





Far from being exclusively a labor supply shock, immigration may affect the economic performance of receiving countries in many ways. It may reduce the information frictions for exporting/importing and facilitate the exchange of knowledge from abroad. Moreover, immigration from a diverse set of origins may increases the diversity of the workforce at destination. The interaction between these channels can significantly raise productivity levels, and hence the export performances of countries, especially in sectors where immigrants bring valuable expertise from their home countries and/or where the diversity of workers' ability constitutes an asset.

How do immigrants promote exports? Three channels are at work. Traditionally, the positive correlation between immigration and export performance has been viewed through the lens of business and social network effects (i.e. transaction cost channel) as outlined by Rauch (1999) and Rauch & Trindade (2002). Moreover, immigrants bring from their home country's some essential knowledge that can be used at destination to improve the country's international competitiveness (i.e. knowledge diffusion channel) as recently shown by Bahar & Rapoport (2018) and

Baharetal. (2022). Additionally, recent studies have identified a positive effect of workforce diversity - via immigration on productivity (Alesina et al., 2016). People from different origin countries bring different skills, cultures, value systems, and problem-solving abilities to their destination countries. These factors enrich the host country with a wide range of skills and problem-solving capabilities, thereby enhancing the host country's productivity. This may drive to improved international competitiveness andhenceexportperformances receiving countries of (i.e. diversity channel).

In a recent paper by Orefice, Rapoport & Santoni (2024), we propose a unified empirical framework to disentangle the relative contribution of each of the three channels highlighted above: (i) the influence migration networks of in mitigating bilateral transaction costs, (ii) the spillover effects of migration-induced knowledge diffusion, and (iii) the impact of increased labor force diversity.<sup>1</sup> While we find evidence supporting all three channels, our framework allows to gauge on their relative importance. Interestingly, we find that the relative importance of the three channels depends on

<sup>1</sup>We rely on data on bilateral (origin-destination) migration stocks for 195 countries for the years 1990, 1995, 2000, 2005, 2010 and 2015.



the margin of trade (intensive vs extensive) and the type of exporting country considered. In line with theoretical intuition, when focusing on diversity, we find stronger results in sectors characterized by more complex production processes where the diversity of the workforce is an asset and affects the country's structure of comparative advantage (Maggi & Grossman, 2000; Bombardini, Gallipoli & Pupato, 2014). Indeed, the effect of birthplace diversity is expected to be particularly beneficial for sectors characterized submodular production by functions. where a more dispersed distribution of

worker types is an asset and determines the comparative advantage of the country. People from different countries have different problem-solving capabilities, and this may improve the efficiency of the production process (and the overall performance of the firm) in sectors characterized submodular production bv functions. Sectors that rely more heavily on problem-solving skills will benefit relatively more from the greater dispersion in the distribution of skills and abilities that diversity entails. Our results are robust to the use of a theoretically grounded IV approach that combines three variants of the shift-share

methodology.

find evidence Overall, we supporting all three channels (networks, knowledge diffusion, and diversity) at both the intensive and the extensive margins of trade. А one standard deviation increases in bilateral migration (i.e., networks), in knowledge diffusion, and in birthplace diversity, respectively imply a 12%, 11% and 15% of a standard deviation increase in the probability of exporting; and a 29%, 15% and 11% of a standard deviation increase in the volume of exports (Figure 1).



Figure 1.

Note: The figure shows the point estimates and confidence intervals of estimated 2SLS coefficients of the regression on the volume of bilateral trade.



A key aspect of our findings is the emphasis on the role of immigrant diversity, which suggests a significant impact of birthplace diversity on export especially performance, in sectors that require complex production processes and intensive teamwork. However, although the effect of birthplace is on average positive for the export performances of

countries, it may be that the presence of too many culturally distant immigrant communities in the destination country leads to high coordination costs in production, generating a nonlinear relationship between diversity and exports. *Figure* 2 shows the OLS estimates of birthplace diversity on exports by quintile in the degree of language dissimilarity between the destination and the set of origins. We find that the effect of birthplace diversity on exports is non-linear and decreases when the language dissimilarity between the set of origins and the destination is very high, i.e. where the very large diversity in the origins of migrant workers may imply a coordination problem in production.

Figure 2. Non-linear relationship between exports and birthplace diversity



Note: The figure shows the point estimates and confidence intervals of the estimated OLS coefficients of the regression on the volume of bilateral trade. The left panel reports the baseline coefficient of birthplace diversity, while the right panel shows the heterogeneous effects across quintiles of (increasing) language dissimilarity.



In line with the theoretical intuition on why birthplace diversity may increase the productivity of firms and local labor markets (i.e. dispersion of skills and problemsolving capabilities in sectors characterized by submodular production function – see Grossman & Maggi, 2020), we show that the positive effect of birthplace diversity on export is magnified for complex and problem-solving intensive

sectors as revealed by their abstract and cognitive intensive tasks (*Figure 3*). These sectors benefit from the availability of a more dispersed distribution of workers problem-solving capabilities and export more.





Note: Each point in the graph represents the estimated coefficient of the interaction between birthplace diversity and a variable for the type of industry. Each regression is run separately, controlling for migration stock and knowledge diffusion. The regressions are run at the country-by-year level. Abstract intensity is a variable indicating the intensity of complex and abstract tasks required in the sector (source: Autor & Dorn, 2013). The job complexity variable measures the number of annual training hours (source: Costinot, 2009). The knowledge intensity index captures the tacit knowledge intensity of an economic activity based on the average (accumulated) experience and education of the workforce in an industry (source: Bahar, 2020). Each variable is standardized, and the coefficient indicates the incremental effect of a diverse workforce in industries within one standard deviation of the average.

Finally, in Orefice, Rapoport & Santoni (2024)we uncover interesting country heterogeneity in how immigration affect exports via knowledge diffusion and birthplace diversity. First. one would expect birthplace diversity to be particularly effective for high-income exporting countries, since

they are more likely to have the human capital needed to produce in complex and problem-solving intensive sectors. Consistent with this intuition, we show that the effect of birthplace diversity on exports is stronger for highincome countries. Actually, birthplace diversity has a positive effect on exports only in high-income exporting countries. In contrast, knowledge spillovers should, intuitively, flow mostly from high-income countries to lowincome countries, and from knowledge-intensive countries to developing countries. This is indeed what our results suggest (Figure 4).



Figure 4. Results by countries' income level



Note: Each point in the graph represents the estimated coefficient of knowledge diffusion and birthplace diversity, as well as their interaction term with an indicator variable for country income level. The regressions are run at the country-by-year level.

Immigration affects host economies in many ways. It makes them more diverse workers abilities in and skills, more connected to the rest of the world, and more permeable to knowledge from abroad. Thus, especially in sectors where immigrants bring valuable knowledge from their home countries or where diversity is a key determinant of productivity, immigration has the potential to make host countries more productive. Overall, migration-induced productivity shifts materialize in the form of better export performance, combined with transaction costs lower generated by the network of ties between immigrants and their home countries.

These findings have several implications for designing immigration and trade policies. Moreover, the results suggest that immigration can complement trade policy. differential The impact of immigration across sectors calls for targeted policies, especially in sectors that rely more on problem-solving teamworking and tasks, and on sectors that could benefit potentially more from the knowledge brought by immigrants. Given the growing importance of these sectors in both developed and developing countries, it is reasonable to expect that immigration will become an even more important strategic determinant of countries'

comparative advantage and overall economic performance in the near future. A promising way for countries to develop comprehensive strategies that enhance both their export performance and the benefits of their immigration policies is to look at the synergies between a diverse immigrant workforce and specific sectors of the economy.



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