International Business Travel and Trade: A Case Analysis for Colombia

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Abstract

Could face to face business interactions boost international trade? This thesis studies the impact of international business travel on trade. The purpose is to grasp information about the performance of business travelers when accessing foreign markets and how different economies can integrate themselves as a result of face to face business interactions, thereby generating trade flows of intermediate and final goods. By employing an instrumental variable approach using panel data, the empirical strategy measures how sensitive are Colombian exports and imports to variations in the amount of Colombians and foreigners traveling for business purposes, this induced by new short-term visa exemptions given by the Colombian and foreign Governments. General results indicate that foreigners have a positive impact on both Colombian exports and imports, but Colombians only significantly affect exports. Besides that, it is seen that Colombians do have an impact on exports to developing countries, but neither imports nor exports are sensitive when they travel to developed countries. Moreover, estimates indicate that when foreigners travel to Colombia, they look for partners to buy Colombian homogeneous intermediate goods and sell foreign final goods (to Colombian buyers). Additionally, my estimates support the idea that business travel is essential for exports of heterogeneous goods.

Keywords: international trade, international business travel, visa-free access, face to face business interactions, foreign markets, value added.

JEL classification: F1, F15.

Contents

1 Introduction

Can face to face interactions in business travel caused by visa exemptions actually affect trade in goods? This paper studies how Colombian international trade can be impacted by Colombian nationals traveling abroad and foreign nationals traveling to Colombia, this for solely business purposes.

This investigation studies an aspect of economic integration that, although recognized by economists, has not had much attention until now, as just few papers on this topic have been released. Why is there a necessity to dive into the mechanisms of this field? Previous research made by Poole (2010), Belenkiy and Riker (2012), Cristea (2011) and other authors has expressed that face to face business interactions established by international business travelers can actually represent important gains to the involved players, as this process of building business and social networks entails market discovering, new sales, retaining customers, partnership developments, spurring innovation, business creation and business support. This consecutively serves as a new platform where firms can become more competitive and grow, as exporting firms are significantly more productive, more capital and technology intensive, and more efficient (Belenkiy and Riker (2012)). Furthermore, Bernard et al. (2007) find that firms that are exporters share a variety of positive attributes with firms that are importers. They are both bigger and more productive, pay higher wages, and are more skill- and capital-intensive than non-exporters and non-importers.

It is critical to consider that exports of goods is not the only source that implies gains, as firms and individuals that import goods (either intermediate or final goods) from foreign markets usually take this decision due to a more competitive price and/or quality factors, or as a result of the lack of certain products needed in a local market. This openness that involves economic integration from two or multiple countries not only entails adjustments between international buyers and sellers, but also an improvement in national productivity due to selection effects (Melitz (2003)).

As literature has found double causality issues between international business travel and trade, this paper employs an instrumental variable approach to find a lean causal effect. The instrument I used is short term visa restrictions, as international business travel is subject to Government regulations on this variable. I exploit the variation across countries and over time in visa exemptions given to Colombians and foreigners to study how international business travel explained by this instrument actually impacts Colombian exports and imports.

In addition, regressions on types of products for developed and developing countries

are performed to not only assess the general effect of international business travel on Colombian trade, but also how the nature of the performance of international social and business networks, caused by short term visa exemptions, translate into exports and imports. The results and conclusions of the findings of this paper serve as an input for Colombian policy makers that are asked to help make decisions with regards to policies related to export and trade promotion, visa restrictions, business development and competitiveness.

General results indicate that face to face interactions in business travel caused by visa exemptions actually affects trade. Overall, foreign business travelers visiting Colombia have a greater elasticity impact on exports and imports than Colombians traveling abroad, who only significantly affect exports. Furthermore, Colombian exports are sensitive to Colombian business interactions when traveling to developing countries, but not to developed countries. With regard to types of goods, it seems that foreigners visit Colombia to seek partners to provide them more intermediate homogeneous goods than final goods, whereas travel of Colombians only significantly promote exports of final goods. My estimates also suggest that business travel is essential to promote exports of heterogeneous goods.

The paper is organized as follows. Section 2 presents previous papers that have contributed to the understanding of the mechanisms between international business travel and trade. Section 3 presents data sources and shows relevant facts of the data obtained. Section 4 studies the empirical strategy of the paper. Section 5 discusses the results. Section 6 presents conclusions.

2 Literature Review

The present section studies contributions on the linkages between international business travel, international trade and short term visa restrictions that are relevant for my analysis.

In light of understanding the influence that international business travel may have on trade, the first subsection approaches critical aspects and previous insights with regard to the influence of business travel on trade. The second subsection slightly approaches the social and business network effect that face to face interactions have on trade, emphasising specially on the immigrants case. This helps to grasp a better dimensionality of the nature of business and social networks. The third subsection introduces literature on visa restrictions and trade.

2.1 International business travel and trade

In essence, business travel is necessary for big firms to work well, as logistics, supply chains, business expansions, investments and relationships can be coordinated by face to face interactions only possible by traveling abroad. According to WTTC (2011)[1], for instance, a significant majority of international travelers feel it is extremely important to travel to international subsidiaries to expand businesses in international markets. By boosting market activities through face to face interactions, companies engage in more and better trade relationships, thereby fostering not only greater exports but also increasing the likelihood for firms to import more competitive intermediate products in price and quality from other foreign firms they have established relationships with. Travel helps to overcome non-tariff barriers by building and maintaining transnational information-sharing networks and through direct sales and service export (Poole (2010)).

According to Jansen and Piermartini (2009), theoretical and empirical contributions to the trade literature emphasize the existence of important fixed costs inherent to the process of exporting, including negotiation costs, contracting costs or costs related to information barriers. Even though business travel represents an initial fixed cost of exporting, Oxford-Economics and WTTC (2014) highlight the impressive investment and export returns of this input. This is due to the four channels through which face to face interactions act; by generating new sales, retaining existing customers, developing partnerships, and spurring innovation.

The idea that international business travel is a necessary ingredient of international trade has been explored in the travel research literature dating back at least to 1968[2]. Gray (1970) and Keintz (1968) document a link between international travel and international trade. Another influential author who mentioned pioneering insights is Frankel et al. (1997), who wrote "consider a kind of export important to the United States: high-tech capital goods. To begin sales in a foreign country may involve many trips by engineers, marketing people, higher ranking executives to clinch a deal, and technical support staff to help install the equipment or to service it when it malfunctions".

Although this topic has not received much attention from researchers, some investigations began to spread since the beginning of the century. Kulendran and Wilson

[1]This refers to the World Travel and Trade Council.

[2]Non-academic institutions have also studied this field; The World Travel and Tourism Council (WTTC) and consulting firms like Oxford Economics have contributed with publications like Travel Trade Linkages (2014) or Business Travel: a Catalyst for Economic Performance (2011).

(2000) made a pioneering work by finding that business travel Granger-causes total bilateral trade flows between the U.S. and Australia, and business travel Granger-causes total imports from the United Kingdom. Their results support the idea that businessmen from the U.S. and the U.K. travel to Australia to find buyers for their goods or to meet with established contacts.

A main characteristic of the little research that has been done is that it primarily focuses on the U.S. Poole (2010), for instance, studies the effect of business travel visits to this country on trade, finding that travel by non-resident and non-citizen people has a positive impact on the extensive export margin (measuring it in this context as variability of export varieties). Her estimates indicate that the main effect of business travel on trade is driven by travel from non-English speaking countries, this because communication with the U.S. by other means could be less effective. She also tests the effect of outbound U.S. travelers on U.S. exports but no significant results were obtained. Belenkiy and Riker (2012) carry out the same type of research for this country. They find that lowering the costs of business travel to a country will have a significant positive impact on U.S. commodity exports to the visited country. They also calculate that each additional international business trip will increase U.S. commodity exports to the visited country by USD $36,693 per year on average.

Related research has been done for Italy and Canada. Alderighi and Gaggero (2017) study the relationship between air transport service and trade for the case of Italy. Their results suggest that air transport service positively affects exports of Italian manufacturers. Opposite results are found by Head and Ries (2010), who investigate the causation effect of regular trade missions conducted by Canadian officers on new business deals. After controlling for country-pair fixed effects, they find negative, small and insignificant estimates.

Although relevant studies on the relationship between travel, business and trade has been done over the last two decades, just few have focused on the specific effect of business travel on trade. More specifically, after making a wide literature review, no investigation has dived into the patterns of this relationship for a developing small and open economy. The only piece of research found that relate to this is the one made by Aradhyula and Tronstad (2003), where they estimate an Arizona agribusiness firm's propensity to trade with Mexican border states. After controlling for many factors, they find that business travel helps to overcome informational trade barriers along the Arizona-Mexico border.

2.2 Business and social networks, face to face interactions and immigrants' influence and trade

In order to better understand how business and social networks produced by international business travel among agents thoroughly affect trade, researchers have also dived into a related topic; the linkage between immigrants' social and business networks and trade. Certain factors make immigrants special for trade; they often speak more than one language, possess knowledge of the available products in home and foreign countries, and generally understand the local laws and regulations that govern the markets and institutions. According to de la Mata (2014), these factors have the potential to lessen informal non-tariff barriers to trade, and may induce important reductions in information and transaction costs, thus spurring bilateral trade.

Combes et al. (2005), for instance, quantifies the impact of social and business networks on interregional trade in goods between 94 French regions (departments). Using different gravity models, the authors verify that networks facilitate bilateral trade regardless of traditional impediments (distance and boundaries) and find larger effects for business networks than for social networks. Garmendia et al. (2012), meanwhile, take the Spanish case. Using domestic flows, they find a large internal border effect that tends to disappear when the higher density of social and business networks within regions is taken into account. de la Mata (2014) employs a Dixit–Stiglitz–Krugman theoretical framework to investigate the impact of migrant business networks on the creation of trade in services in Spain. She not only finds a positive significant impact, but also suggests that reduction of information costs should expect a greater role in services than in goods.

Aleksynska and Peri (2014) propose a more particular measure of the trade-business network of immigrants. Using the data on immigrant occupations from the OECD for year 2010, they study the impact of immigrants in managerial/sales job on trade. The results indicate that business migrants with highest education have the most unambiguous pro-trade effect.

Literature in this area has highlighted that causality between international business travel and trade runs both ways. Tsui and Fung (2016), for instance, study the international business travel and trade relationship for Hong Kong's trade with the United States, China and Taiwan for the years 2002-2014. A long-run equilibrium relationship between Hong Kong and the US is found. The U.S. showed a bidirectional causality relationship between business travel and travel volumes with Hong Kong. Reverse causality using a Granger test between these two variables were found all across the 3 trading partners. Indeed, there are studies like the one done by

Cristea (2011), where she estimates the responsiveness of the demand for international business travel to the scale and composition of U.S. manufacturing exports, conditional on the cost of the travel. The key result in that study suggests that an increase in the volume of exports increases the demand for outbound air business travel.

To deal with the endogeneity embodied in business travel for this case, authors have applied instrumental variable estimations that give more reliable estimates. Poole (2010) uses the visa policy changes of the U.S. Government after the terrorist attack on 9/11/2001, Cristea (2011) employed the cost of travel, and Belenkiy and Riker (2012) used tourist visits. The empirical approach of my investigation presents the active exogenous variation of visa restriction policies throughout time across countries during the presidency of Juan Manuel Santos as the econometric instrument.

2.3 Visas and international trade

Even though no research has been done yet to grasp the effect that business travel has on trade for a developing small and open economy, other pieces of research have contributed to the literature by studying the relationship between visas and trade. As gathering business travel data for most countries can be challenging, some researchers have decided to study the effect of visa restriction impositions (that hamper business travel) on trade. The burden of one country imposing these restrictions to the others implies visa application costs and hassle of waiting weeks or months for the visa to be granted, partly as a consequence of possible bureaucracy delays. A second cost arises when the visa applicant has to travel to the embassy or consulates, additionally waiting for possible queues. These constraints entail non-tariff barriers to trade, due to the fact that often international trade requires personal contact between buyers and sellers (more personal contact is needed for trade in heterogeneous goods than homogeneous goods), thus hampering trade potential between nations.

Remarkable papers like Neumayer (2011), and Czaika and Neumayer (2017) provide inputs and elements to better understand the causality of visa policy restrictions on exports and imports. These two papers cover samples for bilateral trade around the globe, and both conclude that visa restriction impositions by a destination country significantly deters trade flows.

Just few papers have studied the specific effects for developed and developing countries. After a long revision, Umana-Dajud (2019) provides, by now, the only paper that studies the effect of visa impositions on trade for developing countries. He exploits short term visa imposition of the Schengen European countries on Ecuador and Bolivia in 2003 and 2006, respectively, as a natural exogenous experiment. Yasar

et al. (2012), on the other hand, examine the impact of the US Visa Waiver Program (VWP) on trade flows with a list of 24 countries, where most of them are considered as developed. Both papers clearly demonstrate that visa restrictions are key to promote bilateral trade through business travel, and that the financial and non-financial costs included in new visa impositions hinder international trade. Moreover, comparing the results of both pieces of research, it seems that developing countries are more sensitive to changes in visa restrictions than developed countries[3].

In broad terms, the scarce literature related to this area converges to the same point; it agrees that there is a substantial effect of international business travel on trade by performing face to face business interactions. Either approaching it with available business travel data or visa restrictions as a related approach, results indicate that this field of research is an important and relevant matter for export promotion policies and academic affairs. As research has been primarily focused on developed economies, this paper's principal value added is that it aims to be the first one that provides a direct approach with regard to the effect of international business travel (with actual business travel data) on trade for a developing small and open economy.

More specifically, the present paper's objective is to test how changes in international business travel caused by short term visa liberalization policies actually affects Colombian exports and imports for years 2012-2018. The main advantage of this approach lies in the fact that international business travel is the only significant variable that affects trade as the consequence of changes in short term visa policies. This instrumental variable approximation lets us trust the estimates more than if only regressions of visa restrictions or exemptions on trade were run[4].

3 Data and Summary Statistics

This investigation gathers 6 main variables that are studied through the paper; Colombian exports and imports, outbound Colombian business travel and foreign business travel to Colombia, and 2 vectors of short term visa requirements for Colombians traveling abroad and foreigners entering Colombia. These data are collected from a broad variety of sources. Tariffs and information on trade, measured in USD,

[3]Regarding PPML estimations, Yasar et al. (2012) indicate that the export elasticity (imports are not sensitive in this study) upon one visa exemption for developed countries is about 20.2%, whereas Umana-Dajud (2019) estimates that the overall trade (he did not split data into exports and imports) elasticity upon one visa restriction for developing countries is about -26.7%.

[4]Details about the wide variation of visa restrictions across countries and over time that acts as an input for a valuable instrument is presented in Section 3.

is downloaded from Comtrade and WITS (for intermediate goods). It is important to highlight that all trade variables in this investigation do not include goods reported in the chapter 27 of the Harmonized Commodity Description and Coding Systems (HS)[5], this because the transmission mechanism between business travel and trade does not hold for mining-related products, as their intensive margin of trade is mainly driven by commodity prices, rather than by business interactions[6]. Data on international business travel were obtained from Migración Colombia, this is a Governmental institution that oversees all migration-related affairs in Colombia. Information about short term visa restrictions is gathered from a wide set of official sources, including public statements, decrees, laws, and official articles of the Colombian Government advertising new visa agreements. All six variables are studied for the period 2012-2018. Other variables needed in Section 4 for the adaptation of the gravity model like distance, border and common language are taken from CEPII. Data of GDP is taken from the World Development Indicators of the World Bank.

The upper graph of Figure 1 displays the main destinations for Colombian business travelers. It clearly shows that the United States and Panama are by far the most preferred countries. Reasons like distance proximity relative to other countries, economic activity, institutions, and other factors that relate to the Doing Business Index[7] like facility to start a business and resolving insolvency conditions are key drivers of these results.

The lower graph of Figure 1 shows the principal countries where foreign business travelers come from. The United States is in first place. Mexico and Brazil take over in the second and third place, respectively. Considering aggregate values from both sides, it is clear that by far, foreign business visitors traveling to Colombia are much more abundant than Colombian business visitors traveling abroad[8].

[5]Chapter 27 refers more exactly to mineral fuels, mineral oils and products of their destilation; bituminous substances and mineral waxes.

[6]More information about this is detailed in Section 4.

[7]This is an elaborated yearly report from the World Bank that quantifies the conditions of countries to allow for business creation and business growth.

[8]The total flow of foreign business travelers that entered Colombia for the period 2012-2018 is 1,705,648 people. The total flow of Colombian business outbound travel during the same period is 386,813 people.

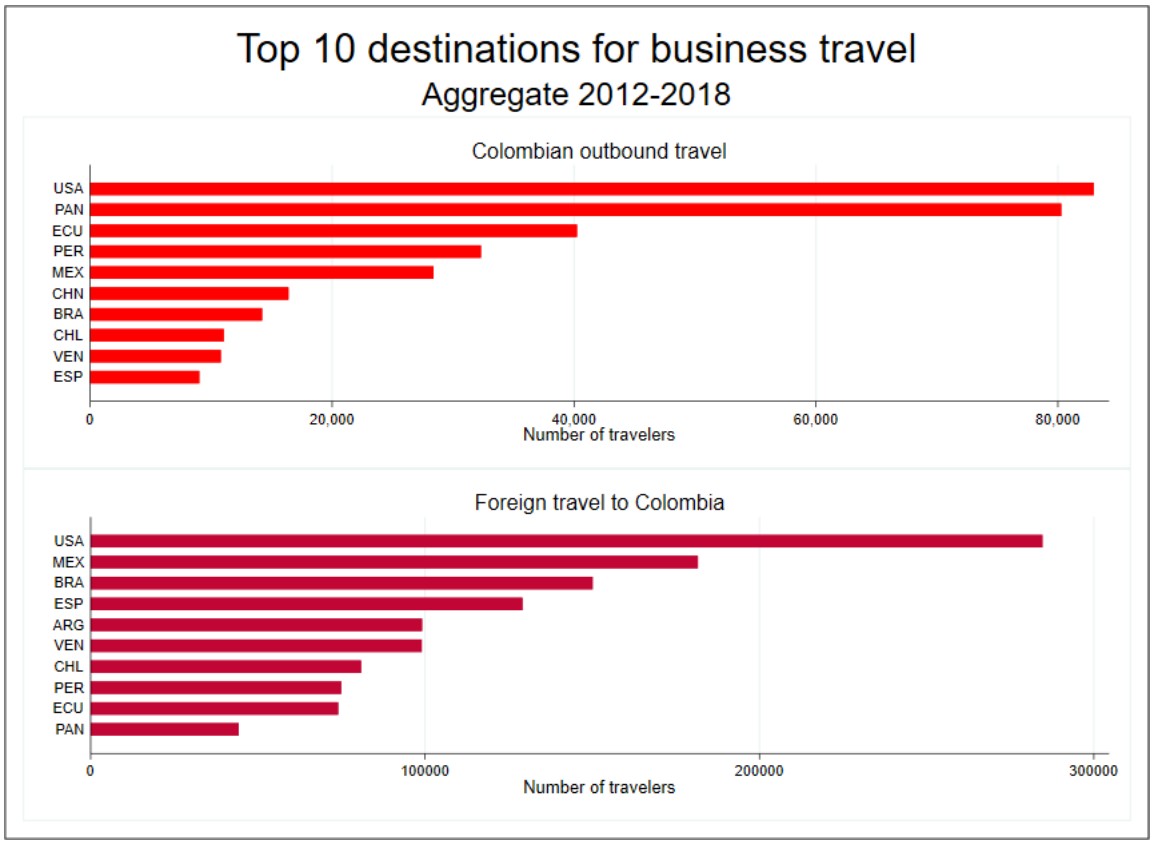

Figure 1
Source: Author's calculations based on data from Migración Colombia.

Figure 2 presents the principal trade partners for Colombia. As in Figure 1, the United States is the main associate, this time for both exports and imports. This graph pictures and interesting fact; isolating the outstanding relationship with USA, the main Colombian export destinations are Latin-American countries, but the principal countries where Colombia buys goods from are mostly non-Latin-American but European and Asian countries.

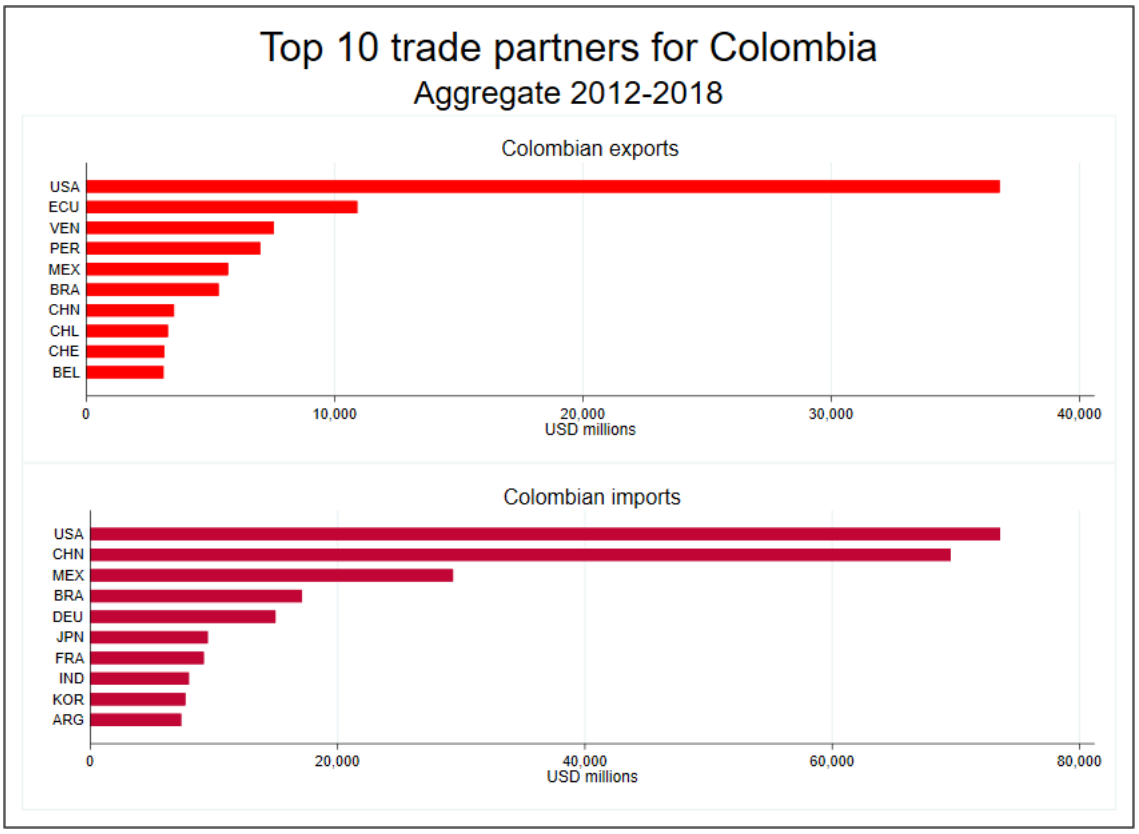

Figure 2
Source: Author's calculations based on Comtrade data
Note: Trade of chapter 27 of the Harmonized System (HS) is not taken into account.

Figure 3 shows a general overview of the possible relationship between business travel and trade. It is remarkable that foreign business travel to Colombia is the only variable that more than triples in just few years, and the greatest leap occurs when it goes from 131,785 travelers in 2013 to 273,793 in 2014. Factors that may explain this surge might be good economic growth from nations where foreigners come from, the trade agreement signed with the European Union in 2013 that may have attracted entrepreneurs[9], among others. Overall, the other three variables actually decay in gross values[10]. One main factor that could explain this is the general slowdown that the Colombian economy endured along with most South-American economies as an outcome of a commodity-price crisis, thus worsening terms of trade (TOT). As

[9]This is an example of the joint causality between business travel and trade mentioned in Section 2, this why an econometric instrument is chosen to only grasp the effect of business travel on trade

[10]As well, an important query that might arise is to ask if visa openness actually explains Colombian outbound business travel, this given the fact that this variable decays over time. Naturally, this causation effect is not necessarily tested if more aggregate business travel is employed over time, but if more business travel is employed to enter countries where the exemption is disposed.

business travel is often considered as a luxury service, this economic hardship may have caused firms to cut the budget of this type of travel to deal with functioning costs, this in order to survive.

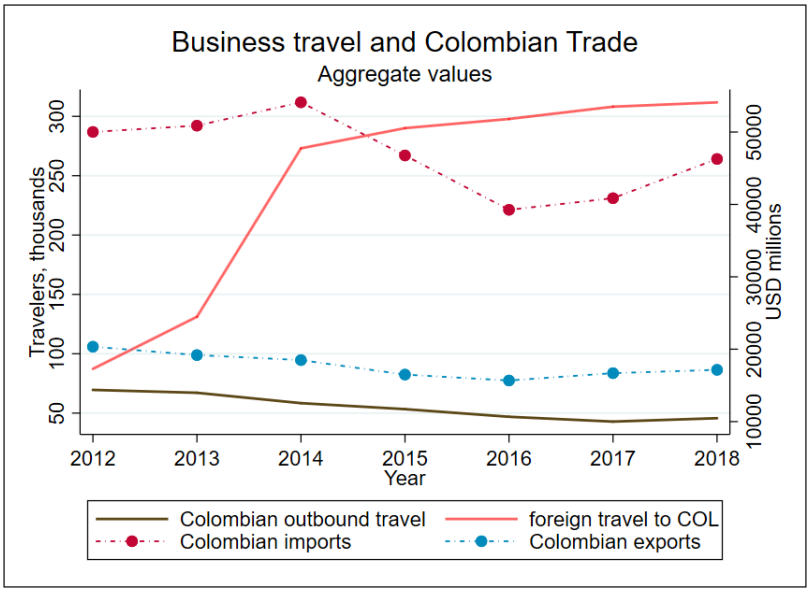

Figure 3
Source: Author's calculations based on data from Comtrade and Migración Colombia.
Note: Trade of chapter 27 of the Harmonized System (HS) is not taken into account.

Figure 4 presents four scatter plots that show a positive correlation between business travel and trade. Although in all four cases the correlation is easy to grasp, the upper-left graph seems to be the one with more dispersion, which leads to tell that a priori, Colombian outbound business travel might have a less substantial effect on Colombian imports.

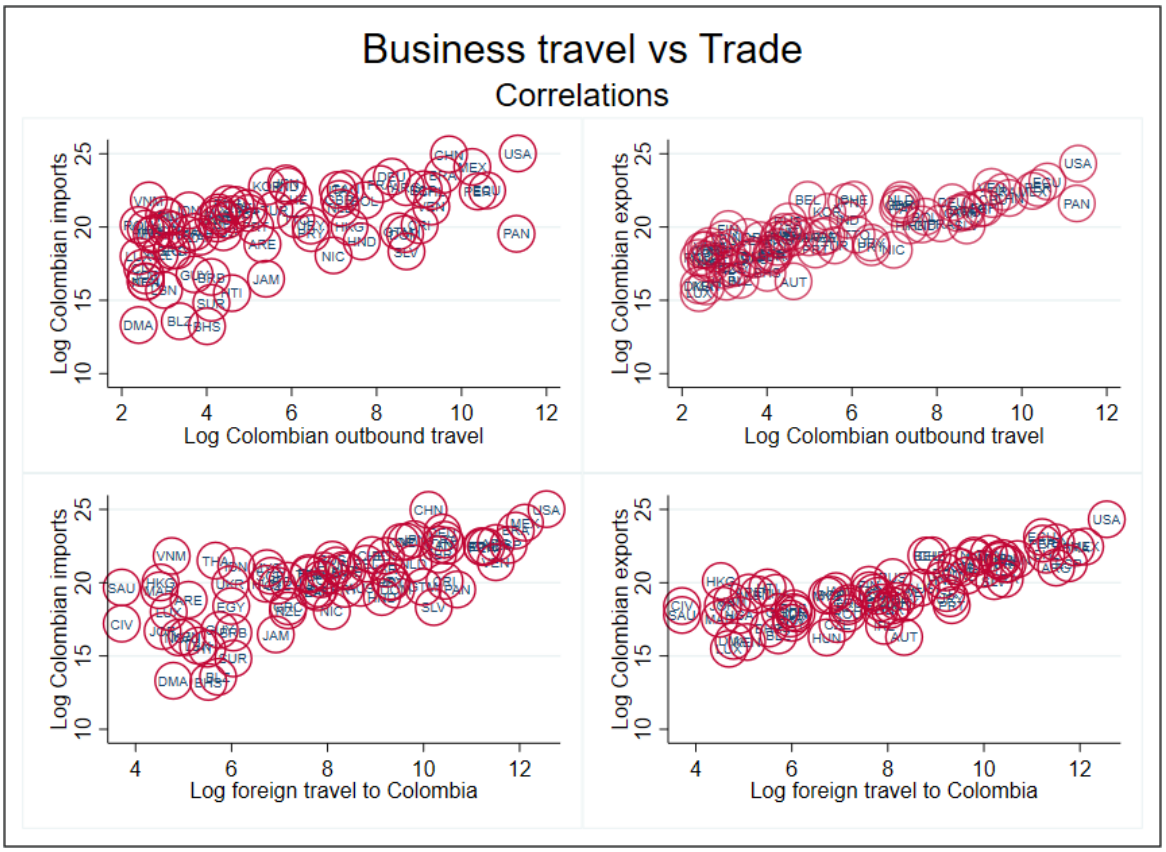

Figure 4
Source: Author's calculations based on data from Migración Colombia and Comtrade.
Note: Trade of chapter 27 of the Harmonized System (HS) is not taken into account.

In terms of visa-free openness, Figures 5 and 6 display the wide variation that short term visa requirement to Colombians had across countries and over time. Part of the variation is due to the fact that the Colombian Government promoted a visa liberalization process under the presidency of Juan Manuel Santos (2010-2018). Figure 5 shows the countries that changed their policies to grant free access to Colombians, so that each Color of the map represents the year when the visa exemption began to be exercised. The map visibly tells that Europe is the continent that granted most visa-free access. Most of the free access permission of this area began as a domino effect of the European Union's permission in 2016; once the EU considered to grant free access, other close countries like Switzerland, Iceland, Liechtenstein, Norway and others joined. The most outstanding leap in visa exemptions is made in 2016, when 34 destinations became visa-free.

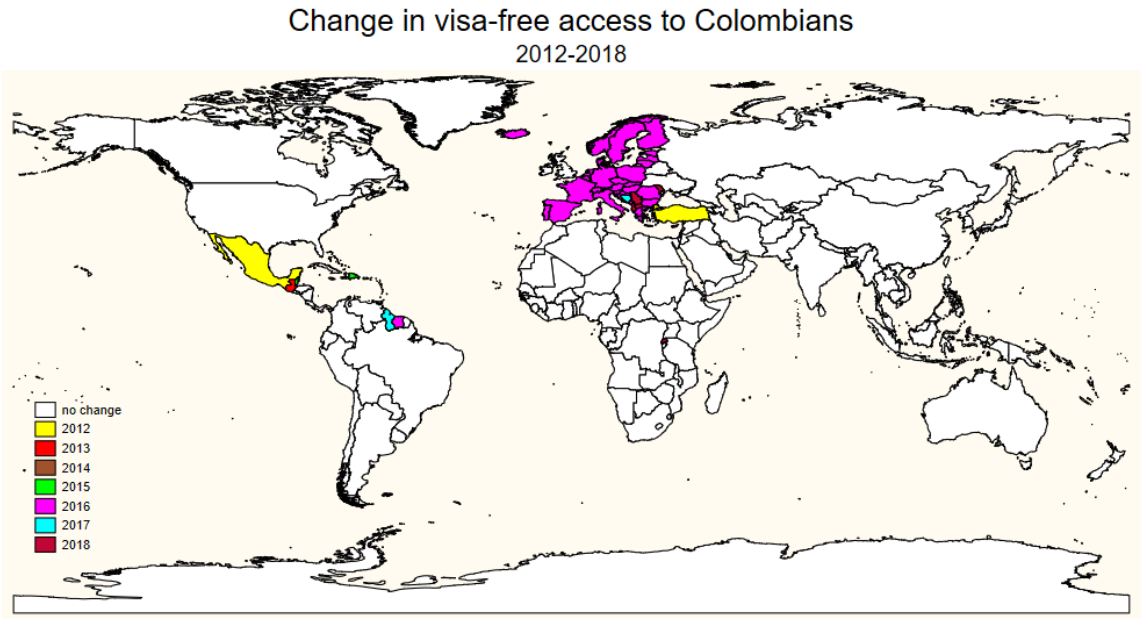

Figure 5
Source: Author's calculations based on multiple official sources and Enviromental Systems Research Institute (ESRI).

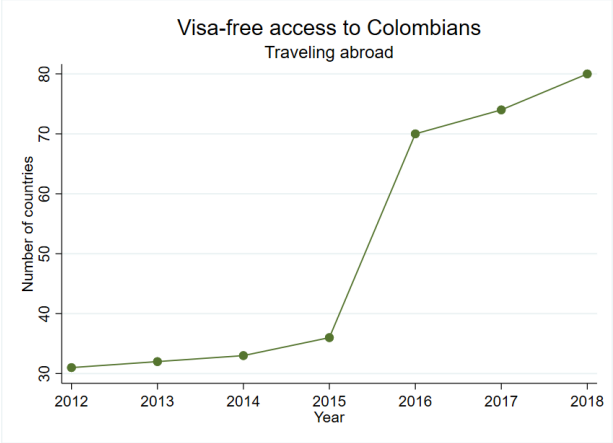

Figure 6
Source: Author's calculations based on multiple official sources.

In spite of the fact that the map cannot clearly display the change in all nations because many of the granting countries are in Eurasia and are small in size, Figure 6 does account for the total number of nations that granted free access to Colombians

throughout the sample of this investigation[11] [12] [13]. This line tells that growth in visa-free countries for short term stays, including business travel, is over 158%, a unique growth of this variable in Colombian recent history.

Figures 7 and 8 display the wide variation that short term visa requirement to foreigners entering Colombia had across countries and over time[14]. Although it is seen a shorter variation if compared with Colombian outbound business travel, the change of this variable across countries and over time is still valuable, as in total the Colombian Government made short term visa changes for 12 countries throughout the period 2012-2018. It granted visa-free access to 11 countries and restricted South Africa in 2017[15]. The vast majority of changes were applied to countries within Eurasia, with changes in all years, except for 2013.

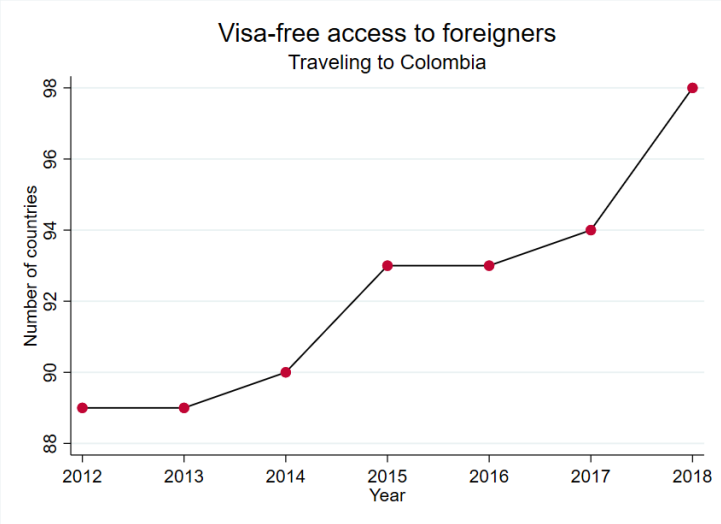

Figure 7
Source: Author's calculations based on multiple official sources.

[11]The sample of this piece of research accounted 80 free-access countries for the year 2018, but in total, the Colombian Government states that 91 territories are visa free. This happens because the other 11 partners are certain islands and small dependent territories that were not included in the investigation, such as Guadeloupe, Macau, Martinique, Mayotte, among others.

[12]75 countries are reported to be visa-free in 2018 (not the 80 that appear in Figure 6) within the general database to perform regressions, this because of the lack of trade and travel data of the other remaining countries.

[13]Visa exemptions given in December of year x were considered in the sample to be in year x+1.

[14]95 countries are reported to be granted visa-free access in 2018 (not the 98 appear in Figure 8) within the general database to perform regressions, this because of the lack of trade and travel data of the other remaining countries.

[15]The reason for this restriction is explained in Section 4.

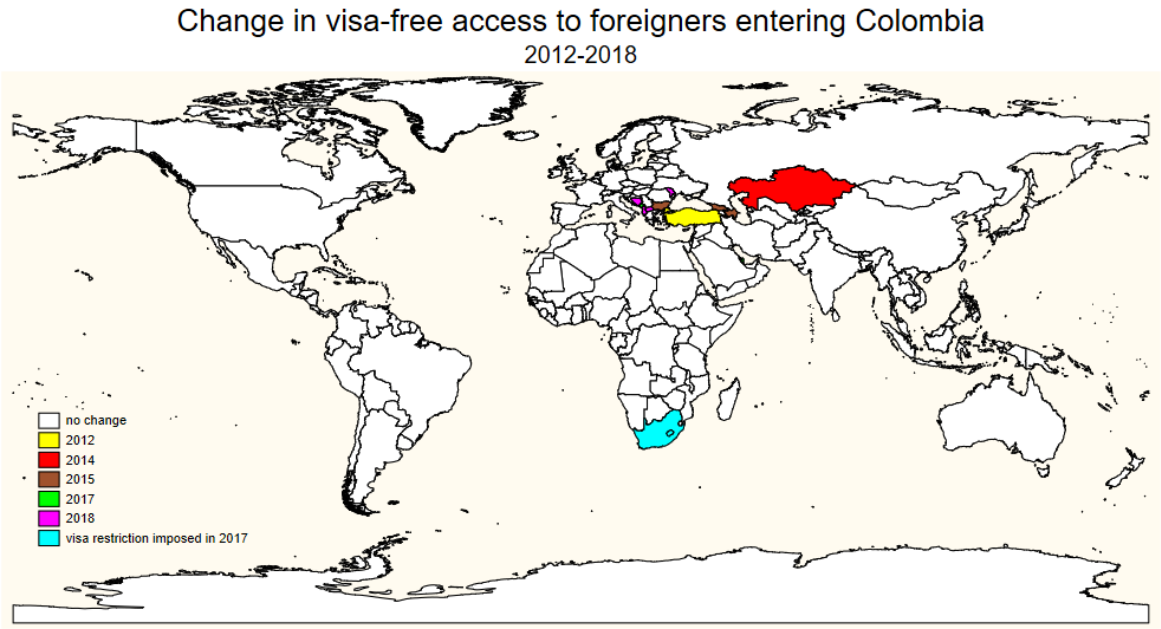

Figure 8
Source: Author's calculations based on multiple official sources and Enviromental Systems Research Institute (ESRI).

The Maps of Appendix A complement the analysis done here by showing which countries hold visa restrictions for Colombians in 2018 versus 2012. Appendix B shows countries for which the Colombian Government still holds visa restrictions in 2018 vs 2012. In summary, these maps support the fact that before 2012, Colombia actually was visa-opened to most developed countries, but not much reciprocity was regarded by these partners. Fortunately, now the outlook is more even, as efforts made by the Colombian Government have helped to increase access to business travelers. The query that remains on the table is whether these efforts are reflected in business travel, and consequently trade (as literature has found that business travel impacts trade flows). The next section delivers a strategy to answer this question.

4 Empirical strategy

As far as has been said, it is important to highlight that the quest of this research is to study how face to face business interactions between persons from different nations, either with previous arrangements before traveling or not, can actually promote exports and imports of goods. As Section 2 documents, accessing foreign markets through business travel allows market discovering, new sales of firms and individuals, partnership developments, spurring innovation, business creation and business growth. That

is why quantifying the effect of business travel on trade helps us to better understand how the transmission mechanism works, where the impact is greater and what further action can Governments take to harness the advantages of the mentioned virtues. That is the motivation to study the causal impact of this type of travel on the Colombian trade. Moreover, I am interested in measuring on the one hand, how a positive increase of Colombian outbound business travel really affects Colombian exports and imports, and on the other hand, how a boost of foreigners traveling to Colombia for business purposes actually impacts Colombian exports and imports.

As explained along this document, an instrumental variable approach is a must to avoid the bias caused by reverse causality and other sources of possible endogeneity. Given the exogeneity and relevance conditions required, I employ short term visa restrictions as an instrument. This variable provides wide variation across 182 countries over the period 2012-2018[16]. On one side it measures if a visa is imposed to Colombians to enter other countries around the globe, and on the other side it measures if the Colombian Government requires foreigners to obtain a visa in order to enter Colombia. It is a dummy vector that takes the value of 1 if a country grants free access and 0 if the visa process is a must.

Regarding the possibility of reverse causality issues between short term visa restrictions and trade, mentioned by Umana-Dajud (2019), I have enough arguments to demonstrate that for the Colombian case in the last years, the purpose of imposing or withdrawing short term visa restrictions has been mainly driven by other factors rather than bilateral trade. First of all, throughout the period 2012-2018, many of the countries which have signed visa waiver agreements with Colombia are small countries that have little current trade with Colombia and scarce trade potential. Examples like Montenegro, Moldova, Azerbaijan, Bosnia and Herzegovina (among others) reflect this situation. As a second argument, Colombia does not hold any visa waiver agreements with China or India, countries with an increasingly trade relationship over the last years. This is accurately explained by the fact that when evaluating migration or travel agreements, Governments generally weigh factors like GDP per capita, poverty, crime rates, and general well-being indicators that possibly tell whether the future entrants could represent any risk to the host country, instead of trade volumes. This is why, for instance, the United States has signed a free trade agreement with Colombia but still requires nationals (including short term business visitors) to apply for a consular visa before visiting the country.

[16]There is only available data of international business travel for those years, as Migración Colombia does not hold data for previous years. This is why this paper only covers analysis for these 7 years.

Moreover, in some cases decisions have been made due to reciprocity: If a certain country suddenly establishes short term visa restrictions to Colombian nationals, it is very likely that the Colombian Government will retaliate by applying the same measures back. Indeed, official documents from the Colombian Government have publicly stated that reciprocity is the only reason why short term visa restrictions started to be applied to nationals from South Africa (country with outstanding trade potential, as it is the most developed country in Africa) and Nicaragua[17][18].

The empirical approach of this study employs an adaptation of gravity model of trade, firstly introduced by Tinbergen (1962) and then mastered by Anderson (1979), Eaton and Kortum (2002), Anderson and Van Wincoop (2003), Melitz (2003) , Melitz and Ottaviano (2008), and Head and Mayer (2014), among others.

The idea of this model is to decompose trade flows in their determinants. The baseline of the general model lies in equation (1):

$$X_{nit} = G_t S_{it} M_{nt} \phi_{nit} \tag{1}$$

Where X_{nit} represents the trade flow between two countries, S_{it} represents the capabilities of the exporter i as a supplier to all destinations, M_{nt} takes all characteristics of the destination market n that promote imports from all sources, ϕ_{nit} represents the bilateral trade frictions that impact trade flows, and G_t can be termed as the "gravitational constant" (Head and Mayer (2014))[19].

Regarding the estimation procedure, it is important to highlight that equation (1) in this case is estimated by the Poisson Pseudo-Maximum Likelihood estimator (PPML)[20], firstly introduced by Silva and Tenreyro (2006). Clear incentives arise to use PPML instead of ordinary least squares (OLS). Not only PPML takes advantage of the information contained in the zero trade flows (which are excluded by the OLS when using variables in logs), but also deals with the bias generated by heteroskedasticity

[17]It is worth mentioning that the Colombian Government does not hold any document where it is said that reciprocity is an official and strict input when imposing visa restrictions. However, in certain cases, like for South Africa and Nicaragua, it seems to be the underlying cause.

[18]Visa restrictions for nationals of South Africa were imposed in 2017. Visa restrictions for Nicaraguans were already imposed before the beginning of the sample data.

[19]Detailed information about foundations of the gravity model of trade is found in Head and Mayer (2014)

[20]The present specification uses an additive error term. However, Piermartini and Yotov (2016) state that adding a multiplicative error term would give the exact same meaning

in regressions with variables in logs.

The second stage of the model to estimate, where visas is the chosen instrument to properly explain variations in business travel, is displayed in equation (2):

$$X_{jt} = Exp[\beta_1 ln(\widehat{businesstravel}_{jt}) + \beta_2 ln(tariff_{jt}) + \gamma \mathbf{Z}_{jt}] + \nu_{jt} \qquad (2)$$

Where X_{jt} indicates the Colombian trade flow to study, either exports or imports[21]. $tariff_{jt}$ is a vector that indicates the weighted average rate of the effectively applied ad-valorem tariff (AHS) of one country to another (Colombia to partner country or partner country to Colombia). $\mathbf{Z}_{jt}$ refers to a matrix of other covariates, such as GDP[22], distance, border and common language, that may have a causal effect on Colombian exports and imports. ν_{jt} represents the error term of the equation.

The purpose of equation (2) is to study the causal impact of international business travel on trade, utilizing visa restrictions as the instrument to avoid reverse causality. By using this specification it is possible to quantify the effect that international business travel, caused by an increase of 1 country granting visa-free access, can actually impact Colombian exports or imports.

Since it is possible that there are other variables which are not included in the set of controls of (2) that explain bilateral trade flows, equation (3) helps overcome this issue:

$$X_{jt} = Exp[\beta_1 ln(\widehat{businesstravel}_{jt}) + \beta_2 ln(tariff_{jt}) + \lambda_t + \psi_j] + \nu_{jt} \qquad (3)$$

This specification controls the time-destination specific component with time and partner country fixed effects. These dummy vectors account for unobserved factors of partner countries (exporter partners and importer partners, according to the unilateral trade flow) and time-specific shocks, preventing from bias and inconsistency

[21]Regressions on total trade (exports plus imports) were not made, this because the purpose of this study is to understand the independent results on imports and exports, separately.

[22]Given that the purpose of this variable is to expose the actual level of economic activity of a country, purchase parity power (PPP) dollar is the measure taken to avoid spurious effects of dramatic currency depreciation.

in the estimates[23]. Since equation (3) is more robust to omitted variable bias, this is my preferred specification. Indeed, Most regressions of Section 5 employ equation (3).

It is worth mentioning that specifications (2) and (3) are estimated using Colombian outbound business travel and foreign business travel to Colombia as the explanatory variables. So that in one hand it measures how a positive change of 1% in Colombian outbound international business travel, explained by an increase of 1 visa exemption made to Colombian nationals from a foreign Government, actually impacts Colombian exports and imports. On the other hand it measures how a 1% increase in business travel of foreigners heading to Colombia, explained by an increase of 1 visa exemption made by the Colombian Government to nationals of a foreign country, actually affects Colombian exports and imports.

Acknowledging that the motivation of this study is to analyze the performance of international business travelers on international markets, the scope of this methodology only allows for a partial equilibrium analysis of the effect of business travel on trade. In order to try to grasp the entire effect that these travelers have on the whole economy, a more advanced econometric model (graduate level) with microeconomic data on firms and consumers would be favorable (e.g., Computable General Equilibrium Model (CGE)).

To show the relevance of the instrument, which constitutes the first stage of the estimation procedure[24] [25], equation (4) tests the impact that short term visa restrictions has on Colombian trade[26].

$$businesstravel_{jt} = Exp[\beta_{visa} visa_{jt} + \lambda_t + \psi_j] + \epsilon_{jt} \qquad (4)$$

[23]As a matter of fact, in equation (3) the matrix $\mathbf{Z}_{jt}$ of equation (2) that includes other covariates has to be dropped, this because on the one hand the effect of variables like distance, common language and border cannot be estimated due to the country fixed effects, that automatically control for variables that do not vary over time and country. On the other hand, variables of size of the country that can represent S_{it} and M_{nt} of equation (1), like GDP, also need to be dropped because time and country fixed effects already control for these factors. Finally, the variables that may account for trade agreements (that usually vary over time) are not considered in this model because of possible multicollinearity issues with the tariff covariate, that is expected to include these agreements within the change of rates over time.

[24]First stage using fixed effects is $\widehat{businesstravel}_{jt} = Exp[\beta_{visa} visa_{jt} + \beta_2 tariff_{jt} + \lambda_t + \psi_j] + \epsilon_{jt}$

[25]First stage omitting fixed effects is $\widehat{businesstravel}_{jt} = Exp[\beta_{visa} visa_{jt} + \beta_2 tariff_{jt} + \gamma \mathbf{Z}_{jt}] + \epsilon_{jt}$

[26]Considering that I try to measure the lean impact of visas on business travel, (4) does not include tariffs, as business travel is not believed to be caused by tariffs. However, as a rigorous purpose, Appendix C includes the table of the complete first stage, indicating that the relevance condition is complied.

Equation (4) tests whether outbound business travel of Colombians and foreign business travel to Colombia are caused by $visa_{jt}$. It is critical to highlight that both variables refer to only short term stays. ψ_j refers to partner country fixed effects that absorb all time-invariant factors within partner countries that may cause an endogeneity bias otherwise. λ_t refers to year fixed effects that are crucial to isolate external factors and shocks that might constitute another bias otherwise. ϵ_{jt} represents the error term of the regression.

A matter to consider with regard to the liaison between international business travel flows and Colombian trade is that the transmission mechanism detailed along this document does not hold for goods within the group of mineral fuels and mineral oils[27], this because the principal determinant for exports/imports of this type of goods is the international reference price[28]. Taking this into account, the dependent variables of Colombian unilateral trade do not include this type of goods.

It is important to highlight that all regressions of this investigation (equations (2), (3) and (4)) account for strongly balanced yearly data for the years 2012-2018. As it is an adaptation of the gravity model of trade, all non-dummy independent variables are set in logs[29][30]. As this study employs PPML regressions, dependent variables (Colombian exports and imports) are set in levels. Standard errors are robust to heteroskedasticity.

In order to thoroughly understand the effect of international business travel on trade in goods, regressions on exports and imports of final, intermediate, homogeneous and differentiated goods are made, as long as regressions on countries by level on development. This fragmentation is key to discover the underlying nature of the effect of international business travel on trade for the case of Colombia.

[27] More exactly I refer to the group of goods of the chapter 27 of the Harmonized System (HS)

[28] As it is well known, a drop in the international reference price of oil caused a dramatic downturn in Colombian exports, it is clear example that business travel does not take part as a causal factor for this type of goods.

[29] In order to harness observations that include countries that have a zero rate tariff with Colombia (log of zero is undefined), 0 values were changed by replacing them with the value of 0.001. No more changes to this variable were made.

[30] In order to have more observations of tariffs available, some interpolations and extrapolations were added, specially for Colombian exports, as WITS only has partitioned data in some cases.

5 Results

5.1 First stage results

Table 1 represents the outcome of equation (4), that tests the relevance of visas on trade. The results tell us that if a Government decides to withdraw short term visa requirements to nationals of a certain country, it would have a positive substantial effect on international business travel. Furthermore, columns (1) and (2) disclose that if the Colombian Government removes short term visa restrictions to nationals of a foreign country, the impact on business travel would be almost threefold the effect of non-Colombian Governments granting open access (not requiring short term visas) to Colombian nationals.

Table 1: PPML. Relevance of the Instrument

	(1) Col outbound	(2) Foreign inbound
Open country (no visa) for Colombians	0.352***	
	(0.090)	
Open country (no visa) for foreigners		0.915***
		(0.144)
Year fixed effects	yes	yes
Country fixed effects	yes	yes
R-squared	.988	.993
Number of observations	1,274	1,274

Note: *** p<0.01, ** p<0.05, * p<0.1.

Dependent variables are international business travel flows. (1) refers to Colombians traveling abroad, and (2) refers to foreigners traveling to Colombia. Independent variable is visa free access to enter Colombia or a foreign country.

5.2 Second stage results

Table 2 shows the results for the regressions given in equations (2) and (3). Odd numbered columns display results for equation (2), and pair columns display results for equation (3).

Columns (1), (2) and (4) display the positive effect of foreigners traveling to Colombia for business purposes. These effects are not only statistically significant, but imply a greater elasticity on trade than the results presented for outbound Colombian business travel. Considering that the most reliable results are the ones presented in equation (3), it is critical to account that foreigners generate a large effect on both Colombian exports and imports, but exports are more sensitive to foreign business inbound travel than imports, as the coefficient in column (2) is more than three times the coefficient in column (4). This would probably indicate that foreigners in Colombia look more

for partners who provide them intermediate inputs than partners who distribute their products (retailers).

With regard to Colombian outbound business travel, there is only a significant effect on Colombian exports. Difference between columns (5) and (6) can be due to the fact that column (5) could suffer from omitted variable bias, sourced from factors or covariates from the partner country that cannot be controlled. Once controlling for the time and country specific components by including time and partner country fixed effects, it is observable that an increase of 1% in Colombian outbound business travel caused by a removal of visa restrictions to Colombians over time, actually causes a raise of 0.333% in Colombian exports. On the other hand, the effect on Colombian imports is not significant.

The outcomes of Table 1 and Table 2 report that not only foreign business travelers' reaction to variation in short term visa restrictions is greater than outbound Colombian business travelers', but also that their general impact on Colombian trade is greater. This implies two facts; on the one hand, when the Colombian Government grants visa exemptions to foreign nationals, they begin entering Colombia and promoting trade (more actively Colombian exports) in a much larger amount than Colombians do when facing the same type of scenario. On the other hand, the second fact is that foreign business travelers contribute more to the Colombian market competitiveness by fostering partnership developments, sales of goods, retaining customers and spurring innovation, than Colombians do abroad in the same scenario.

Interpreting Table 2 with regard to trade promotion in USD dollars can be given by the following expression:

$$\frac{\partial X_{jt}}{\partial \widehat{businesstravel}_{jt}} = \left(\frac{X_{jt}}{\widehat{businesstravel}_{jt}}\right)\beta_1 \qquad (5)$$

Table 2: IV-PPML. General Results

	(1) Exports	(2) Exports	(3) Imports	(4) Imports	(5) Exports	(6) Exports	(7) Imports	(8) Imports
Foreign inbound travel	0.387***	0.619***	0.025	0.178**				
	(0.135)	(0.220)	(0.186)	(0.083)				
Col outbound travel					0.033	0.333***	-0.256	0.047
					(0.202)	(0.115)	(0.307)	(0.525)
Tariff Col exports	-0.057***	-0.023**			-0.079***	-0.004		
	(0.020)	(0.011)			(0.012)	(0.007)		
Tariff Col imports			-0.044	-0.017***			-0.020	-0.013**
			(0.040)	(0.007)			(0.057)	(0.006)
GDP	0.484***		1.166***		0.766***		1.531***	
	(0.140)		(0.231)		(0.209)		(0.466)	
Distance	-1.033***		-0.333		-1.354***		-0.909	
	(0.199)		(0.281)		(0.497)		(0.714)	
Border	-0.208		0.243		-0.214*		0.246	
	(0.223)		(0.304)		(0.125)		(0.211)	
Common language	-0.320		1.112**				1.622**	
	(0.293)		(0.474)				(0.718)	
Year fixed effects	no	yes	no	yes	no	yes	no	yes
Country fixed effects	no	yes	no	yes	no	yes	no	yes
R-squared	.867	.981	.895	.992	.92	.991	.764	.994
Number of observations	784	784	791	532	441	441	406	441

Note 1: *** p<0.01, ** p<0.05, * p<0.1. Instrument: visa requirement for international business travel.
Note 2: The regression (4) could only be made by taking observations of foreign business travel where the minimum amount of travelers per observation is 8, otherwise the maximum likelihood function cannot be optimized.
Note 3: The variable Common Language in column (5) had to be dropped to run the regression, as when including this variable the maximum likelihood function could not be optimized.
Note 4: The regression (7) could only be made by taking observations of outbound Colombian business travel where the minimum amount of travelers per observation is 2, otherwise the maximum likelihood function cannot be optimized.

Formula (5) calculates the marginal change in the value of trade with respect to each additional business traveler. According to my model, by employing equation (3), it indicates that an on average, an additional Colombian outbound business traveler in fact generates USD $105,917 in exports. An additional foreigner visiting Colombia for business purposes actually generates on average USD $44,950 in Colombian exports and USD $338,250 in Colombian imports. Comparing these results for exports, it implies that although foreigners have a higher elasticity, Colombians traveling abroad generate more dollars per business trip[31].

As well, it is also valuable to better understand how this process works across developed and developing countries. As an exercise to know if there are value added disparities depending on the destination and origin of the traveler, Table 3 tests the results for OECD and non-OECD countries.

[31]As a matter of fact, this is induced by the fact that the number of foreigners visiting Colombia for business purposes is much higher than Colombians traveling abroad for the same reason.

Unfortunately, results about the effect of travel of OECD member countries to Colombia on Colombian exports and imports could not be made, as the instrument (short term visa restrictions) does not vary across OECD countries and over time. This because the Colombian Government grants short term free access to all nations that belong to this group throughout all years of the sample. This lack of variation across countries and time within the instrument makes unfeasible IV estimation. However, results for the other cases are found.

The main results, displayed in Table 3, indicate that non-OECD foreigners that travel to Colombia for business purposes generate a robust positive effect on Colombian exports and imports. Additionally, Colombians traveling abroad for business purposes generate a substantial positive effect on Colombian exports to developing countries, but not on developed countries. This outcome is related to the fact explained before. It seems that Colombians are able to generate value added that promotes exports when visiting developing countries but it becomes harder when visiting developed countries.

Table 3: IV-PPML. OECD and non-OECD countries

	(1) OECD Exports	(2) OECD Imports	(3) non-OECD Exports	(4) non-OECD Imports	(5) non-OECD Exports	(6) non-OECD Imports
Foreign inbound travel			0.550***	0.197**		
			(0.178)	(0.085)		
Col outbound travel	0.061	0.147			0.650***	1.104
	(0.128)	(0.302)			(0.197)	(1.703)
Tariff to Col exports	-0.014		0.014*		0.012*	
	(0.011)		(0.007)		(0.007)	
Tariff to Col imports		-0.026***		-0.010		0.041
		(0.010)		(0.009)		(0.080)
Year fixed effects	yes	yes	yes	yes	yes	yes
Country fixed effects	yes	yes	yes	yes	yes	yes
R-squared	.996	.993	.964	.991	.973	.969
Number of observations	175	175	532	364	266	266

Note 1: *** p<0.01, ** p<0.05, * p<0.1. Instrument: visa requirement for business travel.
Note 2: The regression (4) could only be made by taking observations of foreign business travel where the minimum amount of travelers per observation is 3, otherwise the maximum likelihood function cannot be optimized.

Tables 4 and 5 approach the type of products that Colombians and foreign nationals promote through business travel. It is relevant to know whether actual trade flows are intensive in intermediate goods[32] or final goods[33], as it helps us understand how is

[32]Data on intermediate goods were obtained from WITS, these data are measured in USD.

[33]Data on final goods were obtained by subtracting intermediate goods from the gross value in USD of all reported goods (not taking into account chapter 27 of the HS).

the nature of activities that business travelers perform when visiting other countries. These Tables show whether Colombians and foreigners traveling abroad for business purposes promote more intermediate and/or final goods. The main results communicate that Colombian outbound business travel focuses more on exports of final goods rather than exports of intermediate goods, as the coefficient of column (3) in Table 5 gives us a significant result and column (3) of Table 4 indicates a non-significant estimate. It confirms that Colombian outbound business travel does not seem to create any significant impact on imports, not even desegregating it in final and intermediate good levels.

Additionally, coefficients of inbound foreign business travelers communicate notable results, as Colombian exports created by them express a positive and significant coefficient only on intermediate exports. This fact is coherent with the intuition introduced when studying Table 2 (foreigners in Colombia seek partners to provide them more intermediate goods than final goods). However, the effect of foreigners on Colombian desegregated imports is surprising. Even though the effect for all goods is in overall positive and significant, columns (2) from Tables 4 and 5 indicate that the effect for final goods is so sensitive that even the negative significant effect of foreign business travel on intermediate goods is offset by the magnitude of the coefficient in regression (2) of Table 5.

Table 4: IV-PPML. Intermediate goods

	(1) Exports	(2) Imports	(3) Exports	(4) Imports
Foreign inbound travel	0.741***	-0.373***		
	(0.272)	(0.110)		
Col outbound travel			0.086	0.354
			(0.143)	(0.368)
Tariff Col exports	-0.004		0.007	
	(0.014)		(0.016)	
Tariff Col imports		-0.003		-0.017
		(0.011)		(0.011)
Year fixed effects	yes	yes	yes	yes
Country fixed effects	yes	yes	yes	yes
R-squared	.982	.99	.966	.99
Number of observations	516	426	384	384

Note 1: *** p<0.01, ** p<0.05, * p<0.1. Instrument: visa requirement for business travel.
Note 2: The regression (1) could only be made by taking observations of foreign business travel where the minimum amount of travelers per observation is 3, otherwise the maximum likelihood function cannot be optimized.
Note 3: The regression (2) could only be made by taking observations of foreign business travel where the minimum amount of travelers per observation is 12, otherwise the maximum likelihood function cannot be optimized.
Note 4: the sample for this Table includes years 2012-2017. WITS still does not have data for 2018.

Table 5: IV-PPML. Final goods

	(1) Exports	(2) Imports	(3) Exports	(4) Imports
Foreign outbound travel	0.670	0.747***		
	(0.698)	(0.253)		
Col outbound travel			0.636***	0.189
			(0.204)	(1.019)
Tariff Col exports	-0.037*		-0.005	
	(0.021)		(0.008)	
Tariff Col imports		-0.039***		-0.022**
		(0.012)		(0.010)
Year fixed effects	yes	yes	yes	yes
Country fixed effects	yes	yes	yes	yes
R-squared	.961	.979	.987	.993
Number of observations	672	462	384	384

Note 1: *** p<0.01, ** p<0.05, * p<0.1. Instrument: visa requirement for business travel.
Note 2: the regression (2) could only be made by taking observations of foreign business travel where the minimum amount of travelers per observation is 7, otherwise the maximum likelihood function cannot be optimized.
Note 3: the sample for this Table includes years 2012-2017. WITS still does not have data for 2018.

The last set of regressions made in this investigation tries to reveal another aspect of business travelers performing business interactions in other nations. Rauch (1999) innovated research in international trade in goods when empirically distinguished between homogeneous and differentiated goods[34]. He remarks that homogeneous goods are the ones that are usually standardized and traded in organized exchanges. These goods very often hold a reference price and are easier to sell without having the need of face to face business interactions to negotiate. Examples like gold, copper and other commodities resemble this type of product. The opposite can be represented in what he call heterogeneous goods; they often do not have a reference price and are more likely to require face to face interactions to have transactions, their cost varies according to different varieties, preferences of the consumers, transportation and rent costs, and locations where the good is sold. Clear example of this goods are shoes and clothing.

Rauch (1999) and Poole (2010) make clear that in order to harness trade potential of heterogeneous goods, business travel is a useful tool to promote this type of goods. The purpose of table 6 is to test if business travel of Colombians and foreigners is key to promote trade in heterogeneous goods. Regressions on homogeneous goods are also presented.

[34]Rauch (1999) actually separates these goods by looking at SITC revision 2, scrutinising the 4-digit separation of goods. He manually studies the nature of 9999 products to decide whether each product is part of the homogeneous goods group or the heterogeneous goods group. The database that indicates each group for the 9999 goods is taken from his own webpage. The data of SITC revision 2 is taken from Comtrade.

Table 6: IV-PPML. Homogeneous and differentiated goods

	(1) Hom Exports	(2) Hom Imports	(3) Hom Exports	(4) Hom Imports	(5) Dif Exports	(6) Dif Imports	(7) Dif Exports	(8) Dif Imports
Foreign inbound travel	1.531**	-0.127			-0.035	0.744***		
	(0.684)	(0.184)			(0.369)	(0.222)		
Col outbound travel			0.002	0.127			0.492**	-0.284
			(0.597)	(0.328)			(0.214)	(2.308)
Tariff Col exports	0.002		0.001		-0.003		0.011	
	(0.034)		(0.031)		(0.013)		(0.011)	
Tariff Col imports		-0.014		-0.016		-0.035***		-0.017
		(0.012)		(0.011)		(0.011)		(0.013)
Year fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
Country fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
R-squared	.955	.953	.952	.947	.954	.98	.967	.989
Number of observations	693	511	441	441	784	532	441	441

Note 1: *** p<0.01, ** p<0.05, * p<0.1. Instrument: visa requirement for business travel.
Note 2: The regression (2) could only be made by taking observations of foreign business travel where the minimum amount of travelers per observation is 11, otherwise the maximum likelihood function cannot be optimized.
Note 3: The regression (6) could only be made by taking observations of foreign business travel where the minimum amount of travelers per observation is 8, otherwise the maximum likelihood function cannot be optimized.

Column (7) of Table 6 is critical to thoroughly understand how Colombian outbound business travel is relevant to Colombian exports, as this regression clearly shows that Colombians do harness trade opportunities for heterogeneous goods, as their business interactions abroad represent a special value added when discovering new markets and establishing new trade relationships. Regression (6) indicates that foreigners also harness face to face interactions when promoting foreign exports of heterogeneous goods to Colombia (Colombian imports). Lastly, considering the results in column (1) of Table 4 and column (1) of Table (6), it is very likely that foreigners look for homogeneous intermediate goods as their inputs to send outside Colombia.

6 Conclusions

The present study is an attempt to better understand how face to face business interactions boost international trade for the Colombian case. This not only intends to grasp how a field of economic integration works, but also aims to contribute as an input for policy makers when facing decisions related to export promotion, visa restriction policies, business development and competitiveness.

The principal results of this investigation suggest that business travel does have an impact on trade. More specifically, findings imply that cutting visa restrictions not only stimulates more business travel, but this effect on its own ends up promoting

trade due to the new possibilities for business travelers to visit unlocked countries, thereby establishing face to face business interactions that boost trade of intermediate and final goods, for firms and consumers. These new international business relationships then represent competition for the participant countries, enlarging markets and thus increasing aggregate productivity.

General estimates indicate that overall, foreigners tend to have a larger elasticity effect on Colombian trade than Colombians. Further, Colombian business travelers only significantly affect Colombian exports, whereas foreigners impact both exports and imports. Although the Colombian exports elasticity to foreign travel is higher than for Colombians, it turns out that Colombians generate more dollars per business travel. Moreover, Colombians do have an impact on exports to developing countries, but not to developed countries. As well, when nationals of other developing countries visit Colombia, imports and exports are promoted.

Regarding final goods, Colombians promote them when traveling abroad by generating Colombian exports. Foreigners behave the other way around, so that they promote Colombian purchases of these goods (Colombian imports) when traveling to Colombia. Regarding intermediate goods, Colombians do not appear to have a sensitive effect on them, not for exports nor for imports. Instead, foreigners tend to promote Colombian exports of these goods. This indicates that foreign companies tend to be interested in Colombian inputs. As wide economic literature has shown that Colombian exports are much more concentrated in labor intensive that capital intensive goods, it is very likely that firms abroad utilize Colombian labor intensive goods. These results support the hypothesis that a main characteristic of foreigners traveling to Colombia for business purposes consists in buying Colombian intermediate goods with the aim to transform them into final goods by foreign firms that are more capable of providing a higher value added.

With regard to heterogeneous goods, both foreigners and Colombians promote exports for their own nations, as foreigners foster Colombian heterogeneous imports and Colombians foster Colombian heterogeneous exports. Other results suggest that, taking into account results of the paragraph above, foreigners seek homogeneous intermediate goods as their inputs to buy from Colombia.

As a final conclusion, this investigation did provide useful insights to gain knowledge about the nature of performance of business travelers with regard to trade. Although valuable results are obtained, much more research is needed to answer questions that this paper could not answer. An example is the estimate in column (2) of Table 4, that indicates that foreign nationals traveling to Colombia are associated with a

decrease in Colombian imports of intermediate goods. New investigations using microeconomic data on firms and consumers may contribute to a much deeper analysis, that in the end can provide critical information to understand business travel and trade dynamics in economic integration.

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A Visa openness to Colombians

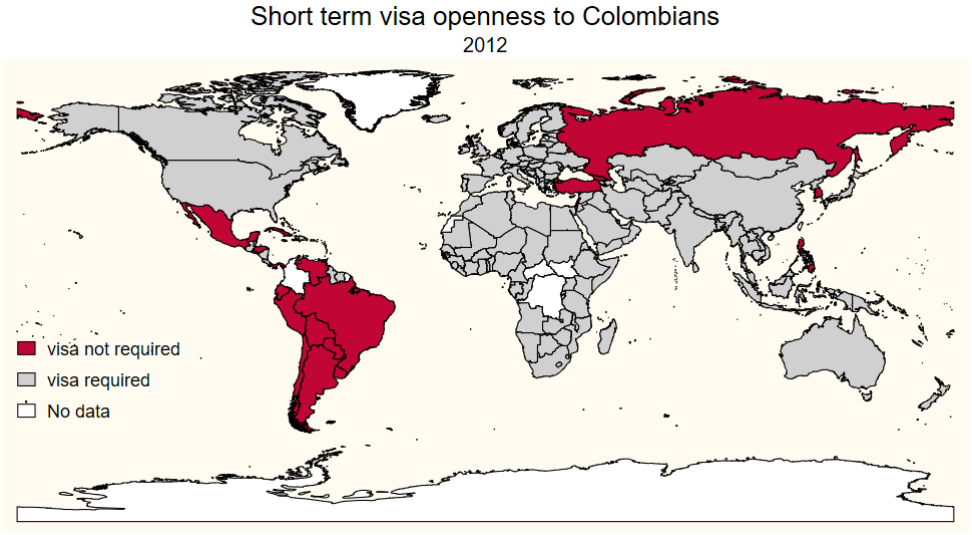

Figure 9
Source: Author's calculations based on multiple official sources and Enviromental Systems Research Institute (ESRI).

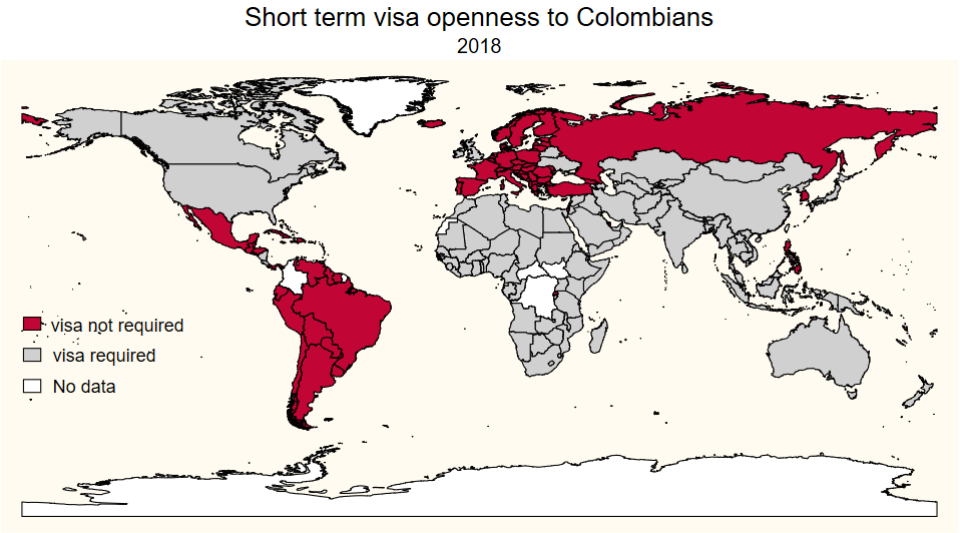

Figure 10
Source: Author's calculations based on multiple official sources and Enviromental Systems Research Institute (ESRI).

B Visa openness to foreigners

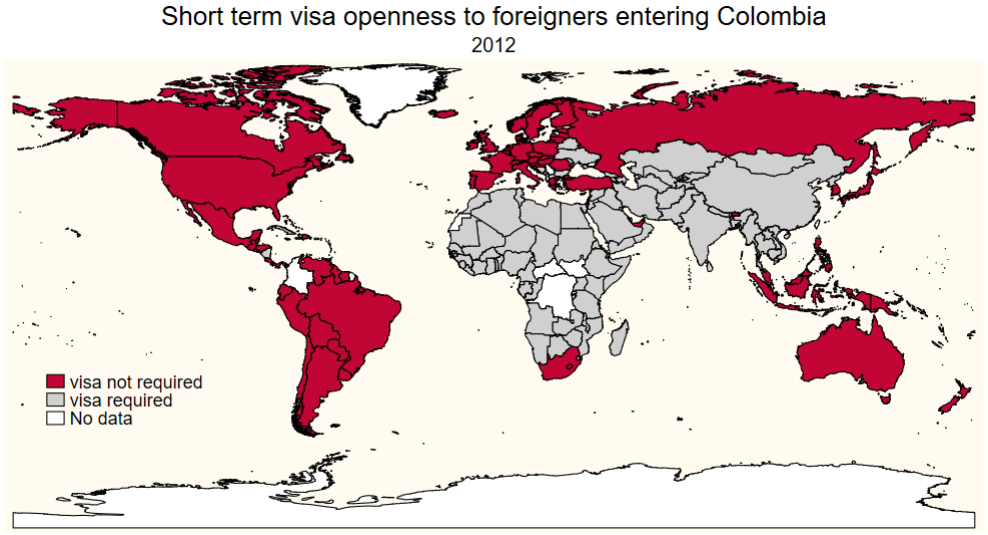

Figure 11
Source: Author's calculations based on multiple official sources and Enviromental Systems Research Institute (ESRI).

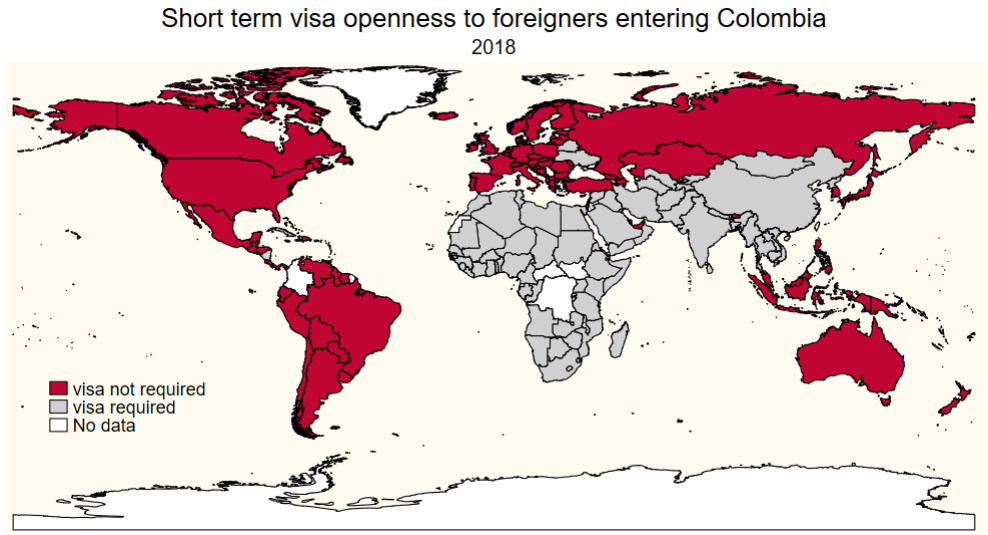

Figure 12
Source: Author's calculations based on multiple official sources and Enviromental Systems Research Institute (ESRI).

C Complete first stage results

Table 7: PPML. Relevance of the Instrument including tariffs

	(1) Col outbound	(2) Foreign inbound
Open country (no visa) to Colombians	0.350***	
	(0.089)	
Open country (no visa) to foreigners		0.923***
		(0.152)
Tariff to Col exports	-0.010	
	(0.010)	
Tariff to Col imports		0.010**
		(0.004)
Country fixed effects	yes	yes
R-squared	.988	.993
Number of observations	1,113	1,267

Note: *** p<0.01, ** p<0.05, * p<0.1.

Dependent variables are international business travel flows. (1) refers to Colombians traveling abroad, and (2) refers to foreigners traveling to Colombia. Independent variable is visa free access to enter Colombia or a foreign country.