey (2016)

In more recent years, politics has been changing, with these same values-based concerns coming to play a more central role in party politics. This opportunity has opened up, in many cases, as mainstream economically-defined parties converged, especially during the 1990s. As a result, the issues that, at one time, forced Republicans to be less favorable to migration, despite its likely benefits to their constituency, has become increasingly central to their whole appeal.

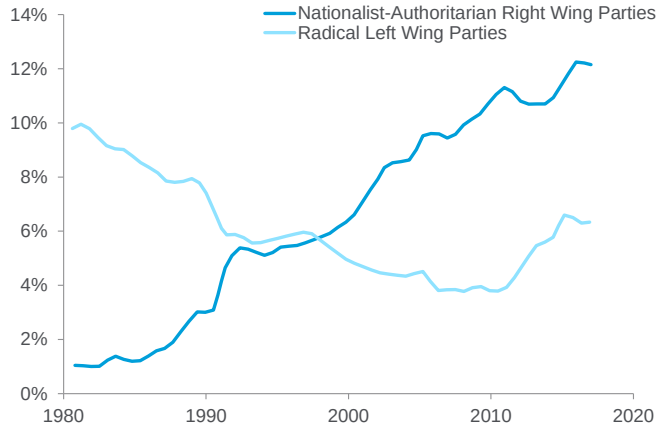
It is worth noting, as this report does, that migration is a multi-faceted issue, with many different dimensions, each of which could be emphasized. The fact that it is focused on as a value-based issue is a product of choices made by parties, and the electoral incentives facing them.

In recent years, cultural issues have emerged as a primary, independent basis of voting decisions as parties have altered their messaging to appeal more on this basis and immigration has often been central. The rise of cultural and value-based perspectives has been driven by the right (see Figure 206) and the growing prominence of anti-immigrant views.[46]

The simplicity and emotive power of migration has meant that political actors have often used it as an issue on which to build their new, wider nationalist agendas

In this sense, migration has been an object in, and subject of, the rise of cultural politics. The simplicity and emotive power of migration has meant that political actors have often used it as an issue on which to build their new, wider nationalist agendas (Hoelinger, 2016). New, radical right wing parties have often been essential in this. The long-term rise of nationalist and extreme right wing parties (characterized by strong, exclusive nationalist rhetoric[47]) has punctuated the emergence of migration as a (value-based) political force (see Figure 205).

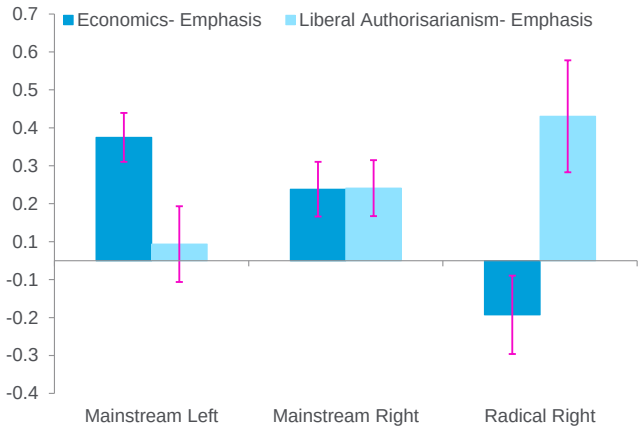
Figure 205. Mean Electoral Support for Radical Left and Right Wing Parties, Europe, 1980-2016



Notes: Here radical is synonymized as 'authoritarian,' consistent with the work of Heino (2016) and several others. This includes not only populist parties, but more generally those who wish to oppose the 'European institutional consensus.'[48] Countries included: Hungary, Greece, Poland, Italy, Switzerland, Cyprus, Denmark, Austria, Spain, Czech Republic, France, Portugal, Finland, Bulgaria, Norway, Slovakia, Latvia, Romania, Germany, Sweden, U.K., Netherlands, Lithuania, Estonia, Belgium, Ireland, Slovenia, Luxembourg, Iceland and Malta.

Source: Citi Research; Heino (2016) ; Data Extracted using Web Plot Digitizer

Figure 206. Marginal Effect of Party Family on Issue Emphasis in National Election Manifestos, Western Europe, 1980-2015



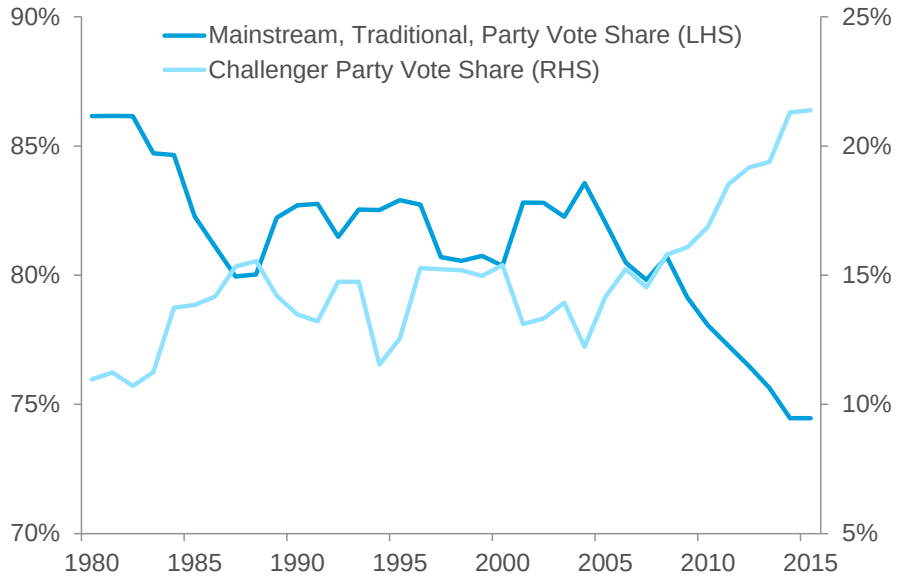
Notes: Countries Included: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, U.K. Emphasis based on normalized analysis of manifestos. These fundamental data reflect the 'gross' issue emphasis on cultural and economic issues. Regression controls for party issue position, year and country fixed effects, amongst other things.

Source: Citi Research; Wagner and Meyer (2017); Volkens et al. (2015

These political changes are now sufficiently well established to ensure that cultural issues, and the ones around migration especially, remain central to party politics. Post-crisis trends have played an important role here, too, and the growth of anti-elite attitudes may have pushed more voters towards them. In addition, newfound feelings of scarcity have likely boosted the importance of some of their messaging, in the eyes of voters. The vote share of political parties which are now defining themselves by these value-based messages has grown substantially since 2010 (see Figure 207). This is driving a continued pivot in the OECD country politics, with migration becoming increasingly central.

[46] See, for example, Lazaridis, Campani and Benveniste (2016).
[47] See, for example, Mudde (2007) for a fuller exposition.
[48] This is defined by Heino (2016) as 'a basic respect for the dictates of majority rule… combined with a gradual expansion of individual rights…'

Figure 207. Mainstream and Challenger Party Average Vote Shares, Europe, 1980-2015



Notes: Countries included: Spain, Italy, France, Austria, Belgium, Germany, Sweden, U.K., Netherlands, Greece, Denmark, Finland, Ireland, and Portugal. European aggregates are weighted by nominal GDP at market exchange rates. Here challenger parties are defined as those that are not broadly contained within the traditional party families such as Conservatives, Social Democrats or Christian democrats. Pan European aggregates are weighted by nominal GDP at market exchange rates.

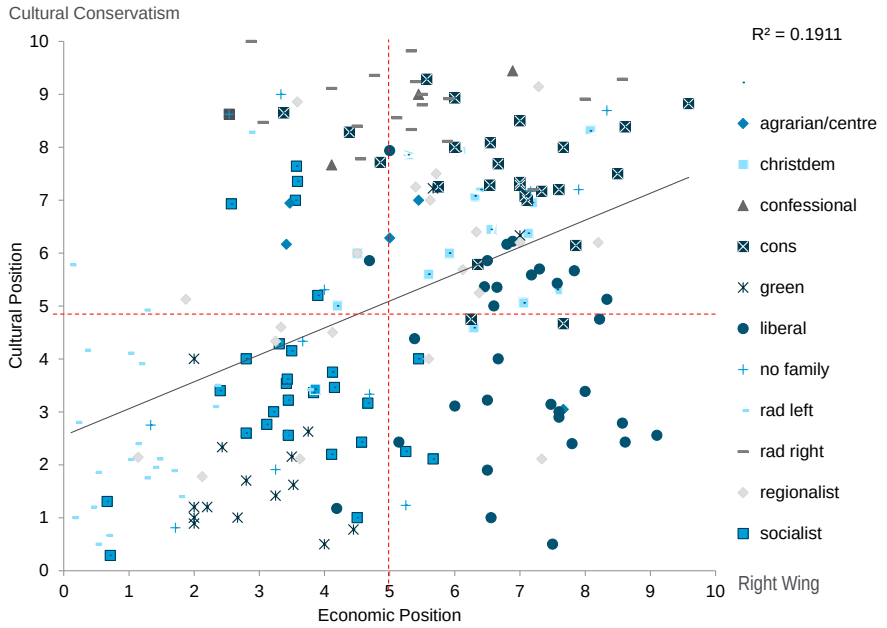
Source: Citi Research; Hobolt and de Vries (2017); Data Extracted using Web Plot Digitizer

As a result, European parties increasingly compete along two independent policy dimensions (Kreisi et al., 2008; Inglehart and Norris, 2016). In aggregate, voters are increasingly evenly driven by considerations on both:

- A traditional Economic/ Material dimension pitting those in support of market intervention and a large non-market sphere (welfare states) against supporters of privatization and widespread market liberalism.
- A Cultural/ Values-based dimension pitting those in support of Traditional, Authoritarian and Nationalist (TAN) values against those in support of Green, Alternative and Libertarian (GAL). This has immigration at its center.

This divide is reflected in an increasingly eclectic range of party positions being taken on both dimensions. As immigration has come to define individual voter decisions to a greater degree, this has pushed a greater potential range of political positions across both relatively independent sets of issues.

Figure 208. Ideological Positions of Political Parties on Economic and Cultural Issues, Europe, 2014



Notes: Countries included: Finland, Italy, Lithuania, Poland, Sweden, Australia, Germany, Ireland, Luxembourg, Netherlands, Romania, Slovakia, Denmark, Spain, France, Germany, Latvia, Malta, Portugal and the United Kingdom. Placement of parties based on survey data of published academics.

Source: Citi Research; Chapel Hill Expert Survey (2016)

Combined, this is increasing the political importance of value-defined debates around migration. The fact that this is now independently driving political competition explains its newfound significance.

The Outlook for Migration and Public Policy

The growing importance of migration in the political debate is associated with changing structures of electoral politics

The growing importance of migration in the political debate is associated with changing structures of electoral politics. As noted above, migration is linked to these trends in two different ways. Firstly, as a driver, migration has been emphasized as a powerful policy issue distinct from traditional patterns of predominant policy debate. In the process, it has been essential in driving the emergence of values-related debates, impacting wider policy making processes. Secondly, as a subject, the politicization of migration in this way risks potentially significant immigration policy changes itself.

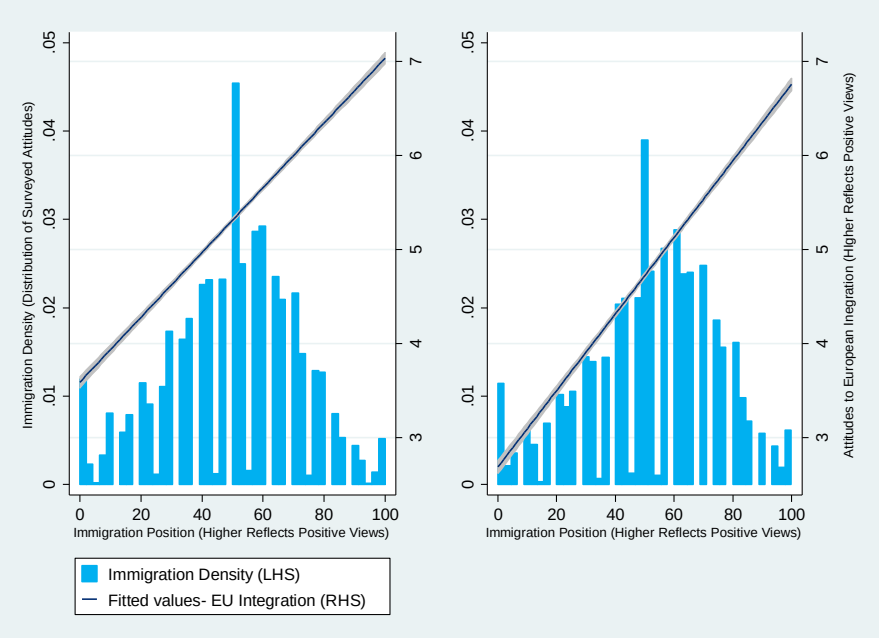
Starting with the latter, as we have discussed throughout the report, migration has and is making an essential contribution to the economic wellbeing of many OECD economies. The growing politicization of migration on a value basis, rather than an economic one, is making it difficult to properly weigh up and highlight the economic case for migration. The issue here revolves around the structure of respective political parties. Many of the new political forces emphasizing migration are doing so on a values basis and are, as a result, excluding economic considerations. Mainstream parties are often also internally split and under pressure on the issue, meaning that they wish to deemphasize migration entirely.

Failure to discuss the economic importance of the issue is increasing the risk of destructive policy errors at a time when the benefits of high-skilled migration, in particular, are becoming less secure for those economies that have thus far been enjoying them. Migration has played a key role in sustaining continued growth among major cities, but also the global 'frontier firms' that overwhelmingly reside within these cities who tend to be the most open to migrants and diversity in their societies (OECD, 2016). Undermining these processes could risk a permanent loss.

Second, the growth of migration as a value-based issue has driven wider political multidimensionality. This describes a case when voting decisions are driven by two independent sets of issues; in this case economic and value-based concerns. This has several consequences. Policy implications of electoral processes become more difficult to predict and decipher. Voting decisions and coalitions can now be formed with a multitude of different policy directions, reflecting different policy settlements. This also renders structural reform more difficult, as holding together a coalition is harder. This can also lead to policy making which is less sound, especially at a time of crisis.

Third, the rise of value-based debates around migration is increasingly driving attitudes on other issues with exploitable links to the same value-based concerns. These risks are especially notable in Europe. Value-based attitudes on migration are increasingly and strongly associated with different attitudes on European integration. The continued growth of migration as such a policy issue could be associated with increasing disruption to European policy making (Hoelinger, 2016), with the latter also becoming more contested as nationalism becomes more central to party political competition.

Figure 209. European Views on Immigration and European Integration, 2004 (Left Hand Panel) and 2016 (Right Hand Panel)



Notes: Views on immigration are the sum of responses to questions regarding the perceived cultural, economic and wider national impact of migrants on a destination country. Attitudes to European integration report answers to the question of whether European integration has gone too far (higher values reflect the view that it has not). Countries included: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the U.K.

Source: European Social Survey; Citi Research.

Reforming what has, in many cases, become an increasingly toxic debate surrounding migration would likely yield wider political benefits. Previous evidence suggests that information campaigns can improve support through both re-focusing more on the economic costs and benefits of migration, as well as alleviating some of the concerns and objections associated with strong national identities by challenging some of the myths around the costs and extent of migration.

Conclusions: In Search of Grand Bargains

Economics and Politics Disconnected

There is a disconnect between the evidence that migrants are economically beneficial and the polemic that they are a drain on society. As migration has become increasingly contentious economic logic has given way to political expediency. The result has been a sharp reduction in the number of migrants accepted into many countries, and the placement of increasingly onerous conditions on migrants. These aim to reduce the attractiveness of the destination country and to encourage migrants to leave.

Anti-migrant sentiment is heightened during elections when populist politicians stir sentiments. Nevertheless, the success of politicians in the U.S., the U.K., Italy, Austria, and elsewhere in using anti-migrant statements to propel themselves into power has created a powerful narrative that has led to a race to the bottom among politicians who compete in appearing how tough they are on migration and illegal migration.

Unrelated Risks Raise Concerns

The politicization of migration is the result of a complex set of factors. Many of these have their roots elsewhere, with migration becoming the symbol of wider social concerns. A number of these concerns are the result of technological change, including robots and artificial intelligence taking jobs and facilitating the deskilling of many occupations. Work at the Oxford Martin School has shown that workers in the U.S. who are most vulnerable to automation were more likely to vote for President Trump. (Source: https://www.oxfordmartin.ox.ac.uk/publications/view/2576)

The decline of unionization is another related trend which has reinforced the insecurity of work. So too has the financial crisis of 2008, and the subsequent Euro crisis, with wages in the U.K. and a number of countries in Southern Europe yet to recover to their level of ten years ago. In Southern Europe and the Midwest of the U.S. millions of people that were made unemployed during the financial crisis have yet to find employment, despite the aggregate improvements.

The financial crisis was a dramatic representation of how systemic risk can spread over national borders. Cyber, pandemic, environmental, and other risks are similarly seen to arise in foreign places. While the risk of terror has not increased, the graphic proximity offered by social and other media creates a heightened awareness. Awareness is growing that globalization has led to greater complexity and interdependency, as well as more rapid social and economic change. Change has been accelerated by the financial crisis, with the advanced countries becoming relatively enfeebled compared to the relatively emboldened emerging markets, not least China. All this is leaving individuals and communities in the advanced economies fearful of the future and with a desire to slow change down, and particularly changes and threats which are perceived to be foreign in origin. The growing sense of anxiety is understandable, even if the manifestation in a heightened fear of migrants who serve as a proxy for these anxieties is not rooted in any evidence that migrants are a greater risk.

The European Union Schengen area, which allows free movement of people between 26 countries, provides a remarkable testing ground for the implications of reducing border controls. Despite average incomes in the poorest countries being under a quarter of those in the wealthiest, even at times of extreme stress — such

as when the financial crisis led to overall unemployment rising to about 30 percent in Greece and youth unemployment exceeding 60 percent — people only migrated when jobs and opportunities were available. While some individuals may migrate in search of higher levels of social welfare benefits there is no evidence that this is a primary motivation for migration or accounts for significant numbers of migrants. The overwhelming majority of migrants make the very tough decision to leave their homes for work opportunities, or to study or reunite with family. Refugees and asylum seekers are compelled by a legitimate fear of death or persecution to migrate, and for this reason need to be considered in a different manner to all other categories of migration.

Not all forms of migration are good, and modern slavery in particular needs to be stopped. It is estimated that there are more than 40 million people living in slavery worldwide and the ending of the trafficking in slaves should be a priority for all countries. Source: https://www.walkfreefoundation.org/understand/

Rapid Increases in Migrants Raise Concerns

While globally the stock of migrants is added to each year, the flow is remarkably constant, hovering around 3 percent of the world's population. The recent uptick to 3.3 percent reflects record movements of refugees, and in particular refugees fleeing from Syria to Turkey and other neighboring countries, rather than an increased flow of people to the advanced economies, as a share of their populations.

Neither the stock nor flow of migrants can be clearly correlated in cross country analysis with sentiment towards migrants. Within countries, time series analysis may be more revealing, with sudden surges in migrants, such as occurred in the U.K. with Romanian and Bulgarian migrants, or in Germany with asylum seekers, at times helping to explain changes in attitudes and heightened anxieties.

The increased number of migrants entering a number of countries has added to the anxieties, even if the share of migrants in the societies may not be historically unusual. Following the removal of restrictions on their right to work, the number of Romanian and Bulgarian migrants in the U.K. increased from 230,000 in 2014 to 413,000 in 2016, with this increase fueling the anti-immigrant sentiment expressed in the referendum on European membership in June 2016. In Germany, 890,000 people claimed asylum in 2015, and although this number has since fallen back to well below 200,000 in 2017, the political consequences remain severe and have forced Angela Merkel to reverse course.

Dynamic Cities More Diverse

The disconnect between the motivation of migrants and what migrants actually contribute to economies and more broadly through culture and diversity to the host society, and how they are perceived cannot be explained by external factors alone, and the fear of the other. If these were innate human responses, we would expect a more uniform response to migration over time and between different geographic areas in our countries. Yet different countries have very different reactions to migration, and these change over time, sometimes rapidly. Within countries, different localities and even within localities different groups of people have very differing reactions, and these may also be subject to abrupt swings.

In general, people living in dynamic cities are far more tolerant of migrants than people that live in rural areas or small towns. Indeed the evidence suggests that there may even be an inverse relationship in some places, with people who are most familiar with migrants being most tolerant of them.

Of the top four cities in the world that The Economist ranks as the most livable, three have notably high levels of migration — Toronto and Vancouver, where over 45 percent of the inhabitants are foreign born, and Melbourne where over 35 percent of the population are foreign. Some very successful countries have even higher shares of migrants — notably the United Arab Emirates where foreigners constitute over 80 percent of the population, and in Dubai and Qatar around 90 percent of the population is foreign. In Canada, over 20 percent of the population are migrants.

Meanwhile, some of the countries which are most anti migrant have very small shares. Less than 1 percent of the Polish population is foreign and less than 2 percent of Hungary's population, yet these two countries, which also have among the most rapid aging and lowest fertility rates in the world and so objectively would be expected to support migration as being in the national interest, are among the most fervently against migration. The growing disconnect between the demographic imperatives and anti-migrant sentiment is a relatively recent phenomenon in Eastern Europe. Japan for a generation has faced one of the fastest rates of aging in the world. This is undermining economic growth and dynamism as well as creating a looming crisis in caring for the elderly. There are signs that this may be beginning to reverse the long-standing antipathy to migrants who continue to constitute well under 2 percent of the population.

Costs Local and Short Term but Benefits National and Long Term

The costs of migration tend to be borne at the community level. These are reflected in pressures on schools, housing markets, health, or transport systems. Meanwhile, the benefits tend to accrue elsewhere, to firms and to society, through higher profits and taxes and lower costs to consumers. This uneven geographical impact points to the need for national and regional governments to pay particular attention to supporting local communities to better prepare for the arrival and integration of migrants. It also points to the benefits for the society as a whole, although not necessarily for the migrants, of dispersing the migrants more widely through the provision of school places, housing and other support in more diverse locations.

For the migrants themselves, proximity to each other is a benefit, allowing for the development of informal support networks, availability of preferred goods and services, including public services which benefit from clusters. For this reason the desire to disperse migrants should be weighed against the benefits in both the provision of services and to the migrants of close proximity. The risk is the formation of ghettos and segregated societies, with negative implications particularly for youth and the children of migrants, who attend school and whose prospects of integration are greater if they are in more diverse neighborhoods.

Due to the trade-offs between local and national, migration is necessarily both a community and national responsibility and requires careful coordination between the different levels of government. National governments have a particular responsibility to support local communities, as the presence of migrants is in the national interest, even if this is not always evident at the community level.

The dynamic gains from immigrants, who raise productivity and growth, are not captured in the short term, although many of the costs may be perceived to arise in the short term. This temporal trade-off is another reason for greater government involvement in supporting the integration of migrants. Whereas future generations benefit most, the current generation pays the costs associated with migrants.

The local and short-term nature of the costs and the national and longer-term benefits of migrants in many respects are similar to the trade-offs associated with trade reforms. While beneficial for society as a whole in the long term, trade reforms may have a negative consequence on particular workers and communities in the short term. Compensation schemes which offset these losses and reduce the costs imposed on local communities could provide a useful lesson for governments considering the need to support communities who are feeling the stresses of migration.

International Orphans

The absence of a consistent global database on migration, with agreed consistent definitions of what is meant by different categories of migration, reflects a deeper failure to establish international rules for migrants. The 1951 Refugee Convention has been ratified by 145 governments and although this falls well short of the over 200 countries in the world and is too often ignored —the fact that there is international law for refugees may be contrasted with all other categories of migrants, who are not covered by a UN treaty.

The International Organization for Migration (IOM) was established after the Second World War to resettle the almost 11 million displaced people and subsequently has developed a global mandate from its 172 members to facilitate migration. The recent evolution of the IOM into a UN Agency goes some way to addressing the fact that migration has been an orphan of the international system. Yet, countries remain unwilling to allow an international organization to shape national migration policy. Migrants (other than refugees) have little in the way of international law which can protect them from abusive practices or to clarify the responsibilities of their home countries, in terms of their right to migrate, those that transport them or their host countries. This legal limbo for migrants extends to many practical areas and is highly detrimental to migrants.

There is no international law regarding pension portability, and only about a quarter of migrants work in countries covered by bilateral arrangements which allow them to transfer their pensions to their home country. As a result, many migrants accumulate pensions in one country and then lose them if they return home. A similar lack of transfer rights applies to social security or other contributions. Global standards regarding the transfer of pension, national insurance, and other contributions which individuals have made would not only allow them to claim what is theirs, but also mean that migrants have less incentive to stay in their host country when they stop work as they would no longer be discouraged from leaving by the loss of their pension and other contributions.

The extension of political rights to migrants is another area that is subject to local whim. Many migrants are at risk of being disenfranchised in both their home and host countries and as a result many millions of people have no political voice or political representation. Some countries, like France, Italy, Portugal, and Colombia, grant their expatriates (citizens that reside elsewhere) parliament representation. Others allow voting rights to certain categories of non-residents, for example citizens of ex-colonies, and in the case of the U.K. the Commonwealth. Some representation at the local municipal or county level may also be given to migrants. However, there is no consistent or clear system which applies to the political representation of migrants who typically find they are orphans not only of the international system but also of national political systems.

Pathways to Integration

The focus of migration policy in most countries is on border controls: how many people to let in. This is important but at least as important is what happens to people once they are in a country. Improving the treatment of migrants and placing greater emphasis on ensuring that they and their dependents are able to maximize their contributions are critical policy routes.

Policy makers need to start by establishing the criteria for entry. Whereas many countries place emphasis on filling vacancies or current skill shortages, weight may also be given to family reunification, retention of graduated students, humanitarian and other considerations. Preference is typically given to individuals or families from particular countries, notably political or military allies or former colonies and on the basis of education or language. Many countries aggregate these and other potential factors into a points based measure, variants of which have been adopted by Canada, New Zealand, Australia, and Singapore.

Whatever the system, the efficiency through which applicants may be processed and the transparency associated with the process, including ensuring accessibility to people of different language, education, and skills is important. Too often the opaqueness of the system and its impenetrable bureaucracy is used as a means to discourage would-be applicants and stifle interest in migration. Digital access can make a great difference but should not be the exclusive means given the age and development digital divide.

Once in the country, migrants need to be given assistance in integrating. This includes awareness of their rights and responsibilities, which cannot be taken for granted. Links to education and skill training and retraining to adapt to local conditions, (re)certification of diplomas and degrees, language training and immersion, introductions to housing, health and other services, introduction to legal requirements of taxation and law, cultural awareness of local habits and expectations regarding gender, religion and other rights, political awareness, and participation in local politics and communities are all part of what it takes to familiarize migrants with the expectations of the host community. Without this integration, migrants have to learn by doing and through their networks, which can take longer and may reinforce differences rather than mutual understanding and respect, which too often is lacking.

Dependent children, partners, and parents that are admitted tend to be neglected by the system, and for these people too it is vital that education, health, social services, and other support is provided. Language training and the availability of information in the language spoken by the migrants (some of who may be illiterate) is a vital consideration to maximize the effectiveness of integration and to prevent isolation of migrants from their host societies, which can have extremely negative consequences for both the migrants and the host communities, not least in providing a fertile ground for extremist views.

Allowing asylum seekers and refugees to work is essential, and migrants generally should be permitted to work from the time they enter the country. Undocumented migrants pose a special challenge. Although they contribute through their labor and contribution to sales and other taxes, they typically do not pay income and other payroll taxes. They also are below the regulatory radar in terms of benefiting from minimum wage, health and safety, and other employee benefits and tend to avoid using, or are not permitted to use public education, health, and other facilities. This places them in a grey zone which is not good for the host country and not good for the migrant, who is particularly vulnerable to abuse by unscrupulous employers, gangs, criminals, or others who profit from their precarious situation.

In order to ensure that migrants are able to be protected and their needs addressed, as well as conform to national rules and regulations, including with respect to the payment of income tax and other obligations, the irregular situation of undocumented migrants needs to be addressed. People migrating outside of legal framework may be moving freely for economic purposes, or have overstayed their visas, or they may be victims of unscrupulous exploitation. The widening of the umbrella of legal migration to allow for seasonal agricultural and other manual workers to migrate will address some of the most common reasons why both employers and the workers operate outside the law. This may be achieved through the establishment of temporary guest worker and other programs.

The regularization of undocumented workers through amnesty or other schemes has shown itself to be a highly effective means to encourage undocumented migrants, some of who may have lived and worked in the country for many years, to regularize their situation. The U.S. and a number of European countries have enacted these on repeated occasions, with the different programs having different conditions, ranging from temporary to permanent residency, and/or assistance with relocation home, depending on the particular circumstances. Although such schemes have been criticized by some as creating a moral hazard which encourages the migration of people outside legal channels in the hope that they will then be permitted to stay, there is no evidence that regularization programs have increased the numbers of undocumented workers. A number of studies have, however, shown that such schemes are beneficial economically and more broadly for the migrant and for the host society, facilitating the integration of the migrants and enhancing their contributions to society.

A Grand Bargain

More migration would be beneficial for the host country as well as for the migrants themselves. To make this possible both the rights and responsibilities of migrants should be clarified and secured. The rights include many of those enjoyed by citizens, including the full protection and freedoms that come with the rule of law and not least employment law. The responsibilities include being documented, paying tax and respecting the laws of the land. This is the grand bargain which would improve migration within countries.

Migration is not only beneficial to the host country and to the migrants themselves, it also is beneficial to the donor countries and communities from which the migrants come. Brain drain is a major consideration. But the fact that there are more professionals from Africa and the Caribbean abroad than in their home regions does not necessarily undermine the development of their countries of origin. This is because a significant part of the reason people train to be professionals is so they can leave. Migrants sent back remittances valued at over $450 million to developing countries in 2017, which is over three times total development aid. These remittances tend to be counter cyclical, as more money is sent when people need it most, and they typically go to poorer people and communities, for investment in the education of family members, livelihoods of the young and elderly and for investments in housing and small businesses and other fixed capital formation.

The loss of skilled people constitutes a major transfer of human capital from developing countries to richer countries and it is this which requires urgent consideration. The training of an accountant, engineer, nurse or doctor, as well as others, costs the taxpayers in the countries paying for the training many hundreds of thousands of dollars and countries that benefit from this have saved the investment in human capital. A possible solution is either that the individuals who benefit from the education repay a loan for the education if they leave their home country, or that

their employers or the host country transfer the equivalent of the cost of the migrants' education, if they are public sector employees. This is a grand bargain which would offset the brain drain and reduce the extent to which developing countries are subsidizing the human capital of the rich countries.

Final Thoughts

Migration is too important to be left to politicians. We all can trace our roots to migrants and it is through the brave decisions to migrate of our parents, grandparents and previous generations of migrants that we all owe our current position and economic and social progress. Today migrants continue to make a disproportionately positive impact on our societies. Without them we are at risk of our economies stagnating.

Business needs to be more vocal in articulating its needs and the overall benefits of migration. Academics need to demonstrate the benefits as well as costs, in order that the economic, social and other dimensions may be transparently analyzed and squarely addressed. Communities need to confront head-on the needs of migrants and assist in their integration.

Governments need to tone down the rhetoric and lead with a positive narrative that recognizes the vital contributions of migrants. Migration arrangements typically are reciprocal. Reducing the opportunities for European Union citizens to settle in Britain is likely to mean that less British people are given the opportunity to settle in Europe, where currently over 1.3 million British people reside. If we require arduous visa applications for people coming to the U.K., we should similarly expect that U.K. citizens will be subject to a similar process when wishing to travel abroad.

Policy makers at the national level should address the tradeoffs between short term local costs and long term national gains. And they should work on the grand bargains. Within countries this would focus on the rights and responsibilities of migrants and allowing more migrants but more carefully managed and integrated. Between countries a focus could be on the terms of a fair and safe deal for migrants and the countries they come from. Such a bargain with greater coming and going of migrants implies a greater ability to manage our borders. Closing our borders to migrants means we keep out not only the brains that will help us build a better future, but also that we close ourselves off from the ideas and understanding that we require to manage in an increasingly interdependent and complex world.

Appendix

Appendix 1 – Growth Methodology

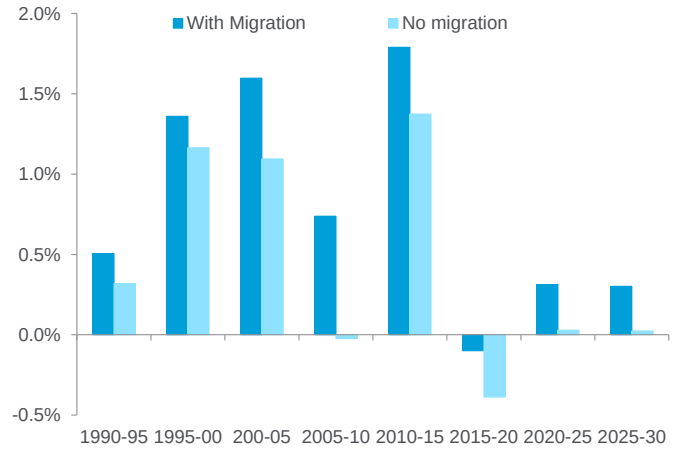
The aim of our modelling is to estimate the contribution migration has made to recent headline growth among the key OECD destination countries. We do this by splitting the native and migrant workforces, examining relative growth rates attributable to labor market outcomes in each. This, then, shouldn't be interpreted as what would have happened to growth without migration necessarily, but rather what migration has contributed all else being equal.

The model is based on the UNPD's population estimates (both backward looking and the forward looking Medium Fertility Variant), disaggregated by gender and age group. We subtract the backward looking migrant stock estimates from the historical population estimates to derive figures for the native population. We then use the zero migration scenario to derive the population growth rate in the absence of further migration. We use these growth rates to our estimates of the backward looking population to derive a 1990-2050 estimate of native only population growth, as compared to what we expect given current migration regimes.

From this, we then split the economy in two, looking at the economy based on native workers in isolation (this, clearly, is highly theoretical). Estimates of a nation's native and migrant population by age group and gender are then combined with participation and unemployment data (also by age, gender and migrant status) to derive the size of respective workforces at different points in time. From this, we can derive estimates of a nation's native and combined labor force growth both from 1990-present and present-2030 (for forward estimates, these assumes the ratio of migrant to native participation rates remains constant). We use data from both the OECD and ILO in this (see Figure 214).

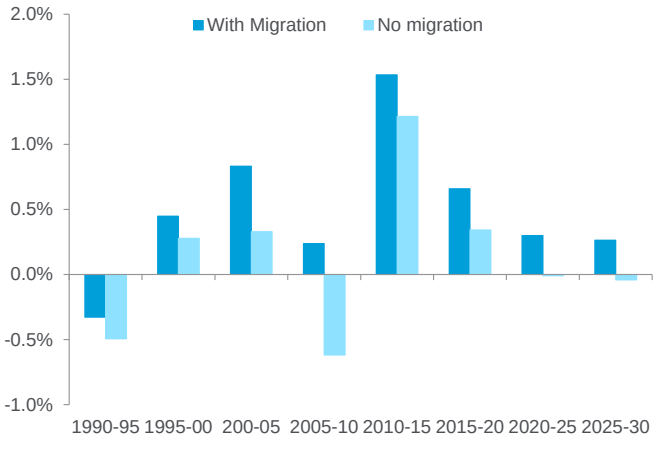
We take weekly hours worked data from the OECD for different genders and age groups. We assume these are consistent across both migrants and non-migrants in each respective age group, multiplying these by the number of migrant and native workers. This gives working hours attributable to natives and migrants. We then calculate the average annual growth in working hours (using CAGR) in both a case with migration and one without.

Figure 210. Average Annual Growth in Working Hours, U.K., Men, 1990-2030



Source: Citi Research, OECD, ILO

Figure 211. Average Annual Growth in Working Hours, U.K., Men, 1990-2030



Source: Citi Research, OECD, ILO

We then use a standard growth accounting framework to derive the likely implications for headline GDP growth resulting from differences in the average growth rate in hours worked. We pull on data from the Penn World Tables in these calculations.

$Y = AK^{\alpha 1}L^{1-\alpha}$ *Y*=GDP; *A*=Total Factor; Productivity; *K*=Capital; *L*=Labor

n our accounting here, we assume that capital per worker is constant. This is based on work done by Peri and Ortega (2009) showing that, even in the short term (within one year), immigration doesn't dilute capital per worker, especially in a relatively open economy. Rather, the ratio is sustained as immigration prompts further investment. In our results, we present one set of estimates including these capital and investment effects, and one without. We also assume a constant labor and capital share of income (on the same basis).

In our simple model (outside of the U.S.) we also assume human capital is roughly equivalent between migrants and natives.

U.S. Specific Additions

Our modelling on the U.S. includes two notable extensions. First we develop a more granular model of the U.S. labor market by distinguishing by education, as well as age, gender and migrant status. We have used the Current Population Survey to derive employment rates for these respective subgroups. In order to avoid extensive sampling error, we have used multi-year datasets to increase the sample size. At times, however, this can make estimates of migrant contributions year on year more difficult, especially as migrant and native populations are have different degrees of sensitivity to changes in cyclical conditions (see, for example, Rowthorn, 2008).

From these data, we are also able to estimate the aggregate level of human capital, and more importantly how this changes, with and without migration. We use a different measure to much of the existing literature. Rather than using formal education (given deskilling, we believe this is likely an overestimate of migrant contributions) and earnings (given discrimination, and intra-occupational wage penalties, this is likely an underestimate) we have used a measure based on the wage associated with level of education and occupation a given worker is in.

We compare the average wage by education level over a range of broad occupations, and then weight this by the distribution of migrants and natives (within each education level) across these. Here we do not account for any differences resulting from different ages. We normalize these mean occupational wages against the average wage across all age groups. This, we believe, gives an indication of the quality contribution of migration.

From this, we are then able to derive likely recent growth in working hours and human capital. We once again use a standard growth accounting framework to derive its likely impact on aggregate growth levels, in this case using Conference Board growth accounting data.

$Y = AK^{\alpha}(HL)^{1-\alpha}$ *Y*=GDP; *A*=Total Factor; Productivity; *K*=Capital; *L*=Labor; *H*=Human Capital

Here we continue to assume capital to labor ratios, and labor shares of aggregate income remain constant, but in this case we model them as being constant to 'effective' units of labor, rather than solely working hours.

The results of these respective methodologies are explored above. Our respective data sources, and a comparison of the two different methodologies, are explained further in Figure 214 below.

Figure 212. Data Sources and Estimate Methodology: Migrant Contributions to Recent Growth

	Scalable	U.S. Specific
Migrant and Native Population	UNPD Data	UNPD Data
Participation Rates (Workforce)	Derived from OCED and ILO data. ILO data provides participation rates by year by gender and by age group for the entire population. Migration rates are then computed by assuming the ratio of native and to foreign born participation rates are constant. Participation rates for each can then be derived through a weighted average calculation using the population data	These are derived from national survey microdata. For example, for the U.S., we use the CPS Data: We derive participation rates by: Migrant, age, gender and education level. We derive the composition of the foreign and domestic workforces by age and gender by assuming the breakdown of the survey data by education level for each subgroup is representative of the population as a whole From this, we can then calculate the number of workers, by age gender and education level. When survey data is unavailable, we fall back on estimates from our scalable model. More specifically, we take the last available values estimated using the microdata and then multiply these by the growth rate of the associated scalable value (by age and migrant/ non migrant)- assuming these changes to be consistent across education levels.
Unemployment rates (Employment)	Derived from OCED data using the same methodology as participation rates. OECD data provides unemployment rates by year by gender and by (broader) age group for the entire population. Migration rates are then computed by assuming the ratio of native and to foreign born unemployment rates is constant. Participation rates for each can then be derived through a weighted average calculation using the population data	Building on the more granular participation rate data above, we then drop all observations from the microdata relating to those not participating in the labor force. We then calculate unemployment rates for each migrant-gender-age-education level subgroup. We multiply these with the number of workers derived using the participation rates above to calculate the number of migrants and natives employed at any one time. Just as with participation rates, when survey data is unavailable, we fall back on estimates (of % changes) from our scalable model.
Working Hours (Total Hours Worked)	These are taken from the OECD and are assumed to be constant across migrants and natives for different age groups. On the basis of micro-data we have looked at thus far, this doesn't seem to be a particularly distortionary assumption.	We derive these using the microdata by dropping all values of those in the labor force who are unemployed, and then taking the mean weekly working hours by gender, age, migrant status and education level.
Labor Quality	N/A- these are assumed to be constant across all workers	Here we measure the quality of labor using the mean wage of a given worker by gender, education level and occupation in which they are employed compared to the mean aggregate wage. We then calculate weighted averages of these values according to migrant status and education level. To then derive the aggregate labor quality, we then produce a weighted average for overall labor quality by education level, gender and migrant status by multiplying the occupational wages associated with each education level and occupation by the % of migrants and natives respectively who work in them. The assumptions behind this approach are discussed in more depth below.
GDP Growth	Data taken from the Penn World Tables and modeled using a standard growth accounting framework.	Data taken from the Conference Board .

Source: Citi Research

What Our Model Misses

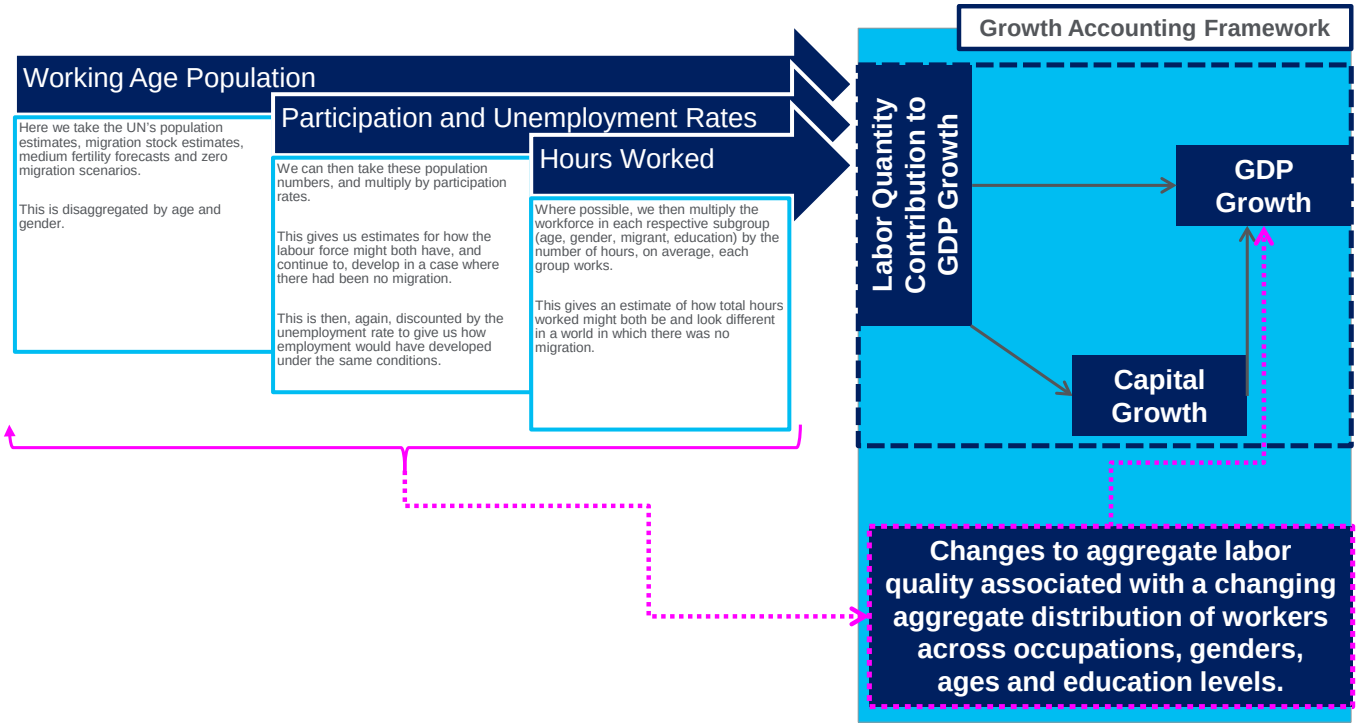
Our model is based on the direct labor market impact of migration. In this, however, there are two notable deficiencies. Firstly, it fails to take into account the extensive complementarities (and occasionally competitive) interrelationships between migration and domestic labor supply for example. Many of these are significant at the aggregate level (see Labor Market Impact).

On balance, this underestimates the likely contribution of migration on growth given (as we find above) migration has relatively few labor market impacts at the aggregate level (despite sometimes extensive local impacts). However, there is evidence of positive migration impacts on domestic labor supply and human capital investment at an aggregate level.

The second key failing is this model fails to account for the innovation and productivity benefits of migration, these are both extensive and significant at the aggregate level (see Measuring Migration's Impact on Total Factor Productivity).

- A schematic illustration of what our model includes and misses is shown below in Figure 213.

Figure 213. Modelled Direct Contributions of Migration to Aggregate Growth



Source: Citi Research

Appendix 2 – Regression Modelling

Our basic model is taken from an analysis done by Dell' Aringa, Lucifora and Pagani (2015). We actually use three different versions. Firstly, for estimating the marginal impact of migration on earnings, we use the following:

$$\ln(w_i) = \alpha + \gamma_0 WT_i + \gamma_1 M_i + \gamma_2 ED_i + \gamma_4 (EXP_i) + \cdots + \varepsilon_i$$

Here: ln(wi) is the log of net monthly earnings; WT is weekly hours worked; M is a dummy variable for immigrant status; ED is education level;[49] EXP is estimated work experience (in country and out of country). In addition to this basic model, we also use a set of different dummy variables controlling for factors such as age, and full time status.

For cross national comparisons looking at the marginal impact of migrant status on returns to education and experience, we use:

$$\mathrm{Ln}(w_i) = \alpha + \gamma_0 WT_i + \gamma_1 (WT_i \times M) + \gamma_1 M_i + \gamma_2 ED_i + \gamma_3 (ED_i \times M) + \gamma_4 (EXP_i) + \gamma_5 (EXP_i \times M) + \cdots + \varepsilon_i$$

The additional interaction variables in this model allow us to look at the marginal migrant 'penalty' on the returns to both education and experience.

In our analysis of the U.S., we build this out further, using:

$$\ln(w_i) = \alpha + \gamma_0 WT_i + \gamma_1 (WT_i \times M) + \gamma_1 M_i + \gamma_2 ED_i + \gamma_3 (ED_i \times M) + \gamma_4 \left(EXP_i^H\right) + \gamma_4 \left(EXP_i^D\right) + \gamma_5 \left(EXP_i^D \times M\right) + \cdots + \varepsilon_i$$

Here, we differentiate experience between that acquired within country, and that acquired in a migrants' home country.

In the analysis below, we build on these basic models in several ways. In many instances, we control for occupation in order to see how much of the migrant wage effects are the product of difficulties accessing certain occupations, or being paid the same within them. In our analysis of the U.S., we exploit more detailed data in order to look at the effect of migration cohort, age of migration and origin country. We also differentiate between different migrant subgroups (such as those with some education in the destination economy, with those without).

[49] Rather than modeling this as a continuous variable, we instead use factor variables to determine the marginal wage impact of additional levels of education

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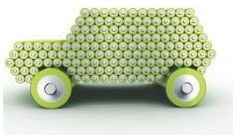

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Historically migrant pools to OECD countries have had low skill levels and low education levels. / Today, high-skilled migrants make up the majority and migrants with a tertiary education are driving a race for global talent.

POLICY

It wasn't until the early twentieth century and the slowing of economic growth when governments began to focus on limiting migration flows. / As migrants continue to make a disproportionately positive impact on our societies, policymakers ensure migration policy does not constrict economic growth.

LABOR MARKET

The population of advanced economies is aging as fertility rates are below replacement rates in over half of developed countries. / With migrant populations typically younger, they add to the working age population and lower dependency ratios while increasing GPD per capita in a host country.