

# QUANTIFYING THE ROLE OF MIGRATION IN SUSTAINABLE DEVELOPMENT

- A CASE STUDY OF THE MIGRATION-TRADE  
NEXUS IN CENTRAL, NORTH AMERICA  
AND THE CARIBBEAN

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AUTHOR: Violetta Kuzmova-Anand

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PUBLISHERS: International Organization for Migration (IOM) Regional Office  
for Central America, North America and the Caribbean Sabana  
Business Center, Boulevard Ernesto Rohrmoser  
San José Costa Rica  
Telephone: +(506) 2212-5300  
email: [rosanjose@iom.int](mailto:rosanjose@iom.int)  
Website: [www.rosanjose.iom.int](http://www.rosanjose.iom.int)

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# I. INTRODUCTION

In the context of the Sustainable Development Goals (SDG) Summit 2023, the IOM Regional Office for Central, North America and the Caribbean produced a data analysis on the quantitative link between migration and the SDGs. In line with the focus in the High-Level Political Forum (HLPF) 2023<sup>1</sup> as well as the IOM priorities for the SDG Summit 2023<sup>2</sup>, this analysis sheds light on the nexus between migration and international trade, particularly highlighting the importance of migration for SDG 17 (target 17.11).

The IOM Flagship Report <sup>2023</sup> highlights trade and suggests “leverage[ing]... diaspora contributions to boost sustainable development finance, trade systems and global value chains” directly identifying the link between migration and trade under accelerating action<sup>2</sup>. Rising exports are also positively interlinked with GDP growth<sup>3</sup> (SDG target 8.1), FDI growth<sup>4</sup> (SDG target 10.b) and higher productivity<sup>5</sup> (SDG target 8.2).

Migration cannot be viewed in isolation from other sustainable development policies. The complex set of interdependencies with factors such as trade, GDP growth and investment requires a holistic approach to migration and trade policy that takes these into account. Policymakers require robust data and analysis on the linkages between migration and SDGs to be able design holistic and sustainable evidence-based migration policies. This analysis aims to close part of the gap in understanding the link between migration and trade in the context of the Central, North America and the Caribbean region.

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1 See IOM Flagship Report 2023.

2 See IOM Flagship Report 2023.

3 See Irwin and Terviö (2002).

4 See Javorcik et al. (2011).

5 See Ortega and Peri (2014).



## II. THE CONNECTION BETWEEN MIGRATION AND TRADE

Migration plays a crucial role in international trade and especially exports under SDG 17 and target 17.11 which urges to “significantly increase the exports of developing countries”. Existing research shows that migrants can establish new business and trading networks between origin, transit and destination countries and reduce trade costs, thereby boosting international trade in destination (Felbermayr and Toubal, 2012; Ortega and Peri, 2014; OECD, 2022) as well as origin countries (Bahar et al., 2019). New trading links can be particularly beneficial for trading partners with weaker institutions as these are often viewed as having higher transaction costs of trade (Javorcik et al., 2011). Over time, these links established through immigration can further attract foreign direct investment (FDI) flows between host and home countries, in turn further bolstering trade.

Migrants also spur demand in goods and services (Felbermayr and Toubal, 2012) and strengthen value chains, while increasing competitiveness of host countries’ products (Irwin and Terviö, 2002). While migrants overall complement skills in the labor market of their host countries (IOM, 2019), high-skilled migrants are associated with larger increases in exports (Bahar and Rapoport, 2018; Bahar et al., 2019). As migrants add to the skill diversity of their host economy (Ortega and Peri, 2014; Bahar and Rapoport, 2018), they are agents for private sector development and innovation supporting SDGs 8 and 9 (IOM, 2022).

As migrants diversify the types of traded products, they contribute to trade diversification. Not only do export volumes increase with the presence of migrants, but also product quality and diversity improves (Grossman and Maggi, 2000; Peri and Requena-Silvente, 2010; OECD, 2022). This further raises the value added derived from exports, raises competitiveness and economic growth.

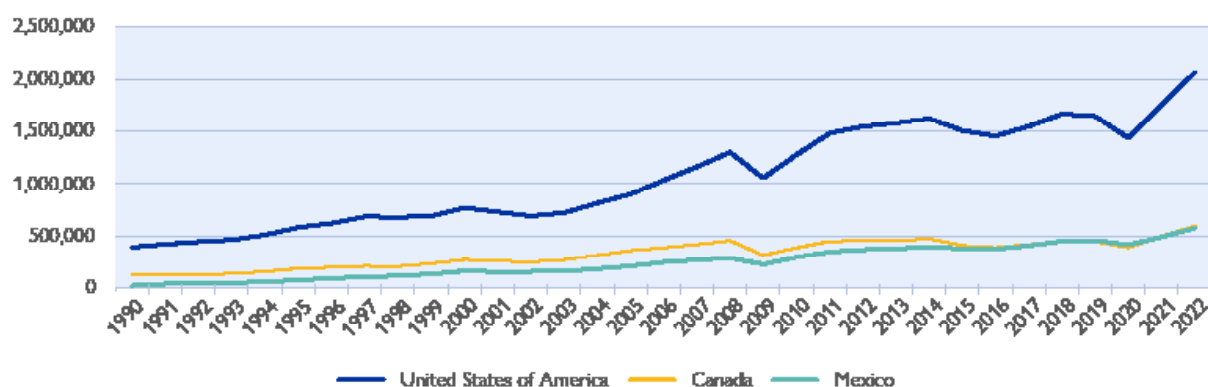
# III. REGIONAL TRENDS IN MIGRATION AND INTERNATIONAL TRADE

The following graphs show a time series trend for export flows expressed in million USD over the time period 1990-2022, where available, taken from the IMF Direction of Trade Statistics (DOTS) as well as migrant stock for every five years in the time period 1990-2020 taken from UN DESA International Migrant Stock 2020 database. Both sets of graphs, for exports and migrant stock, are subdivided by the three subregions North America, Central America and the Caribbean for better comparability.

## 3.1 REGIONAL TRENDS IN INTERNATIONAL TRADE

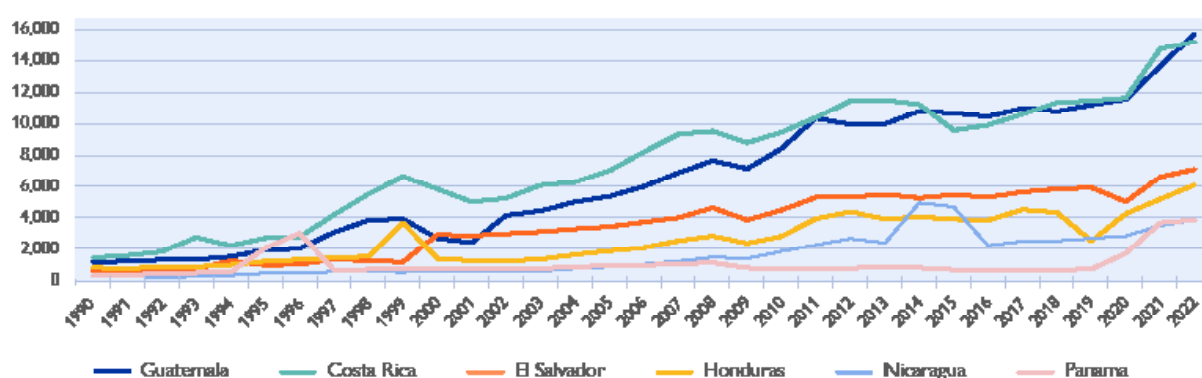
The subregion North America<sup>3</sup>, which includes the United States of America, Canada and Mexico, shows the highest global export flows in million USD in the whole region. The United States has seen high growth in exports to countries globally in the last two decades, rising from 723 billion USD in 2003 to over 2 trillion USD in 2022. Export flows in the US show sharp declines for two years – 2009 and 2020 – coinciding with the financial and Covid19 crisis respectively. International exports in Canada and Mexico have risen more proportionally than in the US over the whole time period and are almost at the same level in 2022 – Canada leading with 596 billion USD and Mexico only slightly trailing behind with 577 billion USD. The two dips in US export volumes can also be seen in Canada and Mexico, although Canada experienced a comparatively stronger decline in exports in 2009 than the other two countries.

Graph 1: World export flows in million USD over time from migrant destination countries in the North America region



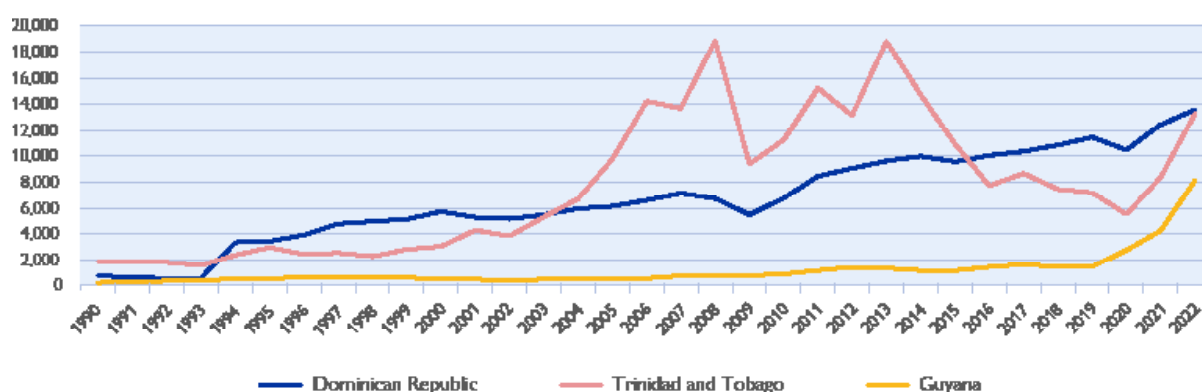
In Central America, Guatemala and Costa Rica have shown the highest levels and growth in exports since 2002. Both countries have similarly high export levels of 15.6 billion USD and 15.1 billion USD respectively. El Salvador, Honduras, Nicaragua and Panama, in that order, are trailing behind at lower export levels ranging from 7.1 billion USD to 3.8 billion USD in 2022. All countries saw a slight dip in exports in the context of the financial crisis in 2009 and, with the exception of Nicaragua, a sharp increase in exports since 2020. Nicaragua, in turn, saw their international exports double in 2013 from 2.4 to 4.9 billion, but also dropping to similar levels again in 2016.

Graph 2: World export flows in mln USD over time from migrant destination countries in Central America



In the Caribbean subregion, Dominican Republic, Trinidad and Tobago and Guyana<sup>7</sup> show the highest export levels in 2022 with 13.5 billion USD, 13.2 billion USD and 8.1 billion USD respectively. International exports in the Dominican Republic have mostly grown steadily from 1993 until 2022, with the exception of financial crisis year 2009 and Covid19 year 2020. In contrast, Trinidad and Tobago's export path has been marked by sharp increases and drops: a tremendously high growth between 2002 and 2008, then a sharp decline in crisis year 2009, again a steep rise to 2002-level exports in 2013 and a sharp decline until 2020. The country has again shown a high increase in exports since Covid19 year 2020. Lastly, Guyana was on a very gradual path of increase in international exports from 1990 up to 2019 after which international exports have shown higher growth.

Graph 3: World export flows in mln USD over time from migrant destination countries in the Caribbean region<sup>8</sup>





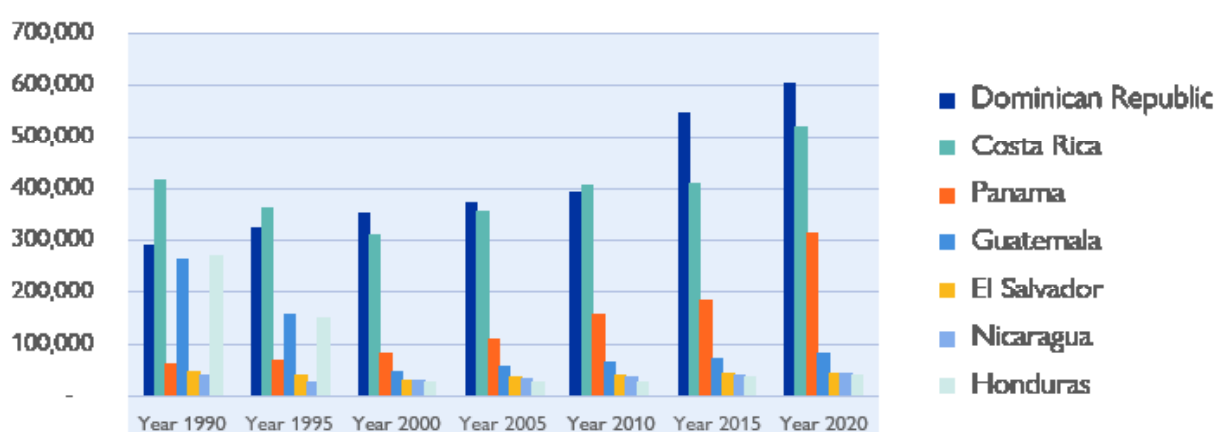


Graph 5: Migrant stock from all origins in the United States, 1990-2020



Migrant stock trends in Central America<sup>15</sup>, which for comparability includes the Dominican Republic, show a different trajectory compared to North American countries. While the migrant population has grown for the Dominican Republic and Panama, the other countries have seen fluctuations and also declines in their migrant stock over the time period 1990 to 2020. The Dominican Republic and Costa Rica show the highest levels of migrant stock in 2020, with 603,000 and 520,000 respectively. In addition, Costa Rica saw migrant stock drop between 1990 and 2000, but then again increase since 2000. Panama has medium-high levels with 313,000 migrants residing in the country in 2020. In the same year, Guatemala, El Salvador, Nicaragua and Honduras, in that order, show the lowest levels of migrant stock ranging between 84,000 (in Guatemala) and 39,000 (Honduras), with these two countries having experienced a large decline in migrant stock between 1990 and 2020.

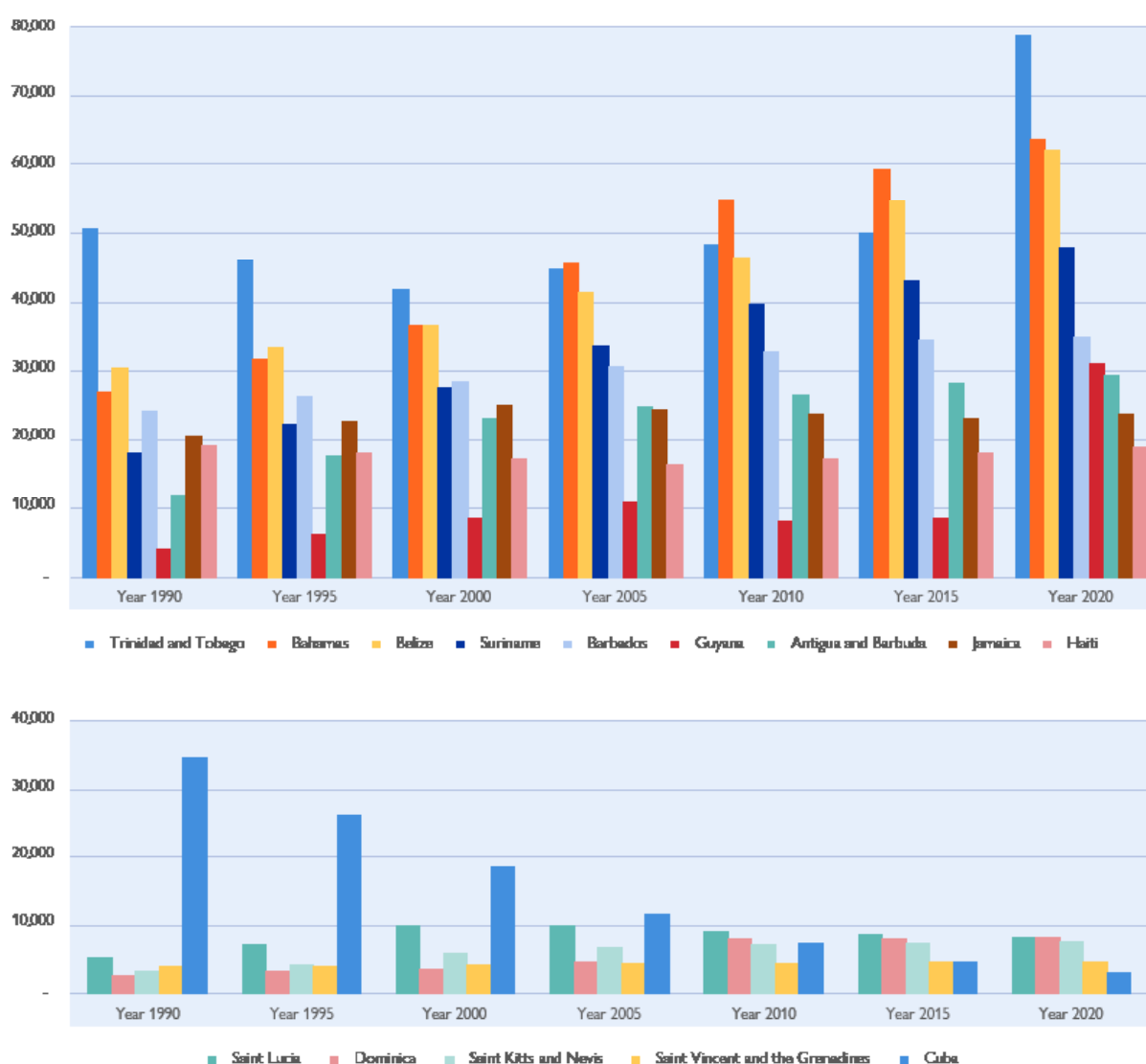
Graph 6: Migrant stock from all origins across destination countries in Central America (incl. DR), 1990-2020.



In the Caribbean region<sup>17</sup>, migrant stock from all origins has been growing since 1990 up to 2020 for half of the countries, while in Trinidad and Tobago, Guyana, Jamaica and Saint Lucia migrant stock levels fluctuated and continuously declined in Cuba. Apart from the Dominican Republic, the country with the highest stock of migrants in the region (shown in the Graph 7 for comparability), Trinidad and Tobago exhibit the second-highest levels of migrant stock with 78,800 in 2020. Although migrant levels declined in the beginning of the time period between

1990 and 2000, they have continuously risen since then. The Bahamas, Belize and Suriname show slightly lower but still high and similar levels of migrant stock ranging from approximately 63,500 to 47,800 migrants in 2020. Countries with medium-high migrant stock levels in the same year include Barbados, Guyana, Antigua and Barbuda, Jamaica and Haiti ranging from approximately 34,800 to 18,800 in 2020. At the bottom of distribution in migrant stock in the region, levels for Saint Lucia, Dominica, Saint Kitts and Nevis, Saint Vincent and the Grenadines and Cuba are ranging between approximately 8,300 and 3,000 in 2020.

Graph 7: Migrant stock from all origins across destination countries in the Caribbean, 1990-2020.





## IV. DATA ANALYSIS

### A. DATA SOURCES AND ESTIMATION METHODOLOGY

In order to quantify the link between migration and trade, a cross-country statistical analysis for the Central, North America and the Caribbean region was implemented. The data in this analysis is gathered from the following sources: the CEPII Gravity Database, IMF Direction of Trade Statistics (DOTS)<sup>7</sup>.

The CEPII Gravity Database takes data from original data sources, such as the IMF DOTS, World Bank World Development Indicators, CEPII's GeoDist dataset, WTO Regional Trade Agreements Database. It contains data for years between 1948 to 2022 and 252 countries and provides information for a large set of outcome and control variables, including trade flows (the outcome variable) as well as geographic, cultural, trade facilitation controls and macroeconomic variables, including GDP and population numbers. This data is harmonized and available at the level of exporter / migrant destination country, importer / migrant origin country and year, i.e. each observation corresponds to a combination of “destination-origin-year”<sup>8</sup>. This dataset is then merged with migrant stock data taken from the UN DESA International Migrant stock 2020 database also available at the destination-origin-year level and for seven years at five-year intervals between 1990-2020<sup>9</sup>.

For the regression estimations, the main sample includes 6,686 panel observations at the level of destination-origin-country-pairs for 24 migrant destination countries<sup>10</sup> in the Central, North America and the Caribbean region and seven years at five-year intervals between 1990-2020.

This analysis uses a standard economic model, the extended gravity model of international trade<sup>11</sup>, as a theoretical basis to establish the link between a rise in migrant stock in a destination country

<sup>7</sup> UN DESA International Migrant stock 2020.

<sup>8</sup> Also referred to as dyads. Note that destination and origin country refer to the country of destination and origin of migrants.

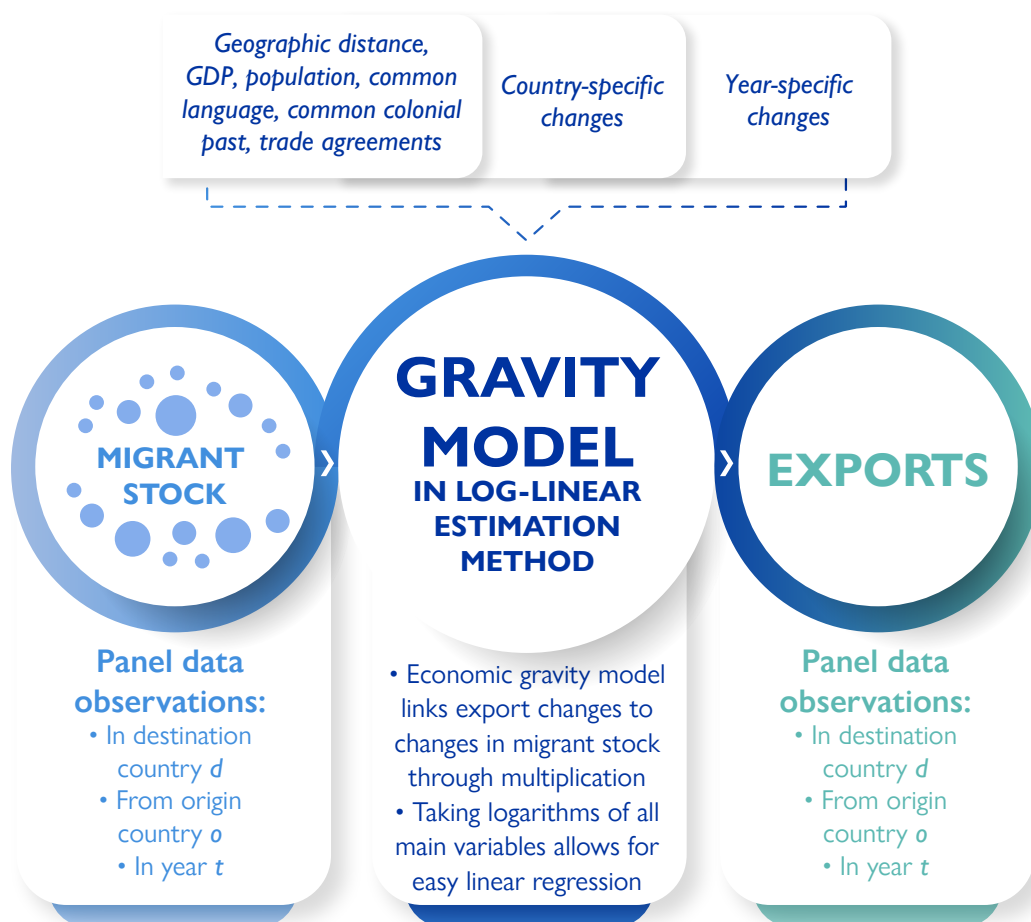
<sup>9</sup> Years provided in the dataset and used in this analysis include 1990, 1995, 2000, 2005, 2010, 2015 and 2020.

<sup>10</sup> Namely: Antigua and Barbuda, The Bahamas, Barbados, Belize, Canada, Costa Rica, Cuba, Dominica, Dominican Republic, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname and Trinidad and Tobago, United States of America.

<sup>11</sup> Based on models developed in Chaney (2008) and Mayer and Head (2013).

of the region and a corresponding change in exports in that country. Due to the multiplicative nature of the economic gravity model for bilateral trade (Mayer and Head, 2013), the statistical analysis applies logarithms to all except dummy variables. Taking logarithms of the main outcome, explanatory and control variables allows for a linear regression model, also log-linear model, to be applied. It takes into account bilateral ties between destination and origin countries observed through geographic distance, existence of trade agreements and cultural similarities, as well as country-specific economic and population differences. To control for unobservable variables, I use country and country year fixed effects. Through its panel structure, the same trading partners can be observed over time, allowing to control for unobserved bilateral ties. The following chart provides a summary of the estimation method used in the analysis:

### Eliminating effects arising from:



## B. KEY FINDINGS

- 1. Migration contributes positively to international exports in the whole region (SDG target 17.11).**
  - A 1% rise in migrant stock within a migrant destination country across the whole region is associated with a 0.234% increase in exports in this country<sup>12</sup>.

<sup>12</sup> This effect is statistically significant at the 1% level and robust to using different controls, including distance between countries, existence of trade agreement, GDP in both countries, population in origin country, common language and common historical ties such as colonial links, as well as country and year fixed effects.

- In absolute terms, a 1% increase in migrant stock in the whole region has been linked with an estimated rise by 7,751 USD<sup>13</sup> in exports per additional migrant residing across the region for the available years in the period between 1990-2020 on average, with all other variables kept constant.
2. **There is heterogeneity across the three subregions Central America, North America and the Caribbean.**
    - The positive migrant effect on exports in the migrant host country is highest and most robust<sup>14</sup> in North America.
    - While migration is still positively associated with exports in the Caribbean and Central America, the effect is lower in magnitude and slightly less robust for both subregions<sup>15</sup> compared to North America.
  3. **International exports originating from countries of the region have undergone tremendous growth but also major fluctuations between 1990 and 2022<sup>16</sup>.**
    - **North America** experienced mostly continuous growth in international exports from 546 billion USD in 1990 to 3.2 trillion USD in 2022, primarily driven by the United States which had 64% of the subregion's exports in 2022. Global exports in **Central America** have also risen continuously from 4.7 billion USD in 1990 to 51.8 billion USD in 2022, with Guatemala leading the subregion at a regional share of 30% in 2022. In the **Caribbean** countries, international export flows rose from 7.6 billion USD in 1990 to 45.5 billion USD in 2022, led by the Dominican Republic (30% of the subregion's total exports in 2022) and Trinidad and Tobago (29% in 2022).
  4. **Migrant stock trends between 1990 and 2020 are divergent across the three subregions Central, North America and the Caribbean<sup>17</sup>.**
    - **North America** has experienced mostly continuous growth in migrant stock, from 28.2 million in 1990 reaching a total of 59.8 million migrants residing in the subregion in 2020, driven by the United States' large share of 84%. Migrant stock in Central America<sup>18</sup> mildly dropped from a level of 1.1 million in 1990 to 1 million migrants in 2020, with 50% of the subregion's migrant population residing in Costa Rica. In the Caribbean<sup>19</sup>, migrant stock has more than doubled from over 546,000 migrants in 1990 to over 1 million migrants in 2020, largely due to the sizable migrant population in the Dominican Republic (59% of the region's total in 2020).

13 These estimated effects in absolute numbers are averaged across historic values for 1990-2020 and across countries within the whole region and cannot be inferred as effects for specific countries. Figures are calculated from sums of migrant stock in the region from the world in UN DESA International Migrant stock 2020 and sums of trade flows in the whole region with the world taken from IMF DOTS, both averaged across years. The coefficients derived in the main estimation model are used to estimate the rise in exports in absolute terms and per additional migrant given a 1% rise in absolute migrant stock, averaged across the whole region and time period.

14 Most statistically significant at the 1% level.

15 Statistical significance is reduced to the 5% level for these two subregions.

16 Source: UN DESA International Migrant stock 2020.

17 Namely Canada, Mexico and the United States of America.

18 Namely Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama.

19 Namely Antigua and Barbuda, The Bahamas, Barbados, Belize, Cuba, Dominica, Dominican Republic, Guyana, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname and Trinidad and Tobago.

## C. LIMITATIONS

Although this analysis provides evidence for a robust link between migration and international trade, the data sources and methodology also have several limitations affecting the interpretation of results. The regression model used does not allow to infer a causal effect of migration on exports. Instead, the established link between the two is correlational. In order to be able to make causal statements about the relationship between migration and trade, natural experiments or quasi-experimental methods<sup>20</sup> need to be applied (Genc, 2014), often not available in the given data context. In addition, the regression analyzes historic data for a limited time frame and geographic scope.

Due to this restriction, estimation results present an averaged effect across countries in the region and within the given time period between 1990 and 2020, but cannot be interpreted as predictions for future trends in specific countries. More disaggregated data for longer historical time periods would allow to validate results against a longer time horizon and yearly fluctuations in the link between migration and trade.

Reduced sample sizes and lower statistical significance in results for Central America and the Caribbean indicate that underlying dynamics behind migration, such as skill level, employment status or migrant networks, can play a role in influencing different effects across subregions. The heterogeneity observed in estimation results by subregion is to be interpreted with care. Migrant effects on trade can also vary with absolute levels of migrant stock in the destination country (Genc, 2014).

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<sup>20</sup> Such as instrumental variables.



## V. CONCLUSION

Migration plays a key role in international trade dynamics. Current literature suggests many channels through which migrants contribute to international trade in host economies, including through skill diversification and knowledge transfer (Ortega and Peri, 2014; Bahar and Rapoport, 2018) as well as the reduction of trade costs (Felbermayr and Toubal, 2012; Ortega and Peri, 2014). Differences in skill levels of migrants and the interaction with local business networks in their host countries can play an important role in explaining divergent cross-country or crossregional dynamics (Genc, 2014; OECD, 2022).

While analysis on a more disaggregated level is needed to fully understand the underlying mechanisms for the divergence in migration effects across the three subregions in this analysis, these findings support the view that more liberal migration policy can improve trade conditions and significantly contribute to increased exports. To approach migration holistically in the context of trade, extending trade agreements to include regulations on free movement of migrants can reduce the incentive for irregular migration (IOM, 2019; Schmieg, 2019) thereby reducing adverse effects and protecting human rights as agreed upon in the Global Compact for Migration.

Further analysis on the topic should explore dynamics at a disaggregated level, such as subnational geographic variation as well as migrant skill level. Analyzing migrant density by origin and place of residence in the destination country can help to understand migrant networks in the country and shed light on how migrants contribute to trade. In an extension of the presented work, the IOM Regional Office for Central, North America and the Caribbean is conducting a quantitative analysis on how diaspora from the region living abroad influences exports from the region, providing an additional perspective on the benefits of migration for origin countries.



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