Revisiting the Trade-Migration Nexus: Evidence from New OECD Data

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Summary. — International migrants contribute to bilateral trade creation if their presence reduces information costs or entails additional demand for goods from their source countries. Using new data on stocks of foreign-born individuals by skill class, we try to separately quantify those two channels. We assume that improved information affects host countries' imports and exports symmetrically, while the preference channel matters for imports only. On average, for differentiated goods, both channels contribute evenly toward the total trade-creating effect of migration. In line with expectations, the relative importance of the trade cost channel is largest for homogeneous goods and for high-skilled migrants.
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1. INTRODUCTION

The recent literature on international migration has shown that it can be beneficial for source countries. In particular, Mountford (1997), Stark and Wang (2002) and more recently Beine, Docquier, and Rapoport (2001), Beine, Docquier, & Rapoport (2008) have shown that international migration of skilled workers increases the incentive of governments in source countries to raise education investments, and can therefore be beneficial to these countries. Skilled migrants can also enhance their source countries' development because they increase bilateral trade. A growing body of economic literature discusses the trade-creating role of international migration.

The presence of migrants can promote trade between their source and their host countries in at least two ways. First, they might help overcome informal barriers to international trade related to language, culture, or institutions, they may facilitate the creation of business relationships, and they may make valuable information on foreign sales and sourcing opportunities more readily available (Combes, Lafourcade, & Mayer, 2005; Dunlevy, 2006; Felbermayr & Jung, 2009; Felbermayr, Jung, & Toubal, 2010; Herander & Saavedra, 2005; Rauch & Trindade, 2002). Second, migrants boost trade if they derive higher utility from goods produced in their host countries (Girma & Yu, 2000; Gould, 1994; Head & Ries, 1998; Wagner, Head, & Ries, 2002). We refer to the first channel as the trade-cost and to the second channel as the preference channel. Quantifying the relative importance of these mechanisms is important, since trade creation due to the alleviation of informational frictions constitutes a source of welfare gains for the host and source country. If trade is higher due to specific features of preferences, the endogeneity of the welfare criterion renders traditional welfare analysis impossible.

The literature on the trade-migration nexus has made increasing use of the gravity model of bilateral international trade. We follow the recent contribution by Combes *et al.*, (2005) and introduce a bilateral affinity parameter into the usual Dixit–Stiglitz utility function of the representative household. That parameter may depend on bilateral ethnic ties, thereby capturing the preference channel described above. We also allow bilateral trade costs to depend on migration; this is meant to account for the information channel described above.

This paper proposes an identification strategy to discriminate between both channels. Empirically, we distinguish between the information and preference channels by making the following identification assumption: Improved information affects host countries' imports and exports *symmetrically*, while the preference channel matters for imports only. This is clearly a strong assumption; however, it receives support on conceptual grounds as well as through a number of robustness checks.

We use recently available data on the stocks of individuals born in some OECD country and residing in another. Compared to other cross-country data sets, this data has the virtue that it involves (almost) all OECD countries, so that the effects of immigrants and emigrants on bilateral trade can be studied simultaneously. The data provides the number of foreign-born individuals rather than of persons with foreign nationality: migration stocks are directly comparable across countries since the definition of a migrant does not depend on idiosyncratic characteristics of national naturalization practices (*ius solis versus ius sanguis*). Finally, and rather uniquely, the data distinguishes between different skill classes. This allows to check the widely held belief that the importance of the infor-

mation channel relative to the preference channel varies systematically across skill groups. The rich structure of the data therefore provides ways to externally validate our identification assumptions. The data provides stocks rather than flows. It would be convenient to augment the analysis by using repeated cross-sections in order to compute flows, e.g., over 10-year periods. Such data is, however, not available, at least not with the required educational breakdown.

Our estimation results suggest that migrants have a positive, statistically and economically significant impact on imports. With aggregate trade, and using information on the total stocks of migrants, we find that the preference effect of migration on bilateral trade amounts to up to 63% of the total effect. This finding qualifies the intuition provided in earlier papers. [1] Running separate regressions for Rauch (1999) sub-aggregates of goods, we find that the trade cost effect is about three times larger with differentiated than with homogeneous goods. This confirms the hypothesis of Rauch and Trindade (2002) that migrants convey trade-relevant information on differentiated goods that are not already captured by the price system. Moreover, we find that the information channel dominates the total effect of high-skilled migrants on imports, leaving no statistically significant role for the preference channel. The finding is in line with the argument that high-skilled migrants are more likely to possess information that is relevant for international transactions, while their attachment to source country varieties is not strong.

Overall, this paper makes the following contributions. First, it makes a systematic attempt to disentangle the channels through which migrants affect trade. Several authors have discussed both channels, but the literature does not hold any quantification of their relative importance. We propose a simple novel identification strategy that allows to disentangle the preference and the network effect of migration on trade. Second, we use new data that has not been explored in the present context yet. More precisely, we exploit information on the skill structure of migrants, and make separate inference for homogeneous and differentiated goods.

The paper is structured as follows. In Section 2, we derive the theoretical framework. In Section 3, we present the econometric specification, the methodology, and the data. In Section 4, we present the econometric results. We conclude in Section 5.

2. THEORETICAL FRAMEWORK

In this section, we briefly sketch the theoretical foundations of a partial equilibrium gravity equation that allows for the preference and the trade cost channels of migration. We follow Combes et al. (2005) and assume that the representative agent in country i has a Dixit–Stiglitz utility function defined over domestic and imported varieties

$$U_i = \sum_{j=1}^{N} \sum_{h=1}^{n_j} (a_{ij} x_{ijh})^{\frac{\sigma-1}{\sigma}}, \quad \sigma > 1, \qquad (1)$$

where x_{ijh} denotes consumption of a generic variety h produced in country j. N is the number of countries, n_j is the mass of varieties produced in country j, and σ denotes the elasticity of substitution. The only modification relative to the standard specification is the inclusion of a bilateral affinity term σ_{ij} which describes the preference of the representative consumer in country i for country j's products. Maximizing (1) subject to an appropriate budget constraint yields an expression for country i's value of import demand for goods from country j

$$c_{ij} = a_{ij}^{\sigma-1} T_{ij}^{1-\sigma} n_j p_j^{1-\sigma} E_i P_i^{\sigma-1}, \qquad (2)$$

where p_j is the mill price of a variety produced in country j and is assumed identical over varieties. $T_{ij} > 1$ is an *ad valorem* iceberg-type trade cost between country i and country j. Thus, c.i.f. prices are given by $p_{ij} = T_{ij}p_j$. The aggregate price level in country i is given by $P_i = \left(\sum_j a_{ij}^{\sigma-1} n_j p_{ij}^{1-\sigma} \right)^{\frac{1}{1-\sigma}}$ while aggregate expenditure is given by E_i. [2]

There are two channels through which migrants might increase imports. First, the foreign-born population from country j in country i as well as the foreign-born population from country i in country j may provide information on trading opportunities between the two countries. Immigrants are familiar with the foreign country's language and culture, and have knowledge on both countries commercial, legal, and political institutions. In that way, migrants lower trade costs and enhance bilateral trade (most likely both exports and imports). Second, the foreign-born population from country j in country i may have a special preference for varieties from their country of origin, which—*ceteris paribus*—also creates trade.

We assume that *ad valorem* trade costs T_{ij} depends on traditional factors such as transportation and transaction costs and variables describing the stance of trade policy. The gravity literature discusses the different ways to measure the former variables, usually using geographical distance, a dummy for a common border (adjacency), a dummy for the use of a common language, a dummy for joint membership in a free trade agreement (FTA) or in the World Trade Organization (WTO). Following Combes et al. (2005) we posit that T_{ij} also depends on the stock of information available in countries i and j about business conditions in countries j and i.

To be more precise, we write information costs related to transactions between countries i and j as $I(m_{ij}, m_{ji})$. We postulate that these costs depend on the share of individuals born in country j in the total population of country i, m_{ij} and on the share of individuals born in country i in the total population of country j Leaving the functional form of $I(m_{ij}, m_{ji})$ open for the time being, it is reasonable to assume that $I(\cdot, \cdot)$ decreases in the shares of immigrants m_{ij} and emigrants m_{ji} This specification has the plausible implication that information costs do not depend on the size of the two economies that form a trade relationship. In other words, the information-related tariff equivalent is invariant to a proportional increase in countries' total and foreign-born populations. [3] Our specification is in line with the idea that the pro-trade effects of migrants' networks are larger the higher the probability to meet a migrant coming from a partner country.

Similarly, we assume that the bilateral affinity parameter in the utility function depends on the share of immigrants rather than the absolute sizes of immigrants' and emigrants' populations. Since we work with a representative agent framework, a higher share of foreign-born individuals in the population means that preferences are more strongly tilted toward the host country of those individuals:

$$a_{ij} = e^{\overline{\alpha} m_{ij}}, \quad \overline{\alpha} > 0. \qquad (3)$$

The formulation implies that there is no systematic bias for imports from any country unless there is a strictly positive stock of foreign-born individuals from that country residing in country i. This captures the home market bias that immigrants may have; it is also consistent with the idea that the presence of immigrants in some country may by its own tilt the preferences of natives toward goods typically consumed by those immigrants. Similar to Combes et al., this formulation disallows for a special preference for varieties produced in countries with a stock of expatriates. [4]