Visiting a country and buying its Products

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PRELIMINARY DRAFT
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Abstract

The impact of international tourism flows has been poorly studied within standard gravity models of international bilateral trade. In this paper we use disaggregated bilateral data on both movements of people and movements of goods in order to carry out a panel data analysis on how the two flows are linked. We apply Rajan and Zingales (1998) methodology in order to identify those products which are more likely to be sampled (experienced) in their origin country by foreign, temporary visitors. We compute an index in order to proxy the experience good intensity for 11 manufacturing industries whose products can be easily transported and could be defined as 'local' varieties. We use all products of the same sectors which are not final consumption goods as a control group. Our identifying strategy enables us to robustly assess the influence of total arrivals in a country on its exports. By considering a sample of 25 countries belonging to the European Union, we find that tourism can promote exports.

JEL codes F14, F15

Keywords: Trade, Tourism, Gravity;

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1. Introduction

Although revenues from inbound tourism can be considered equivalent to exports, namely an export of services in the balance of payments of the host country, scholars have surprisingly lacked to consider tourist flows within standard international trade models. From an intuitive economic point of view, the fact that tourism is likely to affect the nature and the size of commodity transactions between countries, should be self-evident. For example, tourism facilities and services are likely to involve the import of specific goods which are needed in order to satisfy visitors’ needs. Our interest in this paper revolves around another possibility: the direct contact between foreign visitors and local products could, at least in principle, activate an international demand once tourists come back to their own countries. Furthermore, tourism may change consumers’ attitudes about foreign cultures, this way inducing new demand for foreign products.

The study of the relationship between tourism and exports is not new, but another stream of literature has been prevalent. Namely, several works have considered tourism and exports as joint determinants of growth and tried to detect long-run causal relationships (e.g. Balaguer and Cantavella-Jorda (2002); Dritsakis (2004) and Durberry (2004))\(^2\). The latter study is probably the most interesting one since aggregate exports and international tourism are studied by means of a production function where the economic growth is explained by physical capital, human capital and exports. Other works try to detect at an aggregate level the existence of causal link of exports and international tourism, seen as different sources of foreign receipts, and the long-run economic growth.

As for most economic relations the existing empirical literature stress causality as a crucial point in evaluating the correlation between touristic flows and exports. This paper aims at addressing the issue by applying a panel-data approach to exports within the EU. Differently from the above studies, which use total arrivals in a country without distinguishing their origin, we concentrate on specific inter-national movements by using bilateral data on both travel and exports. In this way we can better identify our flows of interest and study how they are linked. If we believe that English people will better know, and so buy, Italian products after spending some time in Italy (regardless the motivation of the travel, leisure or business) the use of bilateral data links in a precise way a specific flow of people to the correspondent flow of commodities whose exports could be stimulated.

\(^1\)Also, development of hotel and other tourism infrastructure often needs the expansion of import trade with overseas states. But also for this issue, i.e. the relationship between tourism expansion and imports of capital goods, there is a general lack of empirical evidence

\(^2\)see also Oh (2005)
A paper in line with our research approach is Quinn (2009), who finds that some positive role of tourist visits on US exports using a panel from 19 countries. In another work, Fischer and Luis (2009) check for the possibility that arrivals in Spain from Germany are a stimulus for exports of Spanish wines (to Germany). The latter study, by focusing on the wine sector, states clearly that the movement across borders can be relevant for making some specific products better known to foreign consumers. Any empirical work on the issue should deal with the implications of such specificity. In theory we can think foreign arrivals to a country as a way that local firms have to gain information on foreign costumers’ tastes. On the other hand, during a travel consumers have the possibility add local varieties to their consumption bundle. Both factors will potentially increase countries’ exchanges which take place after the event ’travel’. Our hypothesis is that visits a country receives can after foster its exports differently for those goods which are sampled during the travel.

We apply Rajan and Zingales (1998) methodology in order to identify those products which are more likely to be sampled (experienced) in their origin country by foreign visitors. We compute an index in order to proxy the experience good intensity for 11 manufacturing industries whose products can be labeled ’local’ varieties and can be easily transported. We assume such two characteristics to be crucial for having a product sampled by foreign visitors. Then, we also need products which are similar with previous ones but they are not going to be experienced by tourists. Such products are going to be our control group. We use information on commodities which belong to the same sectors but are not final consumption goods. They are either capital, primary or intermediate products. Our identifying strategy enables us to robustly assess the influence of total arrivals in a country on its exports. By considering a sample of 25 countries belonging to the European Union, we find that tourism can promote exports.

Finally we need to properly control for all shocks which will make easier for both goods and people to move across borders. We use a FE model with controls for the trading-pair in each period.

The paper is structured as follows: section 2 will present the empirical issues of our work. Then our proxy on the experience-goods intensity for the sectors entering our analysis and its computations are discussed in section 3. Section 4 describes the data while results are illustrated in section 5. Conclusions will follow.

2. Movements of People and Movements of Goods

In this paper it is our aim to identify movements of people which are temporary, i.e. short-term travels which do not involve any migration decision. But differently from existing studies on the dynamic relationship between trade
and tourism or tourism, trade and growth which use total arrivals in a country without distinguishing on their origin, we identify specific inter-national movements. Linking bilateral information on both flows is a first fundamental step in order deal with the identification of a robust correlation between arrivals and exports.

2.1. A double-sided Causality Link

Arrivals data correspond to international visitors to the economic territory of the country of reference and include both tourists and same-day non-resident visitors. This allows the possibility that a short-term visit is motivated by business reasons, therefore introducing a problem in the direction of the causal mechanism.

In this work we are interested in understanding whether the permanence of tourists increases commodity exports in the guest country through exposing foreigners to experience local varieties. But we well understand that traveling may be motivated by business reasons and therefore by the same exporting activity between two countries. This makes the relation we are interested in a double-sided one where international travels can either foster or be fostered by the fact two economies exchange commodities.

Furthermore there could be unobserved factors likely to influence both flows. Any event which would increment the probability of moving across borders, or would reduce the costs of the same activity, is likely to affect both movements of people and movements of goods therefore creating an omitted variable bias when estimating the correlation between arrivals and exports.

In the last 15 years the EU air transport market has seen a complete revolution, since the entrance of low-cost flight companies. Furthermore the connections’ map has enriched in time: many new routes have opened. Both factors contribute to stimulate the mobility of people across national borders, particularly short-term movements. As new routes can affect both types of flows, stimulating both tourism and lowering transport costs to ship products to another country, it is important to properly specify the model to be estimated and to find a well-sounded identification strategy.

2.2. The Basic Test

Our hypothesis is that countries which receive higher arrivals will tend to export more. In order to perform a test first of all we need to merge the correspondent flows, i.e. we need to control on whether arrivals from a particular

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3The World Tourism Organization defines tourists as people who “travel to and stay in places outside their usual environment for more than twenty-four (24) hours and not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited.”
country stimulate exports to that precise economy. This means that the origin country of our arrivals flows corresponds to the destination country of the commodities’ flow. Our dependent variable is therefore exports from country \(i\) to country \(j\) in sector \(s\) at time \(t\). Our interest variable is total arrivals from country \(j\) to country \(i\) in the same period.

The most successful framework for explaining the level of bilateral exports is the gravity model which is able to explain why flows rise with the size of either trading partners and when their distance (either geographical or cultural) is smaller. Furthermore, the gravity equation also accounts for barriers to impede trade a lot. For example, sectors with higher technical barriers have been found to reveal a higher propensity to exchanges within borders, also called internal trade.

In order to conduct our test we would need to consider arrivals across our controls. Notably, all possible shocks common to moving products or people across the border of a specific trading couple need to be controlled. The most effective way for correcting for this potential source of omitted-variable bias in the coefficient of our interest variable is to use a country-pair indicator variable for each time period. Such fixed-effect control makes possible to estimate coefficients of explanatory variables which have one more dimension of variance, with respect to the time-varying country-pair fixed effect. This implies that the usual variables entering a gravity exercise (income of both partners and distance) do not have any space. Also, the coefficient of a variable which varies across the country-pairs and in time (as the total number of arrivals for each country pair) cannot be estimated. We can estimate a coefficient of the differential effect of total arrivals across industries.

The model we want to estimate is then:

\[
EXP_{ijst} = \text{Constant} + \beta_1 j t \ldots \beta_25 j t \ldots i t \ldots i 25 t \text{Country-pair Indicators x t}
+ \beta_3 \text{Industry Indicator x Tot Arrivals} + \epsilon_{ijst}
\] (1)

2.3. Our Identification Strategy

The channel of influence we are investigating works because spending some days in another countries allows local products to be experienced. Therefore, we can adopt an identification strategy based on the hypothesis that a touristic shock increases more the exports of those commodities which can be better known when consumed in the home country with respect to those ones less dependent on local promotion. In other words, some firms can reduce the costs of promoting their varieties in another country simply by firstly exporting \textit{in loco}. After visiting a country when back home foreign consumers are more likely to buy those products which have experienced during their travel. And this is likely to be important for products whose national specificity is important. While there is not need to go to Switzerland to decide to buy a Swiss
watch or to drive a Mercedes car in Germany in order to choose it across other varieties the preference towards a specific wine or food variety is likely to be enhanced after tasting or using it while traveling. is less likely to be stimulated by the experience in using them had in the producer country it is not needed to stay in a country

The most disaggregated comprehensive data on bilateral exports available are at the product level where several products are produced within the same industry. In order to implement our identification strategy we firstly need to isolate those industries whose products rely on experiencing them. Secondly, for those industries, we need to construct an indicator which captures different levels of such a reliance on the experience activity. In other words we need to measure the experience-goods intensity at the industry level.

3. A measure on the Experience-Goods intensity at the industry level

The hypothesis we use for identifying the causal link from the amount of visitors a country receives and the amount of goods it will export (to the origin country of the touristic flow) is that a touristic shock is likely to stimulate differently exports of those goods which have to be consumed at least once in order to determine on their quality, with respect to those ones where this is not true.

Another way to look at the link between moving goods and people across borders is that while exports of all types of goods can foster business trips, and therefore the movement of people across borders, we suppose that visiting a country can promote primarily those commodities which are more likely to be experienced during the travel and likely to be transported back home.

We then need to work out firstly on which are our sectors of interest. Secondly we have to build a control group. We have to find commodities which have the same characteristics in terms of weight and transportability as the ones which can be experienced but do not have the characteristics to be sampled. In other work this implies the construction of a measure of the industry’s experience goods intensity.

3.1. Experience-goods: a Definition

Goods characteristics contribute to the way consumers can get informations about their quality. In the past 30 years such aspects have been extensively analyzed by the economics of information. According to Nelson (1974), search goods are those for which judgments regarding product attributes/quality can be made by consumers prior to purchase while experience goods are those for which such judgments can be made only after purchase. In other terms the
latter is one whose qualitative characteristics can be obtained only through buying and using the item.

Looking at a wider range of products, than our manufacturing products, and including also services, there has been some discussion on finding an objective measure for distinguishing experience and search products: according to Porter (1976) a low unit price for a product implies that relevant performance information will be acquired via sampling (experience). Notably, an experience good is not such by design, rather by virtue of consumer choice in the face of varying informational costs. Thus, Porter’s measure of the incentive to acquire product/vendor information is product price, as opposed to Nelson’s ad hoc search/experience dichotomy⁴.

3.2. Local Varieties in Manufacturing

We decided to adopt the above information so that to select those activities where to concentrate our analysis. Our trade data, based on the ISIC-rev2 classification, included all industrial sectors, some producing internationally ‘standardized’ commodities (such as chemical products, pharmaceuticals or electrical machinery) which can be easily transported back home but do not have the appeal of being a local variety; or commodities which are difficult to be transported (mining, iron and steel industries, metal products, machinery, transport equipment etc.).

At this stage of the analysis we decided to concentrate on those activities producing as ‘main’ commodities items which have the following characteristics: a) can be labeled as ‘local varieties’; b) can be easily transported back home. Food and beverages satisfy such two categories. But other items within light manufacturing can also be included. We therefore concentrate on exports for the 3-digit sectors in Table 1:

Within those activities we have now to distinguish products which can be easily sampled from others which are similar on all other characteristics (a and b above) except from the fact that foreign visitors are not going to consume them locally because they are not adapt for final consumption. We can think them as a control group: items which are potentially interesting to foreign visitors, since they belong to the same activities above, which are similar for

⁴In search for an objective measure, more recently, Laband (1991) argues that the discussion of search versus experience goods and, more importantly, the behavior of buyers and sellers, is driven by the cost to the buyer of a disappointing purchase. As the cost of making a disappointing purchase increases, the would-be buyer rationally seeks to acquire additional information prior to purchase regarding product quality and performance. At the other extreme, for some items the cost of making a disappointing purchase is relatively small. Information about product quality for these items may be obtained cheaply through sampling and experience. As the purchase price of an item rises, so does the cost of making a disappointing purchase and, accordingly, so do the benefits from pre-purchase efforts to acquire information, ceteris paribus. Using this definition, according to Laband (1991) the awkward dichotomy of search versus experience can be replaced by a continuous variable: price
weight and other aspects referring to their transportability but is not possible to be experienced during the travel since are not apt for final consumption.

3.3. How the Proxy is Calculated

At the product level where we can define a commodity by its end of use. This means that we can firstly define a product to be a final good or a intermediate product. Within final goods we can also distinguish between consumption products, primary commodities and capital goods.

Table 2 lists the total number of tariff lines (goods) for each of our sectors decomposing them by level of transformation according to CEPII classification based on the Broad Economic Categories definition of the UN.

We use this information in order to compute a proxy on the experience-good intensity for the industries we are considering. Our hypothesis is that items which belong to the same industries are similar in terms of weight and other aspects strongly related to their transportability but tourists or other visitors are quite likely to taste (experience consumption products while this is likely not to be the case for intermediate, capital or primary goods.

In other words we use as controls items produced in the same industry but with a different end-of-use. Such information will help us to compute an index which will differentiate our industries according to the intensity of products which potentially can enter the bundle of goods consumed in loco and then consumed back home with respect to similar products which are less likely to be consumed in the country visited by definition, since they are not goods for final consumption.

Another relevant element is that indexes have to be as mush as possible independent from the trade pattern of our country-pair, the cross-sectional unit of our analysis. In other words we want our index to be independent from our dependent variable. We have therefore used sum for all 25 countries
Table 2

Number of Products by Transformation Level

<table>
<thead>
<tr>
<th>Sector</th>
<th># Products</th>
<th>C</th>
<th>K</th>
<th>P</th>
<th>PD</th>
<th>T</th>
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<td>396</td>
<td>256</td>
<td>0</td>
<td>24</td>
<td>0</td>
<td>116</td>
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<td>313</td>
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<td>2</td>
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<tr>
<td>314</td>
<td>6</td>
<td>6</td>
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<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>321</td>
<td>535</td>
<td>100</td>
<td>0</td>
<td>19</td>
<td>9</td>
<td>407</td>
</tr>
<tr>
<td>322</td>
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<td>230</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>323</td>
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<td>0</td>
<td>1</td>
<td>1</td>
<td>27</td>
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<tr>
<td>324</td>
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<td>29</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>331</td>
<td>47</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>34</td>
</tr>
<tr>
<td>332</td>
<td>20</td>
<td>9</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>361</td>
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<td>5</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>362</td>
<td>59</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>58</td>
</tr>
</tbody>
</table>

* Products = 6-digit HS tariff lines
** CEPII classification by transformation level based on Broad Economic Categories of the UN; C = Consumption; K = Capital; P = Primary; PD = Parts and accessories; T = Processed

entering our sample to compute simple shares in EU total exports:

\[ Z_{st} = \frac{ExpC_{st}}{TotExp_{st}} \]  \hspace{1cm} (2)

where total exports in both values \((Z^v)\) and quantities \((Z^q)\) have been used. Table 3 illustrates the heterogeneity across sectors in terms of their intensity in consumption goods shares. The value of the indexes, presented for both initial and final year of our empirical analysis, reveal sectors as Tabacco, Apparel and Footwear where all tariff lines are final products defined as consumption goods, while sectors such as Wood & Cork or Glass products do not show almost any tariff lines (and therefore no trade in values or quantities) identifying goods for final consumption.

In Eq.2 the \(Z_{st}\) term (either in value or quantity) interacted with our regressor of interest will identify a differential effect of total arrivals linked to the time-varying inter-industry heterogeneity in consumption goods intensity. Such differential effect in our attempt is the way we identify a proper causality link from the flow of arrivals from country \(j\) to country \(i\) to the corresponding exports from \(i\) to \(j\).

4. The data

The trade data used are from CEPII Trade, Production and Bilateral Protection Database, which has been recently Mayer et al. (2008) updated from a previous version. The dataset is similar to the one with the same title provided by the World Bank (Trade, Production and Protection database). One of the advantages of CEPII dataset is a better coverage of trade data. Trade data
Table 3

Consumption goods shares in EU trade

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
<th></th>
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</thead>
<tbody>
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<td>311</td>
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<td>0.81</td>
<td>0.57</td>
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</tr>
<tr>
<td>313</td>
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<td>0.91</td>
<td>0.92</td>
<td>0.93</td>
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<tr>
<td>314</td>
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<td>1.00</td>
<td>1.00</td>
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</tr>
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<tr>
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<td>0.14</td>
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<td>0.26</td>
<td>0.39</td>
<td>0.22</td>
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<tr>
<td>362</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

* $Z^v$ and $Z^q$ calculated using the sum of exports of 25 EU countries
** # Products = share of C tariff lines

is based on a new database developed by CEPII, called BACI (for Base pour l’Analyse du Commerce International), which is built using COMTRADE, from the United Nations Statistical Department, as a primary source. The advantage of BACI is the use of mirror rows (harmonized to warrant consistency), which increases the coverage of the trade data. The result is a database that expands figures in production, provides bilateral trade based on a new and highly disaggregated dataset, and adds bilateral data on trade policy (tariffs and NTB) at the industry level. Data are available for ISIC rev2 3-digit industry level (28 industrial sectors) over the period 1980-2004 for production and bilateral trade.

Our sample contains information on bilateral exports in values, quantities and in the number of goods traded for 25 Countries in Europe (all EU27 except for Sweden and Malta, whose data on tourist flows are incomplete) by ISIC rev2 sector (see table in the Appendix) and by product type (or stage of production).

As far as tourism data on international arrivals flows disaggregated at the country-of-origin level, our source is represented by Yearbook of Tourism Statistics, released each year by the World Tourism Organization’s (UNWTO). To the best of our knowledge, this publication represents the best source in terms of detailed information on the number of arrivals, length of holidays and country of origin of tourists. Bilateral tourist flows have been built by matching for each couple of countries the information on total arrivals of non-resident visitors in all kind of accommodations by nationality, in the most cases where this information was available. In the other case, in order to fill-up the dataset, the overall international arrivals at national borders and by country of origin have been considered. The available years for tourist data flows are 1998-2007. Given the availability of trade data the analysis here presented will investigate on the relation with trade flows using data on 7 years, from 1998 to 2004.
Table 4

Arrivals and Exports - Difference in Difference Results

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$Z^v \times \text{Log}(\text{Arr})$</td>
<td>0.05***</td>
<td>0.05***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.003)</td>
<td>(0.003)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$Z^q \times \text{Log}(\text{Arr})$</td>
<td>0.03***</td>
<td></td>
<td>0.03***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.003)</td>
<td></td>
<td>(0.003)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>7.65***</td>
<td>7.83***</td>
<td>7.65***</td>
<td>7.83***</td>
</tr>
<tr>
<td></td>
<td>(0.020)</td>
<td>(0.017)</td>
<td>(0.019)</td>
<td>(0.015)</td>
</tr>
<tr>
<td>Observations</td>
<td>24,422</td>
<td>24,422</td>
<td>24,422</td>
<td>24,422</td>
</tr>
<tr>
<td>$R^2$ between</td>
<td>0.49</td>
<td>0.45</td>
<td>0.43</td>
<td>0.40</td>
</tr>
<tr>
<td>Number of FE (CP*t s)</td>
<td>1,830</td>
<td>1,830</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of FE (CP*t as)</td>
<td></td>
<td></td>
<td>2,826</td>
<td>2,826</td>
</tr>
</tbody>
</table>

(1) and (2) symmetric (country-pair x year) FE
(3) and (4) asymmetric (country-pair x year) FE
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5. Arrivals and Exports

5.1. Results from the Basic Regression

Results in Table 4 are from eq.1 all estimated with a FE model specified in two ways. Controls in (1) and (2) are for the country-pair $i, j$ in the different $t$ periods, and are symmetric, i.e. the imposed restriction is that the heterogeneity of the pair is considered to be identical for both exports from $i$ to $j$ and reverse. In (3) and (4) controls have been constructed in order not to impose this restriction on the data. Therefore FEs allow a different impact for the same couple depending on who is the exporting country. We call them asymmetric FEs since the heterogeneity of the couple is considered to be different according to $i$ or $j$ being the exporting country. Since we introduced heterogeneity controls for the trade pair varying in time we cannot estimate a coefficient for our variable of interest, total arrivals from $j$ to $i$ at $t$. In order to properly identify the causal link from arrivals to trade we consider its interaction with $Z^v$ or $Z^q$, our measures of the industry intensity in final consumption goods, which is our proxy for identifying those products whose quality can be ascertain after sampling and that varies across industries in time.

Coefficients are significantly different from zero in all equations and suggest a total effect of 5% when arrivals are doubled in those sectors which produce only final consumption goods ($Z = 1$). Results from the quantity based index suggests a smaller but still significant and relevant coefficient. Exports are stimulated by 3% when arrivals double in the same sectors.

At this stage, one first robustness control is to evaluate our measure in a gravity equation, where controls for the economic size of both trading partners
are introduced.

5.2. Arrivals in a Gravity Specification

The gravity equation is the most successful empirical models for the analysis of trade volumes. We augment the standard gravity equation with some of the more recent theoretical developments related to this methodology (see Anderson and van Wincoop (2003), Rose and van Wincoop (2001)). Although gravity model has been long criticized that it lacked theoretical foundations, it gained firm microfoundations long ago Anderson (1979). Further theoretical refinements have been developed since then in its support (e.g., Bergstrand (1985), Bergstrand (1989), Deardorff (1995), Eaton and Kortum (2001)). The success of the gravity equation stems from the ability to explain some simple trade patterns, namely: a) bilateral trade rises with the size of either trading partner; b) countries further apart trade less; c) borders appear to impede trade a lot.

Gravity equations are highly suited for explaining trade costs. These are related to many aspects which impede international exchanges, and therefore are proxied by different measures, distance first of all. Geography is a clear contribution to the costly movements of goods across economies and regardless of the fact that transport costs have shown a decreasing trends in the last decades the coefficient for the distance variable has not shown any decrease in size in recent gravity exercises (Buch et al. (2004)). Linked to geography is also adjacency or any measure related to the position of an economy in the space (landlocked countries or islands have been normally identified as different).

Other factors which capture the costly aspects of trade are captured by cultural and institutional variables, such as a common language, colonial links usually captured by the distance between the trading centers of the two regions. Other controls normally used include dummy variables indicating if both partner and reporting countries are members of any free trade agreement (such as EU, CEFTA, and FTA).

All these variables have the characteristic to be related to a specific pair or observations (countries, countries, industries, etc). The important issue is that any country-pair has elements of heterogeneity which have to be taken into account. Furthermore heterogeneity at the country level is related to each exporter country $i$ and each destination $j$ in the world markets, i.e. the position of the single pair has to be controlled with respect to all possible alternatives. In economic terms the issue has been clarified in Anderson and van Wincoop (2003): bilateral trade flows depend on the destination and origin price levels which are related to the existence of trade barriers with respect to all the possible trade partners alternatives, what is named multilateral resistance. They propose a method which consistently and efficiently estimates gravity equations, but involves a recursive trade system in order to estimate price terms at the country level.
Table 5
GDP, Arrivals and Exports - Difference in Difference Results

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log(GDP$_i$)(PPP)</td>
<td>0.74***</td>
<td>0.28</td>
<td>0.72***</td>
<td>0.27</td>
</tr>
<tr>
<td>(0.241)</td>
<td>(0.308)</td>
<td>(0.241)</td>
<td>(0.307)</td>
<td></td>
</tr>
<tr>
<td>Log(GDP$_j$)(PPP)</td>
<td>1.43***</td>
<td>1.34***</td>
<td>1.45***</td>
<td>1.37***</td>
</tr>
<tr>
<td>(0.224)</td>
<td>(0.286)</td>
<td>(0.224)</td>
<td>(0.284)</td>
<td></td>
</tr>
<tr>
<td>$Z^v \times \text{Log}(Arr)$</td>
<td>0.05***</td>
<td>0.05***</td>
<td>(0.006)</td>
<td>(0.006)</td>
</tr>
<tr>
<td>$Z^q \times \text{Log}(Arr)$</td>
<td></td>
<td>0.03***</td>
<td>0.03***</td>
<td>(0.006)</td>
</tr>
<tr>
<td>Constant</td>
<td>-49.26***</td>
<td>-35.16***</td>
<td>-49.22***</td>
<td>-35.28***</td>
</tr>
<tr>
<td>(4.374)</td>
<td>(10.957)</td>
<td>(4.361)</td>
<td>(10.886)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time FE</th>
<th>NO</th>
<th>YES</th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td>24,422</td>
<td>24,422</td>
<td>24,422</td>
<td>24,422</td>
</tr>
<tr>
<td>$R^2$ between</td>
<td>0.58</td>
<td>0.41</td>
<td>0.57</td>
<td>0.39</td>
</tr>
<tr>
<td>Number of CP-FE (as)</td>
<td>438</td>
<td>438</td>
<td>438</td>
<td>438</td>
</tr>
</tbody>
</table>

-asymmetric country-pair FE
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The easy alternative which still provides consistent and efficient estimates is panel data in order to control for fixed effects which can be introduced separately for both reporting and destination country or, alternatively, for the country pair. The advantage of the second option is to allow a proper control for the heterogeneity of each country pair, while the drawback is the imposed restriction of a multilateral resistance equal for both partners in the pair.

While the procedure is not to be used where the focus is on providing evidence on time invariant variables for the country-pair (such as all indicators related to the geographical or historical position of the pair) we can apply it to our case where arrivals change in time. We estimated a FE specification with asymmetric country-pairs controls, which implies that the restriction of a symmetric multilateral resistance is not imposed.

Results in Table 5 confirm size and significance of coefficients already discussed in Table 4. There is not change when time FE are also included, in order to capture shifts in unobservables which may impact both the moving of people and goods across borders.

6. Conclusions

Our work proposed and applied a method to identify a causal link from travels to exports. In theory we can think foreign arrivals to a country as a way that local firms have to gain information on foreign costumers’ tastes. On the
other hand, during a travel consumers have the possibility add local varieties to their consumption bundle. Both factors will potentially increase countries’ exchanges which take place after the event ‘travel’. Our hypothesis is that visits a country receives can after foster its exports differently for those goods which are sampled during the travel.

We have applied Rajan and Zingales (1998) methodology in order to identify those products which are more likely to be sampled (experienced) in their origin country by foreign visitors. We have computed an index in order to proxy the experienced-good intensity for 11 manufacturing industries. We have chosen industries whose products can be labeled ‘local’ varieties and can be easily transported. We assume such two characteristics to be crucial for having a product sampled by foreign visitors. Then, we have used information on commodities which belong to the same sectors but are not final consumption goods (they are either capital, primary or intermediate products) as a control group. Our identifying strategy enables us to robustly assess the influence of total arrivals in a country on its exports. By considering a sample of 25 countries belonging to the European Union, we find that tourism can promote exports.

Our results suggest a total effect of 5% when arrivals are doubled in those sectors which produce only final consumption goods ($Z = 1$). Results from the quantity based index suggests a smaller but still significant and relevant coefficient. Exports are stimulated by 3% when arrivals double in the same sectors.
References


