# International Migrations: Economic opportunities and Political Challenges in an Age of Demographic Decline

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#### Abstract:

Immigration from emerging to developed countries has increased substantially in the last 3 decades and in the wake of demographic transitions, leading to older population in most advanced economies, it represents an important economic opportunity for those countries. The type of immigrants, their economic integration and the institutions and policies adopted by receiving countries are very relevant to determine their economic impact. In this article we consider the impact of immigration on labor markets, productivity, innovation, entrepreneurship, and investments in developed economies during the last three decades, drawing from research analyzing especially the US and Europe, the economies in the world that have attracted the largest share of immigrants from developing countries. The picture emerging is that of mainly positive economic effects, certainly for the US, and, with some caveats, for Europe too. We then describe the consequences on political vote and political sentiment generated by immigration, addressing the question whether immigration has generated a political backlash leading to nationalism and populism. Our overview emphasizes that differences between type of immigrants are important to understand the political effects. Finally, we discuss additional consequences of immigration in aging societies, and we distill some research-based policy ideas that would be economically beneficial and politically sustainable, for rich and aging advanced economies.

Key Words: International Migrations, Population Growth, Economic Impact, Aging, Political Sentiment.

JEL Codes: F22, J11, J24, J61.

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# 1. Introduction: Immigration to Rich Economies, an Overview

International migrations have been on the rise globally during the last four decades. Not all types of migration, however, have grown in the same way. According to the Population Division of the United Nations Department of Economic and Social Affairs (UNDESA), the total number of world migrants—those who live in a country different from the one where they were born—was estimated to comprise 3.5 per cent of the global population in 2020, compared to 2.8 per cent in 2000 and 2.3 per cent in 1980. This represents a significant, but modest growth. The "corridors" experiencing the largest increase in international migrants have been from emerging/middle income countries (in Asia, North Africa, and Latin America) into rich countries (mainly Europe – EU14—and the US). Given such trend and the stagnating (and recently declining) population in the advanced economies, immigrants from developing countries as percentage of the population of advanced countries have increased substantially, from about 4 per cent in 1990 to more than 9 per cent in 2020.

Figure 1, Panel A, below shows the foreign-born as share of the population in four of the largest European countries (Germany, France, Italy, and Spain), as well as in the EU-12<sup>2</sup> as a whole (purple line) and in the US (red line). It is apparent that Europe and the US experienced a similar and substantial increase in their immigrant population from 4-6% of their population in 1960 to more than 12% in 2020. Countries like Italy and Spain experienced a later surge of the immigrant population share, beginning around 1990, and reaching values close to 10% of the population in 2020. Panel B shows that a significant part of the increase in foreign-born population in these receiving economies is represented by those born in developing countries (DC). The US had a larger number and percentage of them, but the figure shows a similar growth in the last 30 years by more than 7 percentage points of the population.



**Note:** Graph source is Docquier (2024), the original data are from Barro and Lee 2013—September 2021 update—and DIOC data for education of emigrants.

<sup>&</sup>lt;sup>2</sup> EU-12 includes most of the rich countries of Western Europe, namely Belgium, Denmark, Germany, Ireland, Greece, Spain, France, Italy, Luxembourg, the Netherlands, Portugal, and the United Kingdom.

The growth of immigration in rich economies was, therefore, mainly driven by people moving from non-rich countries. However migration does not occur mainly from the poorest countries in the world, especially the one directed to advanced economies. Figure 2 illustrates the emigration rate (towards all other countries and, separately, towards advanced and developing countries) on the vertical axis plotted against the log of GDP per person on the horizontal axis, in a smoothed chart including all middle-income and emerging economies in the world as countries of origin. The figure reveals that emigration rates (to advanced economies and overall) have an inverted U shape and are highest from countries at intermediate levels of income per capita. Hence countries like Mexico, India, the Philippines, and Venezuela have higher emigration rates than sub-Sahara Africa countries such as Chad and Ethiopia (the poorest of all). Several reasons may explain this pattern, but in general a tension between incentives to emigrate due to gains in earnings/income, which are highest at low levels of income, and opportunities/means to emigrate, which are higher at higher levels of income, as individual escape subsistence, contribute to produce the hump shape.



Note: Authors' elaboration following Peri (2022), the specific sources are: GDP data from World Economic Outlook (Engler et al., 2020); Gross domestic product per capita (2019), constant prices (2017 PPP); Migrant stock data from UN (2019); Population data from Engler et al., (2020) Emigration rates = stock of migrants/ population

Another important characteristic of migrants is that they are usually positively selected along the education and skills dimensions, relative to non-migrants from the same countries. Figure 3 shows the share of college educated among emigrants and non-migrants for each non-rich country. All points are above the 45-degree line and denote positive selection (higher share of collegegraduates among emigrants than among non-emigrants), and for some countries (such as India, Malaysia and Zimbabwe) the positive selection is very large, with more than 60% of emigrants with college education and less than 10% of non-migrants with a college education.





Note: Author's elaboration following Peri (2022). The original data sources are: Barro-Lee (2013) Data Set of Educational Attainment in the World—September 2021 update—. Database on Immigrants in OECD countries (DIOC). X-Axis: percentage of population with complete tertiary schooling. Y-Axis: percentage of emigrants with complete tertiary schooling. Countries of origin are restricted to non-OECD countries.

When considered relative to the population in the receiving countries, however, some countries attract more high skilled immigrants than others. In general, the US has received a significantly higher ratio of college to non-college educated immigrants than almost any country of Europe<sup>3</sup>. Considering the education level of immigrants, Panel A of Figure 4 shows low skilled (non-college educated) and Panel B of Figure 4 shows high skilled (college educated) migrants, as share of the receiving country population for the four largest EU-12 economies (grey lines), the EU-12 average (blue line) and the US (red line).



Note: Graph source is Docquier (2024), the original data are from Barro and Lee 2013—September 2021 update—and DIOC data for education of emigrants.

<sup>&</sup>lt;sup>3</sup> Canada and Australia, while smaller in size, attract even larger share of college educated among their immigrants than the US.

While non-college (low-skilled) immigrants reached about 7% of the total population in both US and the EU-12 as of 2020, the college educated immigrants were about 7% of the population for the US, and less than 4% for EU-12. The ratio of unskilled/skilled immigrants was about 1 in the US and about 2 in EU-12, while in Spain and Italy it was as large as 3.

These simple facts about international migrants and migration to advanced economies suggest that the US has been a remarkable magnet in attracting immigrants throughout the last 30 years, from emerging and middle-income economies, in balanced proportions between skilled (college-educated) and less skilled (non-college educated) individuals. As we will document in section 2 of the paper, those immigrants have been integrated well into the US economy (Borjas, 2015; Peri & Rutledge, 2022) and have produced significant positive effects when looking at employment growth, innovation, productivity, entrepreneurship, and trade. At the same time, evidence that we will present in section 3, suggests that some types of immigration have had some consequences on political sentiment, populism and on the vote of citizens. The direction and intensity of these depend both on characteristics of immigrants and of the host community (Mayda et al., 2022, Moriconi et al., 2022).

Europe, on the other hand, has caught up in the role of international magnet, attracting a growing (but smaller than the US) share of immigrants from developing countries, with a lower proportion of high-skilled. Europe had more issues in integrating, at least some groups of immigrants (refugees above all – Brell et al (2020) –), and experienced related problems of lower economic success, higher segregation of immigrants and more limited economic success of the second generation. Political backlash has also been stronger in Europe than in the US (see Barone et al., 2016; Dustmann et al., 2019; Edo et al., 2019; Halla et al., 2017; Hangartner et al., 2019 and Otto & Steinhardt 2014) partly because of the type of immigration (fewer high-skilled immigrants) and partly because of the more limited labor market integration of immigrants (increasing the perception of dependance on the welfare system) relative to the US. Still in many cases, important parts of the economy of European countries, in sectors like hospitality, agriculture, personal services and home care depend largely on immigrants. Several European countries, such as the UK, Switzerland and Luxembourg have attracted a large share of highly educated and productive immigrants, making them a key part of their economic growth.

Economic and labor markets institutions, the selection of immigrants and the overall strength of the receiving country economy matter in catalyzing the potentials of immigrants as engines of economic growth. After establishing these points, in section 4 and 5 of the paper, we consider how the evolving demographic trends in developed countries, producing aging populations and shrinking labor force across them, may add crucial factors in evaluating the benefits of immigration. We first describe in section 4 the reasons why those trends will further increase economic benefits from immigration, including their role in helping to maintain labor force size, keeping low dependency ratio and filling shortages in the services needed by aging population. Importantly we also show in section 5, that there is no evidence of an automatic "mechanism" producing higher immigration in countries with demographic stagnation or decline and, so far, we have not observed in rich countries or within their regions a tendency to be more open to immigrants when their populations age. Section 6 concludes by drawing some lessons from the evidence and proposing some immigration policy principles that would lead to economic benefits and that we think are politically sustainable. Several of these policies would be very beneficial to a country as Japan, with advanced demographic decline but very low immigration and therefore likely to have large economic gains from allowing somewhat more open immigration policies.

# 2. The Economic Effects of Immigration in Advanced Economies

In order to analyze and discuss the 'macroeconomic effects of immigration' in developed countries, I will briefly describe in section 2.a, a framework, used in several studies on the US and OECD countries (e.g., Engler et al., 2020; Peri, 2012) This framework allows to decompose the effects of immigration on (i) the labor aggregate, (ii) total factor productivity (TFP) and (iii) capital intensity, through an aggregate production function of the receiving country and a careful characterization of the labor aggregate. Such overarching framework can be considered a "growth accounting" one.

The first effect analyzed, of immigration on the labor aggregate (and on marginal product of several types of workers), is the more direct effect of immigrants, considered strictly as an increase in labor supply. If immigrants and natives were perfect substitutes, this effect would be simply a crowding-out/competition effect, if the other factors do not fully adjust in the short-run or a null effect, simply expanding the full economy and leaving the rest unchanged when other factors fully adjust in the long-run. Instead, it is important to recognize that immigrants and natives supply diverse types of skills (Ottaviano & Peri ,2012), take different jobs (Peri & Sparber, 2009), and are distributed differently from natives across education and age group. These features, and the related complementarities across skills imply that we should model the labor aggregate as a combination of skill groups. A Nested CES (constant elasticity of substitution) function is a popular and effective way of doing this. This structure is useful to evaluate the effects of immigrants on marginal productivity of natives of different skills, through their effect via the composite labor factor and the change in relative supply. The main findings from this approach will be discussed in section 2.b.

The effect on TFP is very important and predominant when we consider the role of immigrants, especially high-skilled, as scientists, engineers and employed in STEM occupations (e.g., Kerr & Lincoln, 2010; Peri et al., 2015). Their role in advancing scientific discovery, patented innovation and in general technological growth has been studied and shown to be substantial, especially in the US. These channels result in positive productivity effects, and specific empirical analysis focusing on them will be described in section 2.c. Finally in section 2.d we discuss and present evidence of immigrants' effects on capital intensity and investments. This channel is brought to light when we consider immigrants as entrepreneurs. In most countries immigrants contribute disproportionally to the creation of new firms and in the US, they are responsible for a quarter of new businesses (Chodavadia et al., 2024). We analyze their role in stimulating firm creation by founding firms (e.g., Beine et al., 2024) and expanding firm options by reducing shortages of specific skills and allowing new investments (Beerli et al., 2021).

In order for all these effects to fully manifest themselves, the immigrants need to be engaged in the productive activity as workers, self-employed or entrepreneurs. Therefore we analyze how fast and how fully immigrants integrate in the labor markets in section 2.b. Many of the results and analysis presented in this section are relative to the US. We mention extensively research about Europe and, where available, in other OECD countries related to these issues.

#### a. Macro Accounting Approach

To organize different effects of immigration we consider the production function of an immigration-receiving country (in many studies it will be the US) and describe it as:

$$Y_t = K_t^{\alpha} (A_t N_t)^{1-\alpha} \tag{1}$$

In Equation (1), the term  $Y_t$  is total Gross Domestic Product,  $K_t^{[]}$  is the aggregate capital stock, made of firm structures and equipment/machines,  $A_t$  is a measure of total factor productivity capturing efficiency and technology,  $N_t$  is a labor composite made of a combination of workers of different skills as well as different origins (domestic and foreignborn). The parameter  $\alpha$  is the elasticity of output to physical capital.

If we assume that marginal return to capital is equated to the real interest rate in the long run, and therefore capital-income ratio is stable in the long-run we can re-write output as follows:

$$Y_t = \left(\frac{\kappa_t}{\gamma_t}\right)^{\frac{\alpha}{1-\alpha}} A_t N_t \tag{2}$$

Taking log and then changes over time of each side we can decompose the percentage change (growth) in income of the receiving country as deriving from the log (percentage) changes of capital intensity, total factor productivity and total labor composite as follows:

$$\Delta \ln \left( Y_t \right) = \underbrace{\frac{\alpha}{1-\alpha} \Delta \ln \left( \frac{K_t}{Y_t} \right)^{\text{init}}}_{Capital intensity change} + \underbrace{\Delta \ln A_t}_{TFP \ change} + \underbrace{\Delta \ln N_t}_{Labor \ Composite \ Change} (3)$$

When the analysis of immigration is limited to immigrants considered as labor supply, without accounting for their effect on investment and productivity (as often done in the classic labor literature in Borjas, 2003; Caiumi & Peri, 2024; Manacorda et al., 2012 and Ottaviano & Peri, 2012), then it focuses on the term *N*, the aggregate labor. This term is often represented as a composite of different skills, often separated by education and experience types, or by task supplied (e.g., Caiumi & Peri, 2024; Peri & Sparber, 2009). It is often represented as a CES or a nested CES function. We describe results of this type of analysis in the next section.

As for the other two terms, capital intensity and TFP, immigration can have an impact on each of them through innovation, entrepreneurship, and firm-creation/expansion effects. We will describe studies focusing on these specific channels and using micro-level, commuting zone, firm- or establishment-data in section 2.c and 2.d. Here we consider the available macro estimates of those effects.

In seminal analysis Peri (2012) used the accounting method to decompose GDP growth and used exogenous change in immigrants, captured by the shift-share approach (following Card 2009 and then more formally Goldsmith-Pinkham et al., 2020) to estimate a panel regression as the one below for US states:

$$\Delta ln(x_{c,t}) = Controls + \beta \left( \frac{\Delta N_{c,t}^F}{N_{c,t}^{[m]}} \right) + \varepsilon_t \qquad (4)$$

Where  $ln(x_{c,t})$  is the log of capital intensity or TFP, over 5 or 10 years in unit (state/country) c, and  $\left(\frac{\Delta N_{c,t}^{\mathbb{Z}}}{N_{c,t}^{\mathbb{Z}}}\right)$  is the change in foreign-born in the same unit (state/country) measured as percentage of the total labor supply  $N_{c,t}^{\mathbb{Z}}$ . Engler et al., (2020) applied the same approach to analyze the impact of sudden immigration shocks (instrumented using an adapted shift-share approach) to OECD economies. Both methods estimated the impact of a 1 percentage point increase of immigrants in the population on those variables. Table 1 below summarizes the main estimates of these two studies.

 Table 1

 Effects of increase in foreign-born by 1 percent of receiving country population

	Peri (2012), US states	Engler et al. (2020), OECD
	1 en (2012), 00 entres	countries
% Growth in Capital intensity	0.27	0.84**
	(0.23)	(0.23)
% Growth in TFP	0.97***	0.56**
	(0.36)	(0.23)
Notes:	1960-2000, 50 US states plus	1980-2018, OECD countries,
	DC, 10-year response; 2SLS	5-year response; Local
		projection method
Source	Table 2, column 3, Peri (2012)	Figure 4.17. Engler et al., (2020)

**Note:** The estimates are from Peri (2012) and Engler et al., (2020). They are obtained using a regression as in equation (4) with log change in capital intensity and log change in TFP as dependent variable in rows 1 and 2, respectively and the change in foreign-born population as percentage of total population as explanatory variable. The instrument is a shift-share IV in Peri (2012) and a shift-share adapted to sudden immigration episodes in Engler et al., (2020).

While the method, especially in its identification, can be improved, the estimated effects provide an important reference for the macro estimates of immigrants on productivity and capital intensity. Three facts stand out. First, in all cases the estimated effects are positive and in 3 cases they are significant, implying that in aggregate immigration is strongly associated with faster GDP per capita growth, which on average benefits natives<sup>4</sup>. Second, for US states the positive effects on TFP are especially large, consistently with the key role of skilled immigrants in the US in enhancing innovation and productivity. Third in the OECD countries as a whole the role of immigration in stimulating investment and capital intensity is very significant, consistently with the role of immigrants in promoting firm creation, and entrepreneurship, which has been discussed extensively in Chodavadia et al. (2024) and we will show for Switzerland (Beerli et al., 2021) and the US (Beine et al., 2024). We will return to these effects, by discussing micro level evidence on immigration and firms. Let us now

<sup>&</sup>lt;sup>4</sup> A significantly positive average productivity effect of immigrants is also consistent with evidence from the UK from Dustman, Frattini and Preston (2013) who show a generalized upward shift of wages of natives in response to immigration.

discuss the additional impact on labor aggregates and marginal productivity of natives, emerging from the analysis of the labor composite and the effects on native wages.

#### b. Immigrants as Labor Supply: Effects on Native Wages and Employment

A common way of representing what we called the labor composite  $N_t$  in this literature is a constant elasticity of substitution (CES) function, or a "nested" CES function (as done in Borjas, 2003; Dustmann et al., 2013; Manacorda et al., 2012 and Ottaviano & Peri, 2012) aggregating distinct types of workers.

Within this framework, ultimately the effect of a change in immigrant supply  $N^F$  on the labor aggregate and on the marginal productivity of domestic (native) labor,  $N^D$  which in the long run equates its wage ( $w_N$ ), depends on the supply change of immigrant and on the elasticity of substitution between immigrants and natives,  $\sigma$ . While different studies divide labor markets in potentially different skill-cells and use variation of immigrant supply across those, the key equation derived from a (nested) CES function to find the complementarity effect between immigrants and natives is of the following form:

$$ln\left(\frac{w_{st}^{D}}{w_{st}^{F}}\right) = Productivity + \frac{1}{\sigma}ln\left(\frac{N_{st}^{F}}{N_{st}^{D}}\right) + \varepsilon_{st}$$
(5)

Where  $\frac{w_{st}^D}{w_{st}^F}$  is the ratio between domestic and foreign-born wages in skill-cell s and period t,  $\left(\frac{N_{st}^F}{N_{st}^D}\right)$  is the relative employment of foreign-born and domestic workers in the cell and  $\sigma$  is the elasticity of substitution between these two types of workers. The term "Productivity" in equation (1) represents the evolution of relative productivity of the two groups and it is captured by a series of fixed effects and trends included in the regression analysis.

If the two groups of workers are perfect substitutes,  $\frac{1}{\sigma} = 0$ , then the inflow of immigrants does not affect the marginal productivity of natives, so that the only effects of immigration on overall native productivity are those captured by the capital intensity and TFP effects described in equation (2). However, if immigrants and natives are imperfect substitutes, then  $\frac{1}{\sigma} > 0$  and the productivity and wages of natives receive an additional boost, even in absence of other effects. The recent study by Caiumi and Peri (2024) updated the estimates of  $\frac{1}{\sigma}$  for the US, using more current econometric techniques (Shift-share method), and recent data (inflows of immigrants 2000-2019) and adding a potential effect on native employment rate to account for potential crowding out or crowding in of natives. That study has found a value of  $\frac{1}{\sigma}$  equal to about 0.05, and as large as 0.1 for immigrant-natives with college education. This implies that immigration in the 2000-2019 period boosted native wages by an average of 0.5 % (only accounting for such complementarity effect). Additionally, because of the large inflow of college educated during that period, and accounting for that college-non college complementarity, Caiumi and Peri (2024) find that such an effect was as large as +2% for natives with only a high school degree (and around 0 for native college educated). Recall that

the US has been one of the advanced economies with the largest relative inflow of college educated immigrants in the recent years (see Section 1 and Figure 4).

Several studies have inquired more in depth into the reasons for such complementarity of immigrants and natives, which attenuates direct competition and provides an additional benefit to native labor productivity. Analyzing US labor markets, Peri, and Sparber (2009) show that more immigration generated stronger specialization of immigrants in manualphysical tasks and of natives in communication-interaction tasks. This dynamic response of native workers, following their comparative advantages, generated an upgrade in occupations (as communication-intensive tasks pay better than manual tasks) and shielded native workers from immigration competition, while providing firms with an array of skills needed for their growth. This mechanism has been shown, additionally for EU-12 workers in response to immigration by Cattaneo, Fiorio and Peri (2015) and for Danish workers in response to refugees by Foged and Peri (2016), using a compelling identification based on a quasiexperiment. Therefore the complementarity immigrant-natives driven by different specialization and skills seems a general feature of immigrants to many advanced economies and it benefits native workers.

### c. Immigrants' Labor Market Integration

The complementarity effects generated with native workers described in the previous section, as well as the productivity and firm-creation effects that we will analyze below, crucially depend on the extent to which immigrants are integrated in the economy as employed or self-employed. One crucial dimension of the economic impact of immigrants, therefore, is their probability of being employed, and, how long it takes, after arrival, to catch-up with natives' employment rate. While earnings convergence can be slower, due to time needed for acquisition of local human capital, and due to persistent differences in specialization based on their language skills (see Borjas, 1985), as described in the previous section, the ability of immigrants to find employment is critical to their economic effect as well as to their economic success.

The evidence available for the US emphasizes that the convergence of immigrants to earnings of natives of similar age can be incomplete and may vary across countries of origin. It was rather slow for the immigrants that arrived in the 1990's and 2000's (as shown in Borjas, 2015). However, the evidence also shows that convergence in *employment probability* is full and rapid for immigrants of all origin and all skill levels. Very often immigrants to the US, from countries that are much less developed than the US, have a higher employment probability than similar US natives, already 10 years after arrival. The three panels of Figure 5 below, taken from Peri and Rutledge (2020), show the convergence in employment probability of different cohorts of immigrants from Mexico (Panel A), China (Panel B) and India (Panel C) who arrived in the US starting in 1965, and are followed up to 2020. These are the three countries of origin with larger communities in the US and they all belong to the group of emerging/middle income economies. The vertical axes in each graph of figure 5 capture the employment rate of the immigrant group, minus that of natives in the same age-cohort. Therefore, crossing the "0" line for a cohort means full catch-up to employment rates of US-born individuals.

Figure 5 Employment rate of Immigrants, relative to US-born, by cohort, 1965-2000



**Note:** Figure taken from Peri and Rutledge (2020), authors' elaboration on American Community Survey data from IPUMS. The employment rate differentials are calculated from regressions that are estimated separately for each cross section. The dependent variable identifies whether each individual was employed for at least one week during the previous year. The explanatory variables include third-order polynomial for age and a set of fixed effects, one for each immigrant cohort. The omitted group are the native-born workers.

Three very important facts emerge from the data in the figure. First, all cohorts represented, fully caught-up or surpassed the employment rate of natives, during the recorded period in the US. Mexican immigrants, especially for the pre-1990 cohorts, show slower convergence rates but they still achieved employment parity with natives after about 20 years. For Mexicans arrived in the last 20 years convergence happened much faster and they fully surpassed natives in employment rates. This implies that all immigrants to the US fully participated to its economic and productive activity, in the recent decades. Second, the cohorts arrived more recently have started with smaller employment gap and converged (surpassed) native employment more rapidly. The ability of US labor markets to absorb immigrants has become even stronger in the recent decades. Third, Chinese and Indians, show employment rates 5 to 10 percentage points higher than natives after 10 years. While most Indians in the US are college educated and working in STEM occupations, Chinese immigrants are a mix of college and non-college, and they fill many of those sectors in the economy, such as personal services, food/hospitality, where demand is high and supply of US-born worker is low. All those immigrants have been integrated into US labor markets at higher rates than natives, just after 10 years in the US.

Evidence on European countries is more varied. Lee et al., (2022) show that the initial employment gap between natives and immigrants and subsequent convergence in employment rates varies widely across European countries. However, on average, after 10 years, immigrants to the average European country are close to parity with natives in their employment probability (see Lee et al., 2022, Table 3). Convergence and 10-year employment gaps show differences depending on gender, and on country of origin, but the bulk of immigrants to Europe seems to contribute to the receiving country economy by integrating into employment at similar rates as natives, soon after arrival and certainly within 10 years of arrival.

One important exception in Europe, are refugees, especially from Africa and the Middle East. Brell et al., (2020) show a much slower and incomplete convergence to native employment rates in most continental European countries. Lack of some crucial skills (such as language), a slow start, especially in locations without dynamic employment opportunities, and possibly excessive reliance on initial welfare transfer may explain part of the refugees' delay in economic integration in Europe. Foged, Hasager and Peri (2024) emphasize the effectiveness of language classes and initial labor market opportunities, in improving the economic integration of refugees in Denmark. Additionally, perhaps, flexible labor market institutions, facilitating job creation, hiring and dismissals and reducing protections for insiders may both help economic integration of immigrants as well as accommodate the native workers' occupational mobility response that maximizes their benefits from complementarities (D'Amuri & Peri, 2015). This suggests that the successful labor market integration of non-college educated immigrants in the economy, while certainly depending on economic dynamism, benefits from the right institutions and policies.

#### d. Skilled Immigrants and Innovation-- the TFP Effect

The ability of the US to attract foreign talent, especially at the top of science and technology is a key factor in generating a positive effect of immigrants on innovation, technological growth and ultimately productivity growth. This form of "foreign brain attraction" and its role in pushing science and innovation in the US is not new. Moeser et al., (2014) show that the emigration of Jewish scientists from Germany to the US before WWII had a crucial role in developing US science in the 40's, 50's and 60's.

There are three types of studies that provide evidence of the role of skilled immigrants, especially those in the STEM disciplines, in advancing US innovation and stimulating its productivity. The first group of studies, look at variation in foreign STEM employees across US cities or labor markets, and uses variation of the H1-B, the skilled-visa policy quota introduced in 1990, expanded up to 2001 and then restricted in 2004 to assess the impact of the post 2004 restriction on patented innovation (Kerr & Lincoln, 2010) and on local demand for native skilled and less skilled workers (Peri et al., 2015). These studies find that the drop in H1B visas, unevenly distributed across locations, because of the pre-1990 presence of networks of foreign-born scientists, reduced significantly patenting by foreigners. It additionally reduced patenting of US-born scientists (spillover effects) and depressed wage and employment growth for local college-educated Americans. This evidence is consistent with an important causal role of skilled immigrants in boosting local productivity and innovation.

A second set of studies uses the fact that after 2008 the limited number of H-1B, skilled immigrant visas going to private companies in the US was assigned to employers in a yearly random lottery. This was due to the much larger number of applications received in the very first week of availability, relative to available visas for the entire year. A study focusing on an early and relatively small lottery of 2005 (Doran, Gelber & Isen, 2022) did not find negative effect of losing skilled immigrants, on firm's outcomes, suggesting that companies may have found other ways to fill the H1-B jobs with natives. The focus of this paper on a small-scale lottery (few thousand visas) may be the reason for these null results. A more recent paper (Mahajan et al., 2024), that exploits the full 2008 lottery (of 85,000 visas), finds that losing

skilled immigrants reduced human capital of firms and their survival probabilities significantly. Other related recent studies (Dimmok et al., 2022) find that winning the H1-B lottery increases the chances of start-ups to access funding and have a successful IPO. Overall higher access to foreign skilled workers by US firms seems to boost their performance and productivity.

Finally, a group of studies focused on the role of foreign students in US colleges and universities estimated their impact on the university's ability to innovate (Chelleraj et al., 2005) and on their ability to charge lower tuition to US-born students (Bound et al., 2020). Related studies use a structural approach to identify the aggregate effect of larger enrollment of foreign STEM students in US universities on US productivity (Bound et al., 2017). Attracting foreign students in its high quality and prestigious universities has been a way for the US to maintain a large supply of skilled STEM workers, who are the key engine of growth for its high-tech and knowledge-based companies.

Evidence on the positive productivity impact of skilled immigrants exists also for other advanced economies. For Switzerland, Beerli et al., (2022) find that the opening of the border to cross-border workers (in 1999) stimulated R&D and innovation in high-tech Swiss firms near the border, as consequences of the employment of these highly educated workers who commuted from France, Italy, and Germany. More generally in cross-country analysis (Alesina et al., 2016) and in cross-states studies of the US (Docquier et al., 2020) evidence shows that place-of-birth-diversity of immigrants, especially among highly skilled ones, is predictive of high innovation and growth in the local economy. These studies suggest a key role for diversity of ideas, skills and abilities driven by differences in education and cultures of origin in promoting and stimulating innovation, creativity, and productivity growth (as already articulated in a classic paper by Lazear, (2000).

### e. Immigrants and Firm Creation -the Capital Intensity Effect-

An additional, crucial and often neglected role of immigrants has been that of entrepreneurs. Fairlie and Lofstrom (2015) and more recently Chodavadia et al., (2024) provided an overview of the evidence showing that immigrants in the US, UK, Australia, Canada, and other OECD countries are more likely to be entrepreneurs than citizens. Additionally, they have higher probability to start successful firms than natives. This higher entrepreneurship rate is not limited to the creation of small businesses, such as restaurants or grocery stores, in which immigrants may bring the value of new varieties of foods and products, but extends to large, innovative, and high productivity start-ups. As a consequence it has a very relevant role in job creation as well.

Azoulay et al (2022) show evidence that thanks to their role as entrepreneurs, immigrants have a stronger function as job creators than as job takers in the US. This means that they generate a net positive effect on labor demand, which in our macro-accounting framework of section 2.a, expressed in equation (3), would operate through a positive effect on the terms  $\frac{\alpha}{1-\alpha}\Delta \ln \left(\frac{K_t}{Y_t}\right)$  and  $\Delta \ln(A_t)$ . Specifically they find that the entrepreneurship rate of immigrants is about 3 times larger than that of natives, in creating firms of any employment size, between 1 and 1000 employees. The reason immigrants (especially to the US) have very high entrepreneurial rate are many. However an important explanation can be found in the type of selection generated by emigration itself. Several of the characteristics that make people more likely to leave their country are also likely to make them more inclined to create new businesses. Jaeger et al., (2010) show that people with higher propensity to take risks (lower risk aversion) are more likely to migrate. Butikofer and Peri (2021) show that people with higher adaptability to new people and new circumstances are also more likely to migrate. Grogger and Hanson (2011) show that migrants are selected positively on skill characteristics and are relatively young. Anelli et al., (2023) show that the loss of young, educated emigrants significantly reduces the entrepreneurial potential of the sending country. Additionally the specialization of immigrants in STEM disciplines makes them more likely to be at the core of science and technology innovation, often the basis for successful start-ups.

In a new paper (Beine et al., 2024) advancing this literature we focus on the entrepreneurial contribution of foreign students graduating from US master's programs during the period 1999-2020. Considering a university-graduating master cohort, and using the variation of out-of-state fees over time, to generate changes in the share of foreign students in such cohorts, we look at what fraction of graduates become founders of a successful start-up companies within 5 years of graduation. We consider only innovative new companies that lasts for at least 3 years. Two results stand out from the analysis in Beine et al., (2024). First, foreign-born graduates are 9 times more likely to be the founders of these successful start-up relative to US-born. Figure 6 (from Beine et al., 2024) shows the time series of the start-up rate over time for master graduates (per 10,000 graduates) separating US-born and foreigners. We can see that while only about 0.3 to 0.4 natives per 10,000 graduates will be founders of a successful start-up, while between 2 and 5 foreign master graduate will succeed in such task. Moreover that number has been growing after the great recession to reach a high value in the 2012-14 period.



**Note:** The figure shows how many master graduates, separately among foreign and US-born students, created a successful start-up (surviving 3 or more years) within 5 years of graduation. The figure is taken from Beine et al., (2024).

The second important finding from that study is that native graduates are also more likely to start a company (often co-start it with a foreign-born) if they graduated from a master class with larger share of foreigners. This is very interesting evidence of a positive spillover of immigrants on entrepreneurship of natives, either through learning or through collaboration, with no evidence of a "crowding out" of native entrepreneurs by foreign ones. We also find that foreign-born share of graduates increases the number of start-up firms able to raise at least \$25 million in capital and filing for at least a patent within 5 years. Foreignborn stimulate firm creation and the firms that they create are highly successful.

Ultimately evidence shows that immigrants facilitate the starting of new firms, either by bringing the right combination of abilities and skills, or by expanding and complementing the skills of natives needed to start and run successful firms. This important role implies that capital (new firm) intensity does not decrease as a consequence of their arrival but may rather increase, consistently with the macro US- and OECD- level evidence discussed in Section 2.

# 3. Political Consequences from Increased Immigration

The picture painted so far about the economic consequences of higher immigration seems rather positive, especially for the US. During the last 30 years, a significant but declining inflow of immigrants, with a larger share of college educated than the US population, was rapidly integrated in the labor market and has positively contributed to wages, employment of natives as well as to innovation, productivity, and firm creation. Even immigrants form poorer countries and non-college educated ones were absorbed in the labor market and contributed positively, by filling jobs that were different and complementary with those of natives.

For Europe, the picture is slightly less favorable, but still overall encouraging. Immigration had a lower share of college-educated individuals and integration of refugees was slower. However many countries still benefited economically form immigrants, they took jobs and filled shortages of labor in sectors like personal services and elderly care and high skilled immigrants were key to economic growth in countries like Switzerland and the UK. In spite of this, the perception, from the media and from the political discourse is that in many countries a strong and growing anti-immigrants/nationalist/populist sentiment has taken roots at least in part of the population and has propelled nationalist/populist, (mainly) right wing parties to political success. But is immigrants, and their impact on distinct types of natives' attitude and political vote?

A sizable number of studies have looked at how immigration affected the support and vote for parties associated with "populist," "nationalist" agendas and in general for right-wing parties that usually promote more restrictive immigration policies. Other studies have looked at how increases in immigration have affected individual attitudes of natives (expressed through surveys) about issues related to nationalism, populism, and immigration. Some important and consistent findings emerge.

A very important finding, emerging from a group of studies that are trying to get to the causal effect of immigration on political preferences and reconciling different results across countries, is that the skill-composition of immigrants is crucial in determining the political consequences of higher immigration. Docquier et al., (2024), using data on all OECD countries in 1960-2015 find that an increase in highly skilled (college-educated) immigration reduced the "volume" of populism (i.e., the populist intensity of parties weighted by votes received) while growth in low-skilled immigration increased right-wing populism<sup>5</sup>. Moriconi et al., (2022), looking at regions of Europe between 2007 and 2019, find that a larger inflow of high-skilled immigrants reduced the vote for "nationalist" parties, while a larger inflow of low-skilled ones increased such vote share. Mayda et al., (2022), using data on US counties 1990-2016, find that high-skilled immigration increased the share of votes for the Democratic party, while an increase in low-skilled immigrants increases the share of votes for the Republican party, traditionally associated with more restrictive immigration policies. The main message from these studies is that balanced, or skill-intensive immigration flows do not increase and may reduce the strength of populist, nationalist right wing parties. However, receiving only or predominantly unskilled immigration is causally associated with more nationalism and votes for right-wing parties. The symmetry and the opposite sign of these two effects is illustrated by Panel A and B of Figure 7, taken from Mayda et al., (2022).



**Note:** Figure taken from Mayda et al., (2022). Each plot shows the change in the share of republican vote versus the change in share of college (Panel A) or non-college (Panel B) educated immigrants. The observations are individual counties, binned in percentiles of the distribution, so that each graph has 100 points.

The scatterplot, relative to US counties 1990-2016 and whose main message is confirmed by the causal regression analysis of Mayda et al., (2022), suggests that an increase of noncollege educated immigrants by one percent of the population increases the vote for the Republican party by 1-1.3 percentage points, while an increase of college educated immigrants by the same amount decreases the Republican vote share by 1-1.3 percentage points. The

<sup>&</sup>lt;sup>5</sup> Populism is defined as appealing to "ordinary" people as an opposition to the elites.

effects are similar in magnitude and opposite in sign. What is interesting is that these results suggest that a way to "offset" a pro-nationalist/ pro-populist impact of more unskilled immigrants is not *less* immigration but rather *more* immigration of high skilled type.

The mentioned studies provide additional interesting nuances and qualifications to these overall effects. First, Mayda et al., (2022) shows that the pro-Republican effect of low-skilled immigrants is stronger in rural areas and on non-college educated natives. Second, Moriconi et al., (2022) show a stronger anti-nationalist effect of skilled immigrants on younger voters, whose participation to vote and pro-Europe stand increases with more high-skilled immigration. Additionally the anti-nationalist effect of high-skilled immigrants is found to be very weak on older (age 58+) population. Third, Docquier et al., (2024) show that the "populist" effects of low-skilled immigrants are stronger in areas experiencing manufacturing decline. Both Mayda et al., (2022) and Moriconi et al., (2022) find that the high-skill/ low-skill differences in the effect of immigrants from developing/middle income countries. Finally, Moriconi et al., (2022) find that older people, in general are more pro-nationalists/populists and that older age and lower education make natives more likely to respond to low skilled immigration by moving towards nationalists/right wing positions.

Consistently with these results a group of empirical studies on European countries, where recent immigration has been prevalently low-skilled (Austria, Greece, Hungary, Italy and France)<sup>6</sup> or studies that have focused on inflow of refugees, typically less educated and slower to integrate in the labor market than economic migrants, have found a pro-nationalist, pro right-wing parties effect of these inflows.

Overall we can say that sentiments of anxiety and distrusts towards immigrants, possibly driven by differences in culture, traditions, habits, and their effect in changing the local environment (Card et al., 2012) are present in the average citizen of advanced economies. Those sentiments, intriguingly, seem more than offset by the economic/growth benefits perceived form highly skilled immigrants, whose arrival make the average person in the receiving society more inclined to open up to immigration. Skilled immigrants do not just help the economy but tilt the preferences of natives towards more immigration. The inflow of less educated immigrants, instead, while economically generally contributing, is not perceived to have a large enough benefit to natives, so that their arrival generates more anxieties and closure into a more nationalistic attitude. Before drawing some lessons overall, we will discuss how aging in advanced countries can further expand the economic/demographic case for immigration ad whether there is any indication that population decline, and aging are driving larger immigration flows to advanced economies or to some regions within them so as to offset the population decline.

<sup>&</sup>lt;sup>6</sup> These studies include Barone et al. (2016) ; Dustmann et al (2019); Edo et al. (2019); Hangartner et al. (2019), Halla, Wagner, & Zweimüller (2017) and Otto & Steinhardt (2014).

## 4. Additional Gains from Immigration in an Aging Society

In Section 2 we discussed how immigrants can contribute to the labor market of the receiving country, by filling shortages but also complementing abilities of natives with positive effects on employment and wages of citizens. Additionally a diverse group of immigrants, especially if college-educated, contributed to innovation, productivity, entrepreneurship, firm creation and, ultimately, economic growth in many advanced economies. We discuss here some reasons that immigration can be additionally beneficial for an aging society, where population is stagnating or declining and the average age of workers, and of the population, is increasing, with an increasing share of the population older than 65 and eventually older than 80. Most developed nations are headed towards this demographic transition (The Economist, 2022).

The first reason immigration can have an additional positive role is that a shrinking economy, in which more people retire than new workers join the labor force, generates shortages in some specific sectors/occupations/jobs. Some positions are not easy to fill with fewer applicants and there may be skills and ability mismatches that require adjustments. Frictions between exit and entry in the labor market manifest themselves in prolonged shortages for some jobs. Immigration directed to those jobs where shortages arise will alleviate this issue. Additionally, a shrinking of the labor force can generate decline in aggregate demand, as income of retired people drops, and this may produce stagnation in the economy. While this last phenomenon affects the aggregate economy, rather than the individual well-being of citizens, some public goods, whose payment or provision relies on the aggregate size of the economy (such as debt financing, funding defense spending, infrastructures or some public programs) may become more burdensome to each citizen due to a smaller working population and size of the economy.

The second reason is that an increase in the dependency ratio, i.e., of the number of retirees per worker, will generate pressure on public pensions, making social security systems harder to fund. This may imply a decline in public aggregate investments as more of the aggregate savings will go to fund pensions (Amaglobeli et al. 2019). While most advanced economies have accepted the need to increase retirement age and to increase pension contributions of young workers, the inflow of a substantial number of immigrants during this transition can alleviate the burden and make change more sustainable. A higher share of immigrants will increase the share of young population for a while (most people migrate between the age of 25 and 45), and there is evidence that immigrants themselves retire later then natives (see Lopez & Slavov, 2019) and have higher fertility rates (Livingstone, 2016), adding therefore future benefits to the sustainability of the pension system.

The third, and perhaps most important reason, is that the economy of an aging society generates large demand for specific services supporting old and very old people. As the share of people over 65, and over 80, increases, the demand for health care services (of physicians, nurses, and nurses' aids) as well as of personal services, home services, food and hospitality services will increase significantly. In the occupations not requiring a college degree, these jobs have been filled in large part by immigrants. Moreover, research shows that the availability of immigrants significantly improves the quality of elderly care (see Butcher et al., 2022). Young, usually highly educated citizens will not fill these jobs, but their demand by the

older population will increase as population ages. The price of these services is already very high and the shortages in these jobs already significant. (Butcher et al., 2022)

Finally, an aging and shrinking society is one in which entrepreneurship, innovation, and ultimately economic growth, often promoted by younger people (see Liang et al., 2018) can slow down<sup>7</sup>. Immigrants arriving as young people could replace the native young generation preventing a decline in innovation and start-up activity. Additionally, the younger labor force, which immigrants provide, complements the skills of the aging labor force (as argued in Card and Lemieux, 2001), so that the benefit for older native workers can be even larger than in the past.

Let us notice that there is a large amount of academic interest analyzing another option to fill the jobs and replace the skills of a shrinking labor force, represented by artificial intelligence and robotization (e.g., Acemoglu & Restrepo, 2017; Acemoglu & Restrepo, 2020, and several related papers). Technology can certainly provide replacements for a range of jobs. However, in the area of manual-interactive types of jobs (personal care, food preparation, home assistance) that do not pay high wages but that an aging population will need, humans seem a much more cost-effective, high quality and a more compassionate option than robot. Similarly, in the genuinely creative function performed by entrepreneurs, innovators, and scientists young skilled people (immigrants) are likely an edge on artificial intelligence and machines. While technology will play a role, I see in the foreseeable future an advantage of immigrants in providing manual-interactive as well as creative-innovative jobs alleviating the decline of aging societies.

In the light of these economic benefits from immigration in an aging society, is there any evidence in the recent data that the increased aging of a country (or a region) and/or its population decline encouraged net immigration? After all we have seen that in spite of economic benefits the political will to accept, especially less educated immigration, which would be crucial in providing some of the benefits described, may be missing in most advanced economies. Does the evolution of recent countries/regions show evidence that aging and population decline shift the equilibrium (combining economic and policy forces) towards and increase in net immigration? Or is the opposite true and in spite of demographic decline most locations do not move towards more immigration, and may move away from it? While we think that economists have not yet analyzed this question carefully, and more research in the area is needed, we will present some stylized facts and correlations that do not suggest at all, prima facie, a positive association between native aging and higher immigration.

# 5. Recent Correlations between Native Demographics and Immigration

As first stylized fact, Figure 8 shows native population growth and immigration, in large and advanced economies, namely the US, EU-14 (which includes the richest countries of

<sup>&</sup>lt;sup>7</sup> A related macro-argument is that population decline eventually will bring decline of idea-creation, as innovative ideas come from people, and the whole economy will slow growth. Jones (2022) makes this point for the entire world population.

Europe), Canada, Australia and, for comparison, Japan. Canada and Australia have been the advanced economies with largest immigration rates in the last 30 years. The annual growth rate of total population in each of the three decades 1990-2020 is decomposed into the part due to natives (birth minus deaths) shown in red, and the part due to foreigners (net immigration), in blue. The annual growth rate of population in OECD countries during these decades has been declining significantly. From an average of 1.1% growth per year in 1980, it declined to 0.3% per year in 2022.

Notice that, while declining in all the considered areas, at least in the last 2 decades, the growth rate of native population varies significantly across them. Some of the countries, such as Australia, Canada and (to a lesser extent) the US, have higher (if declining) rates of native population growth, ensuring growth in each decade by 6 to 8% in Canada and Australia and at least by 4% in the US. Others like EU-14 and Japan have had very small native population growth, which turned negative in the recent decades.



Figure 8 Growth rate of population due to native and immigrants Advanced economies, Decades, 1990-2020

**Note:** Author's Calculation from UN (2019) data, USA, Canada Australia, Japan, and EU(14), namely (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden). Y-axis: growth rate between periods of native population (in red) and foreing-born population (in blue) over initial population.

Three messages emerge from looking at the data in the five graphs of Figure 8. First, Canada, Australia and the US have had a much higher (if declining) growth rate of native population as well as a relatively high rate of population growth due to net immigration. Australian population grew by 7% in the 2010-2020 decade due to natives and an additional 8% because of immigrants. For Canada, these rates were +6.5% and +4%, and for the US +4.5% and +2%. Second and differently from this group, the growth rate of native population for EU-14 and for Japan has been much smaller in each decade and negative in the decade 2010-2020. In the demographic transition towards negative population growth and increase in the share of older people, Japan is in the more advanced phase, followed by Europe (within Europe countries like Greece, Portugal, Germany, and Italy already had negative population growth as of 2023) while US, Canada and Australia are not as extreme.

<sup>%</sup> Growth over initial population

Third, there is no general indication that, when the native population growth declined (which happened for all the areas considered except Canada where the growth has been stable over decades), immigrant growth increased or offset the decline in that country or group of countries. In Europe and Australia the growth of population due to immigrants increased offsetting some of the native population decline, but in the US both native and immigrant growth declined, and in Japan a declining native population was not accompanied by any increase in immigration that remained extremely low.

So overall neither in the time series correlation, nor in the cross-section correlation, for this small but important group of economies (and democracies) in the world, we see systematic evidence that lower (or declining) native population growth is associated with higher (or increasing) net growth of immigration.

In a slightly more general stylized fact, Panels A, B C of Figure 9, below, show three scatterplots, relating measures of aging or population growth as of year 2000 with the subsequent net immigration in the 2000-2020 period, across the 38 OECD countries, representing the more economically advanced economies in the world.



Note: Each observation is one of the 38 OECD countries; author's elaboration on UN (2019) data on Population, Stock of Migrants. Total Fertility Rate from UN (2010) World Fertility Data. ).

In all panels the variable on the vertical axis is net immigration 2000-2020, as share of the 2000 population which is a measure of the net inflow of immigrants and their contribution to the destination country population growth. Panel A shows on the horizontal axis the share of people aged 45-65 in 2000, a group which would be over 65 by 2020, and therefore predicts the size of the older population in 2020. Panel B shows the share of over 65 in 2000 as explanatory variable. Panel C shows the total fertility rate in 2000 on the horizontal axis. The three explanatory variables in these charts are measures of the current/predicted aging for each country as of 2000, and of natality as contributor to population growth. Countries with higher share of older people and with lower fertility in 2000, were expecting significant native labor force aging and shrinking during the 2000-2020 period. Those with low fertility rate were likely to experience native population slowdown or decline. In none of those cases, however, these indicators of aging (panel A,

and B) or of population decline (Panel C) have any predictive power on net immigration rates. The correlations (shown in the graphs) are quite precisely 0, and never statistically significant.

Interestingly, Figure 10 shows that even when considering labor markets (commuting zones) within the US, with full mobility of people (natives and foreign born) across them, the predictor of aging in 2000 (share of people 45-65) reported on the horizontal axis has actually a negative correlation with net inflow of foreign-born (Panel A, vertical axis) as well as natives (Panel B, vertical axis) between 2000 and 2020. Aging locations do not seem attract new people to fill the gap, neither internationally nor within the US.





**Note:** Authors' calculation on US American community Survey data, 2000-2020. Each unit is a commuting zone and the size of the bubble is proportional to its population in 2000. Panel A, vertical axis is the net change in foreign-born population between 2000 and 2019. Panel B vertical axis is the change in the US-born population 2000-2019.

Combining the evidence in Figure 8, 9 and 10 there is no prima facie association between aging and immigration, nor between low fertility and immigration across OECD countries in the post-2000 period, nor individual countries seem to suggest such correlation over time. In the US, a slower population growth in the 2000-2010 and 2010-2020 decades has actually been accompanied by a declining in net immigration. Internally, across commuting zones, areas of the US experiencing faster aging have attracted significantly fewer (rather than more) immigrants. In terms of policies, the US has not moved towards more open immigration policies in the last 20 years, neither in regulating its legal immigration nor in dealing with the issues of the US are present, the net outcome of economics and policies has been a net decline of immigrants. In Europe, however, in spite of significant political opposition, immigration in net has increased in the post-2000 era (relative to before). It is not clear however that the aging of the population had anything to do with it. Europe is already facing a reality where negative population growth is only prevented by the net inflow of immigrants.

# 6. Conclusions: Some Suggestions for Economically Beneficial and Politically Sustainable Immigration Policies

After having examined the economic effects of immigration on advanced economies as well as its potential political consequences and after having discussed the potential additional impact of immigrants in advanced aging societies, we like to conclude this article indicating some specific immigration policies, rooted in such analysis, that we see as economically beneficial for the immigrants and for the receiving communities, and politically sustainable in the long run. Rather than small incremental steps relative to the current immigration policies of specific countries, these bullet points should be considered as guiding principles/guidelines for an immigration policy that is rooted in research, reasonable and applicable to most advanced economies.

- a. Structure immigration policies around the principle that immigration is economically beneficial, especially when balanced between college and non-college educated immigrants and when immigrants can be readily integrated in the economy and labor markets. Plan for a reasonable number of immigrants each year, based on population growth and economic conditions, with a balanced composition between college and non-college entries. The equal number of college and non-college among immigrants will imply that immigration is more human-capital intensive than native population (as most advanced economies have less than 35% of college educated in their population), and the inflow of non-college educated workers will help manual/personal services experiencing shortages and will help reduce the pressure for illegal entry to do those jobs. Research results suggest that a balanced immigration will have a positive fiscal impact, a positive growth impact and will encourage the pro-immigration sentiment, reducing nationalist and populist backlash.
- b. A substantial part of the college-educated admission of immigrants should be achieved through student visas, allowing graduates to stay and work after obtaining the degree. College and post-graduate programs should be encouraged to expand the admission of foreign students, selected according to academic merit, and promise in the labor market. The government should offer to those who are selected for a job after graduation a temporary visa, transformable in permanent resident permit if employers are willing to sponsor the foreign workers after some years. This policy has the additional advantage of involving in the admission of foreigners, reputable universities that will select based on talent and academic promise. Additionally, the period of school attendance and completion will be a time for immigrants to integrate, improve language skills and acquire host-country specific skills. Finally, by paying tuition foreign students will contribute to host-country university revenues, which is an important source of university success.
- c. To allow the important and creative role of entrepreneurial start-ups, the same option to have a temporary visa and then permanent residence should be given to those graduate and post-graduate students who engage in a start-up or are founders of a firm. Conditional on the success of the start-up or their transition to another job these foreign-born graduates should then have access to permanent residence too.

- d. Important part of the non-college educated inflow of immigrants should be connected to new visas/permits for jobs in high demand and shortage related to the 'silver economy,' i.e., those activities demanded by older consumers. Some of these are jobs in home care, personal and elderly care, health care support, food-preparation, and security services. As advanced economies experience an increase in the share of older people, they will demand more of these personal services to continue living higher quality lives in their homes and with access to support. Immigrants can provide efficient, compassionate, and cost-effective services in these areas in which few young/educated natives in advanced countries will be willing to work. As these jobs imply close contact with families and the elderly it will be important to guarantee flexible arrangements, as well as proper screening of workers, which can be done much better in a competitive but regulated market open to significant numbers of immigrants.
- e. The governments should support information campaigns and educational opportunities to promote knowledge on facts and statistics about immigration among the public. Combining data and narratives from immigrants who integrated and continue to contribute economically and socially, while at the same time bring new culture, innovative ideas and different perspectives will help the public to understand their positive economic and social role in enriching the receiving country.
- f. In their economic briefings the president, central banks as well as international economic bodies, should regularly include immigration and its management as a crucial factor in the economic growth and success of countries and regional economies. In the long run the contribution of people and their abilities and human capital are much more important for economic growth and success than the flow of goods and capital and the management of monetary policy. Hence data on mobility of people and skills should be part of the economic planning and report of governments, as much as current accounts, investment and price levels are.

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