Immigrants now represent on average 10 percent of the labor-force of the OECD member countries, a figure that has more than doubled in the last twenty years (and tripled for the share of immigrants in the skilled labor force). What are the implications of this growing diversity for the economy? Economic theory (and common wisdom) tells us that diversity generates costs as it makes communication and cooperation more difficult but also benefits in terms of potential skill complementarity between workers from various backgrounds, especially if these interact in complex production structures.

The literature addressing these questions has until now focussed on ethnic and linguistic diversity, where it has been demonstrated that it has negative effects on economic performance and growth (Easterly and Levine, 1997, Alesina et al., 2003).

In a recent article, we revisit this question by approaching the angle of diversity in terms of birthplace. It should be said that this is very different from ethno-linguistic diversity, both statistically and conceptually. Statistically and in some ways counter-intuitive, the two have little correlation (the co-efficient of correlation is only 0.16). This could appear surprising but much of ethno-linguistic diversity (for example coloured/whites in the United States, Flemish/Walloons in Belgium, or ethnic Mosas in African countries) owes little to immigration. Conceptually, the two are equally very different. We take up again the arguments on the cost of communication, the lack of social cohesion or trust between people from different backgrounds, as well as the argument on the benefits linked to complementarity in the production processes.
and deriving from the fact that diverse individuals can contribute to increasing skills, knowledge, practices and ways of treating problems and reasoning available to a given set of workers. If the “cost” aspect seems to be applicable to one or the other form of diversity, the benefits linked to the potential complementarities appear all the more pertinent that individuals concerned have grown up in different cultural contexts, coming from different schooling systems, etc.

Otherwise put, it is expected that the potential productive complementarities arise rather for diversity linked to the birthplace than for that linked to ethnic origins, and even more so that we are dealing with educated individuals (holders of “qualifications” that may be complementary to those of natives) and that interactions occur in complex tasks, which combine numerous skills. In total, it is therefore expected that if the benefits of diversity must outweigh its costs, it will occur in most advanced economies, dominated by creative and innovative activities, and for the most skilled part of the labour force. These are the theoretical propositions that we have tried to empirically test by proceeding in three stages.

The first consists evidently to create a diversity indicator linked to birthplace for countries worldwide, which implies having immigration data (by country of birth and education level) for each of them. Surprisingly, some of such data has only become available recently, thanks to the enormous collection and harmonisation work provided by international organisations such as the OECD or the World Bank. Once these data were obtained (cf. Docquier et al., 2011), they allowed us to calculate a diversity indicator (known as the Herfindahl index, also used for ethno-linguistic diversity and well-known in industrial organization as a sectorial (de)concentration indicator). In the context of birthplace diversity, the index in fact reflects the probability that two individuals drawn at random in a given country would have the same country of birth. This index was then subjected to a statistical breakdown between what can be called an extensive margin, the proportion of the population born abroad (or the size of immigration), and an intensive margin capturing the diversity of the immigrant population (or immigration diversity).

The second stage consists of inserting these immigration size and diversity indicators in explanatory regressions in levels of economic prosperity. This draws an empirical model of this type:

\[
\ln y_{k,t} = \alpha + \beta_1 \cdot \text{migrant diversity}_{s,k,t} + \beta_2 \cdot \text{proportion of immigration}_{k,t} + \beta_3 \cdot \text{origin effects}_{k,t} + \beta_4 \cdot \text{human capital}_{k,t} + \beta_5 \cdot \text{market size}_{k,t} + \beta_6 \cdot \Gamma_{k,t} + \beta_7 \cdot \Delta_{k,t} + \beta_8 \cdot \Phi_{k,t} + \beta_9 \cdot \Psi_{k,t} + \eta_t + \varepsilon
\]

where \( y_{k,t} \) is the level of life or productivity (typically, the GDP per capita or the total factor productivity per capita) for host country \( k \) at date \( t \) (our regressions use data for the years 1990 and 2000), the size and diversity of immigration in the population of working age are measured for levels of qualification \( s \) (which can be above or below college), the origin effects give us the weighted average of income or productivity levels in the countries where migrants come from, and \( \Gamma, \Delta, \Phi \) and \( \Psi \) are groups of control variables capturing the characteristics of the host countries in terms of geography (surface, latitude, etc.), commercial links (trade openness and diversity), institutional quality and other dimensions (e.g., linguistic, ethnic and genetic) diversity. Finally, \( \eta_t \) is a time fixed-effect capturing the economic cycle for the world economy and \( \varepsilon \), an error term or residue. The coefficient \( \beta_1 \) - which is our main coefficient of interest –, therefore, gives us the effect of immigration diversity on income or productivity levels in the countries where migrants come from, and \( \Gamma, \Delta, \Phi \) and \( \Psi \) are groups of control variables capturing the characteristics of the host countries in terms of geography (surface, latitude, etc.), commercial links (trade openness and diversity), institutional quality and other dimensions (e.g., linguistic, ethnic and genetic) diversity. Finally, \( \eta_t \) is a time fixed-effect capturing the economic cycle for the world economy and \( \varepsilon \), an error term or residue. The coefficient \( \beta_1 \) - which is our main coefficient of interest –, therefore, gives us the effect of immigration diversity on income or productivity levels in the countries where migrants come from, and \( \Gamma, \Delta, \Phi \) and \( \Psi \) are groups of control variables capturing the characteristics of the host countries in terms of geography (surface, latitude, etc.), commercial links (trade openness and diversity), institutional quality and other dimensions (e.g., linguistic, ethnic and genetic) diversity. Finally, \( \eta_t \) is a time fixed-effect capturing the economic cycle for the world economy and
scribed controls. The game is then to test the sensibility of the results to changes in specifications by which we introduce or remove certain variables, modify the definition of other variables, proceed with various sub-samples of countries, etc., in order to be able to focus on the “robust” results, those which resist the changes in specifications and to which more credit is therefore given.

The main robust result that emerges from our analyses is that of a positive, statistically and economically significant effect of the diversity of skilled immigration on the income and productivity levels of the richer countries (the richest and most productive half of the sample). It is precisely what was expected based on the theoretical discussions above on the balance between the costs and benefits of diversity.

The question then posed, which is the focus of our third stage, is whether the positive link between diversity of skilled immigration and income and productivity levels in rich countries may receive a “casual” interpretation. Indeed, one can well imagine that the positive correlation highlighted is due to an inverse causality, namely the fact that the most advanced economies simply attract more migrants (which is known) and migrants from more diverse backgrounds (which is less). Moreover, it can also be imagined that economic prosperity and immigration diversity do not have direct links with each other, but in reality they are jointly determined by a third, “omitted” variable in the sense that it is not measurable, or that we simply did not think about and therefore did not include in our regressions. This could be, for example, in our case, the multidimensional ability that a country can have to taking advantage of economic globalisation. To avoid such pitfalls, economists resort to techniques known as instrumental variables techniques, which involve predicting variables of interest – the size and diversity of immigration in our case – by variables that do not otherwise have an influence on the variables explained – income and productivity levels.

The solution we adopted, following a long tradition, is to use a gravity model allowing the prediction of bilateral migration flows from exogenous variables (mainly bilateral geographic variables such as distance, the existence of a common border, etc.). Based on these predicted bilateral flows, we can construct for each country an indicator of predicted diversity and substitute it for the diversity observed in our empirical model. The results obtained according to this method are very similar to those obtained in the simple regressions, which confirms our idea that skilled immigration diversity does have a positive impact on income and productivity levels of advanced economies and our interpretation is that this positive impact is due to the complementarities between individuals coming from diverse backgrounds in their productive interactions.

These results potentially have many important implications for economic policy and, in the first instance, in terms of migration policy. Until now, in fact, immigration policies have focused on the quantity (how many visas to issue?) and the quality (should more highly skilled and educated individuals be favoured?) dimensions of immigration policy, but neglected the diversity dimension. The only exception, to our knowledge, is the famous “green card lottery” in the USA, for which the official name – few people know – is in fact “diversity lottery” and which distributes annually around a hundred thousand visas with the proclaimed objective of increasing the diversity of the American population; the lottery is actually organised to favour candidates coming from under-represented countries in past immigration towards the USA. The second implication for immigration policy is that we see vicious and virtuous circles emerge between quantity, quality and diversity of immigration. Knowing that more skilled and more diverse immigration is not only economically more profitable, but equally better accepted and even supported by public opinion, it does not take much to imagine a world that could be more open, more prosperous and more diverse.
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The opposite scenario combines weak, unskilled and poorly diversified immigration where each aspect reinforces the other. Countries such as Australia, Canada and the USA would seem to illustrate the virtuous regime quite well. In contrast, we must unfortunately note that most European countries are currently stuck in a low-quantity, low-quality and low-diversity immigration trap.

Endnotes

1 This policy brief summarizes a recent research paper co-authored with Alberto Alesina (Harvard University) and Johann Harnoss (EQUIPPE, University of Lille). See Alesina, Harnoss and Rapoport (2013).

2 Our approach is inspired by the work of the labor economist Giovanni Peri, which is set in US cities and states (see Ottaviano and Peri, 2006, and Peri, 2012). Similarly, there is “micro” literature, deriving primarily from management, which is concerned with the effects of diversity on productivity of firms or teams with results that are in line with our own.

References


