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Export Growth in Developing Countries:

Market Entry and Bilateral Trade Flows

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Abstract:

We document the disappearance of numerous zeros in bilateral trade matrices since 1970. A novel decomposition of the growth of 23 developing economies' exports during 1970-97 reveals that approximately one third of this growth can be accounted for by sales of long-standing exportables to new trading partners. Product-line econometric analyses suggest that such export growth is often enhanced by market size and proximity, and also by experience gained in the destination and proximate markets. Three measures of the proximity of a potential export destination to foreign markets that are already being supplied by an exporting nation are employed. Their significance indicates the presence of a path dependent process of geographical spread of exports.

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1. Introduction

The study of bilateral trade flows has been at the centre of research on international trade flows for almost four decades. Some recent contributions have explored the adequacy of the theoretical underpinnings of the most popular explanation for bilateral trade flows, the so-called gravity equation.[1] Others have focused on the consistent and efficient estimation of such equations.[2] In these approaches, and others, the tendency has been to study the determinants of the direction and volume of trade, assuming the existence of such trade. Without denying the insights from such analyses, they have tended to overlook another important change in bilateral trade flows since 1970. Namely, that exporters now sell goods to a larger number of trading partners than in the past, effectively reducing over time the number of zeros observed in bilateral trade matrices. In this paper, we document the importance of this phenomenon for developing economies.[3] Furthermore, we present nearly two thousand product-level econometric analyses which suggest that this phenomenon is driven in part by information that exporters acquire (through their sales to existing export destinations) about other export opportunities that are proximate (in some sense) to these foreign markets.

The paper is based on examination of the growth of exports by 23 developing and middle income economies. For each of these nations we decompose the observed changes in exports over 1970-97 into changes in product lines supplied and changes in export destinations. One motive for doing so is to establish the factual record. Another is to see what, if any, similarities emerge across nations.

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[1] See Harrigan (2002) for a survey of this literature.

[2] See, for example, Anderson and Van Wincoop (2001), Redding and Venables (2000), and Feenstra (2002).

[3] This is not to suggest that there has been no research on the factors which can account for changes in the direction of trade by developing economies. For example, long standing theories of the product cycle (Vernon, 1966; and Grossman and Helpman, 1989, 1991a,b) and more recent multi-cone versions of the Heckscher-Ohlin models (Schott, 2001) shed light on how the direction of trade changes as economies accumulate domestic capital, receive foreign direct investments, and lower trade barriers. Other analyses of so-called North-South trade, which have implications for the direction of trade, emphasize the importance of international technological differences and the distribution of income (Flam and Helpman, 1987; Stokey, 1991; and Matsuyama, 2000).

The findings are quite striking. Nations rarely cease exporting a product line, observed at the three-digit level in the NBER World Trade Database. Furthermore, on average about 10 percent of total export growth by these developing economies can be accounted for by the introduction of new products—although there is some variation across nations. About 60 percent of the trade growth is accounted for by greater exports to long-standing trading partners of product lines traded since 1970. Our main focus is on the remaining third or so of export growth, which is due to the sale of existing product lines to new trading partners. We term the latter the "geographic spread of trade" and note that it has not received much attention in the literature on bilateral trade flows.[4]

The balance of this paper is devoted to examining the factors that might be responsible for this geographic spread of trade. Specifically, we estimate at the product-line level the determinants of whether or not a given nation exports to foreign destinations during 1970-97. We hypothesise that this depends on the usual gravity variables, including the market size of the destination country and its distance from the supplier, as well as on time-varying characteristics of the exporting nation, such as the exchange rate and productivity levels. In addition, we investigate the extent to which the dynamics of export growth are driven by the spread of exports from a particular destination country to "neighbouring" countries. We model and test the hypothesis that such proximity reflects information acquisition about potential export destinations.[5]

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[4] To the best of our knowledge, Haveman and Hummels (2001) were the first to point out just how many zeros there were in bilateral trade matrices. This was in the context of a discussion of the adequacy of various complete and incomplete specialization formulations of the gravity equation. They did not focus on the changing number of zeros in bilateral trade matrices, as we do.

[5] Several learning mechanisms are possible. First, in the process of exporting to Germany an Argentine firm may, for example, learn about potential contracts in nearby France and prepare bids for them. Second, an Argentine beef exporter to Germany may find that the importing wholesaler also has operations in close by nations (after all, research does show that the extent of foreign corporate operations activity falls off with distance), and that the Argentine firm is invited to supply beef to affiliates of the German wholesaler that are located, say, in Poland. (Such arguments are routinely made in the literature on global production networks see, for example, Cheng and Kierzkowski 2000 and McKendrick, Doner, and Haggard 2000). A third mechanism, which has received growing attention in recent years, is through trading companies and networks of typically ethnically-related firms. To the extent that these companies and networks reduce search costs, then a firm's decision to start exporting may result in it learning about foreign market opportunities from other firms in these groups (Rauch, 1996, 1999, 2001). Each of these mechanisms suggests that the probability of a firm exporting to a given foreign economy at a point in time is determined in part by where they—or similar firms—have exported to in the past.

We employ three measures of the proximity of currently unsupplied foreign markets to present export destinations (a concept we refer to as the "proximity to the supply frontier."). One is based on the distance of a candidate export destination to the closest foreign market already supplied by the exporting nation.[6] The others capture the presence of common borders between current and potential future export markets, and the use of a common business language[7]. As the export destinations for a given product vary over time, so can the proximity to the supply frontier of those nations that do not currently import the product in question. We, therefore, attempt to identify three channels through which exporters learn about new markets.[8]

We form over two thousand panels of product line-level export data for 23 developing economies, and estimate the contribution of each potential learning mechanism oultined above. Our most conservative parameter estimates suggest that in 30 percent of all product lines these learning dynamics are statistically significant. What is more, there is a strong positive correlation between the number of product lines a nation exports and the percentage of product lines where learning dynamics are contributing to the geographic spread of exports. China and India, for example, export over 175 distinct product lines during 1970-1997 and just under 45 percent of them exhibit these learning dynamics. Throughout this time period China and India's exports grew in real terms 1356 and 324 percent, respectively. Our econometric estimates also suggest that learning about potential export markets through common languages and shared borders encourages the geographic spread of exports less than half as often as learning about markets that are proximate measured simply on

[6] This is quite distinct from the time-invariant distance between a candidate export destination and the exporting nation.

[7] This might be thought of linguistic proximity. For example, two French-speaking nations may be linguistically close even though there are located on different sides of the globe.

[8] To the extent that observed trade flows at the national level reflect the aggregated decisions of (potentially many) firms' decisions to export, then the recent literature on the latter is relevant. Roberts and Tybout (1997), Clerides, Lach, and Tybout (1998), Bernard and Jensen (2001), and Das, Roberts, and Tybout (2001), thoroughly explore the effects of sunk costs and learning-by-doing on the decision to export. Our statistical analysis in section three will be motivated in part by these papers, in particular the choice of control variables. Some of these analyses have considered the effects of firms learning how to improve their production efficiency on the probability of exporting. Firms, however, can learn about foreign market opportunities through trading with other parties based overseas and from information or leads collected by sales forces located in foreign nations.

the basis of distance. A reassuring finding is, especially given the large number of panel datasets being estimated here, that there are very few anomalous estimated parameters.

In sum, our results imply that the decision to export to Germany today increases the probability of exporting to Poland tomorrow, which in turn implies that "history matters" and that temporary shocks to exporting patterns can have permanent consequences. Moreover, this analysis suggests that certain linguistic and geographic characteristics of a nation's neighbours can strongly affect the nation's future export patterns. Our results are, therefore, suggestive of how geography and history combine to determine—at least in part—the extent to which developing economies have participated in this latest wave of international market integration.

This paper is organized as follows. The next section describes the manner in which we decomposed the export flows of the 23 developing economies considered here, and our results highlight the importance of the geographic spread of trade. Section three presents the econometric analysis of this spread. A brief summary is given in section four.

2. Decomposing the export growth of developing economies

Our principal source for data on international trade flows was the NBER World Trade Database (Feenstra, Lipsey, and Bowen, 1997). We assembled bilateral trade data[9] at the three digit level of trade between 93 nations (that account for almost all world trade) annually for the period 1970-97.[10] We focus on the exports of 23 economies (to each of the other 92 countries): Argentina, Bangladesh, Bolivia, Brazil, Chile, China, Costa Rica, Egypt, El Salvador, Ghana, Greece, India, Korea,

[9] The trade data were deflated into 1995 US dollars.

[10] The 93 nations are listed in appendix one. The criteria for selecting these 93 nations were as follows: to be included a nation had in 1997 to have a GDP in excess of 2 billion US dollars and to have a population greater than one million. These criteria effectively exclude the many small island economies whose trade patterns are unusual. Furthermore, the following war-torn and socialist economies were excluded: Cuba, Iraq, North Korea, the former Soviet Union and successor states, and the former Yugoslavia. All of the 23 exporting nations considered here meet these criteria.

Malaysia, Mexico, Morocco, Nepal, Philippines, Thailand, Tunisia, Turkey, Uganda, and Uruguay. Although the econometric analysis in the next section uses annual data, the decompositions undertaken in this section consider the changes in real exports from their annnual averages in the period 1970-4 to their annual averages in 1993-7.

The following notation will help simplify the exposition. Denote:

$X_{ij}^{k}(70/4)$ The mean value of nation *i*'s exports of good *k* to nation *j* in 1970-4.

$X_{ij}^{k}(93/7)$ The mean value of nation *i*'s exports of good *k* to nation *j* in 1993-7.

Define:

$\Delta X_{ij}^{k} \equiv X_{ij}^{k}(93/7) - X_{ij}^{k}(70/3)$, the change in the value of nation *i*'s exports of good *k* to nation *j*,

$X_{i}^{k}(70/4) \equiv \sum_{j} X_{ij}^{k}(70/4)$, the value of nation *i*'s total exports of good *k* in 1970-4;

$X_{i}^{k}(93/7) \equiv \sum_{j} X_{ij}^{k}(93/7)$, the value of nation *i*'s total exports of good *k* in 1993-7;

$\Delta X_{i}^{k} \equiv X_{i}^{k}(93/7) - X_{i}^{k}(70/4)$, the change in the value of nation *i*'s exports of good *k*;

$\Delta X_{i}^{k} \equiv \sum_{k} \Delta X_{i}^{k}$, the change in nation *i*'s total exports.

Our objective is to decompose ΔX_{i} for each of our 23 developing countries, recognizing that the set of goods that nation *i* exports, and the set of trading partners that it sells to, may have changed over time.

2.1 Decomposition by product line

We look first at the changing set of products exported by each country, regardless of their destination. The objective is to establish the extent to which export growth is accounted for by the introduction of new export products, by the 'death' of previously exported products, or by volume changes on existing products. We start by creating two indicators that determine whether nation *i* traded good *k* in 1970-4 and 1993-7. To reduce the likelihood of misclassified imports or economically unimportant levels of imports distorting the analysis we introduce a threshold level of trade, $\$\bar{x}$. Recorded trade flows below $\$\bar{x}$ are treated as if there was no trade at all.

Consequently, for each pair *i, k* we define two indicators:

$$I\left(X_i^k(70/4)\right) = \begin{cases} 1 \;\; if \;\; X_i^k(70/4) \geq \bar{x}, \\ 0 \;\; otherwise. \end{cases}$$

$$I\left(X_i^k(93/7)\right) = \begin{cases} 1 \;\; if \;\; X_i^k(93/7) \geq \bar{x}, \\ 0 \;\; otherwise. \end{cases}$$

These two indicators enable us to classify each pair *i, k* into one of the following four possible sets:

$D_i \equiv \left\{ k \mid I\left(X_i^k(70/4)\right) = 1 \cap I\left(X_i^k(94/7)\right) = 0 \right\}$, the set of product lines *k* that nation *i* exported in 1970-4 but no longer exported during 1993-7;
$N_i \equiv \left\{ k \mid I\left(X_i^k(70/4)\right) = 0 \cap I\left(X_i^k(94/7)\right) = 1 \right\}$, the set of product lines *k* that nation *i* did not export in 1970-4 but did export in 1993-7;
$C_i \equiv \left\{ k \mid I\left(X_i^k(70/4)\right) = 1 \cap I\left(X_i^k(94/7)\right) = 1 \right\}$, the set of product lines *k* that nation *i* exported in 1970-4 and continued to export in 1993-7;
$O_i \equiv \left\{ k \mid I\left(X_i^k(70/4)\right) = 0 \cap I\left(X_i^k(94/7)\right) = 0 \right\}$, the set of product lines *k* that nation *i* did not export in either 1970-4 or 1993-7.

We say that set D_i contains all the product lines exported by country *i* that "died," set N_i contains all the "newly exported goods," and set C_i contains all the goods that were exported at the beginning of the period and continued to be so at the end. Set O_i contains the goods that were not exported at all or that were exported beneath the threshold $\$\bar{x}$ in both 1970-4 and 1993-7. For the cutoff levels we consider here this amounts to at most a few percent of total trade growth, and we do not report it in the table of country results that follows.

The total change in exports associated with the members of sets D_i, N_i, and C_i are calculated as follows: $\sum_{k \in D_i} \Delta X_i^k$, $\sum_{k \in N_i} \Delta X_i^k$, and $\sum_{k \in C_i} \Delta X_i^k$. These quantities can be expressed as a percentage of the overall change in nation *i*'s exports from 1970-4 to 1993-7, to give $d_i = 100 \sum_{k \in D_i} \Delta X_i^k / \Delta X_i$, $n_i = 100 \sum_{k \in N_i} \Delta X_i^k / \Delta X_i$, $c_i = 100 \sum_{k \in C_i} \Delta X_i^k / \Delta X_i$.

Table 1 reports results, for a cutoff value of $\$\bar{x}$ = \$50,000 pa. The left hand block of the table reports numbers of product lines exported, and to the right of this we give the share of countries' export growth falling in each of the categories. Thus, the decomposition for Argentina is as follows: of the 214 product lines (out of max of ???) that were exported in 1993/97, 188 had been exported in 1970-74, and 26 were new; 2of the product lines exported in 1970/74 'died'. Of Argentina's overall real export growth of 168% during the period, 98% was in continuing product lines, c_i, 2% in new product lines n_i,, while product lines that died, d_i,, amounted to 0.00??% of the total export growth.

Looking down the table it is evident that only a few economies (Bangladesh, Bolivia, El Salvador, Ghana, and Nepal) experience substantial changes in the product composition of their exports. Death of a product line is rare and, with a \$50,000 cutoff, for most countries no product line that was exported in 1970-4 had stopped being exported by 1993-7. Birth of new products is more frequent, and was experienced by all countries except Malaysia. The overall importance of new products to trade growth is, however, modest.

The summary for the exports of all 23 is given in the left hand panel of table 2. These are the aggregates across exporting countries, $100\sum_i \sum_{k \in D_i} \Delta X_i^k / \sum_i \Delta X_i$ etc. For our baseline cutoff of \$50,000 we see that 93.2% of the growth of trade is in continuing product lines, while only a very small amount of exports are lost through the death of product lines. New products accounted for only 6.8% of observed export growth. Table 2 also reports the effects of using different cutoffs. We see that the share of export growth attributable to the birth of new products rises quite sharply, reaching 17.7% at a cutoff of \$500,000 pa.

2.2 Decomposition by destination

Our main focus is decomposition by destination. For those goods that were exported by a nation i in both 1970-4 and 1993-7 (the elements of sets C_i) we performed an additional decomposition to examine the extent to which the observed changes in export flows were accounted for by changes in trading partners. We define two more indicators that determine whether nation i exported product line k to nation j in 1970-4 and in 1993-7:

$$I^C\left(X_{ij}^k(70/4)\right) = \begin{cases} 1 \;\; if \;\; X_{ij}^k(70/4) \geq \bar{x}, \\ 0 \;\; otherwise. \end{cases}$$

$$I^C\left(X_{ij}^k(93/7)\right) = \begin{cases} 1 \;\; if \;\; X_{ij}^k(93/7) \geq \bar{x}, \\ 0 \;\; otherwise. \end{cases}$$

To differentiate between those tuples (i, j, k) where the trading partners have changed and where they have not, define for each source country i and product line k the following three sets:

$$D_i^k \equiv \left\{ j \mid I^C\left(X_{ij}^k(70/4)\right) = 1 \cap I^C\left(X_{ij}^k(94/7)\right) = 0 \right\},$$
$$N_i^k \equiv \left\{ j \mid I^C\left(X_{ij}^k(70/4)\right) = 0 \cap I^C\left(X_{ij}^k(94/7)\right) = 1 \right\},$$
$$C_i^k \equiv \left\{ j \mid I^C\left(X_{ij}^k(70/4)\right) = 1 \cap I^C\left(X_{ij}^k(94/7)\right) = 1 \right\}$$

Thus, D_i^k is the set of countries to which country i stopped exporting good k. The total value of the change in exports to countries in this set can be calculated, and adding across product lines gives the change in country i exports associated with loss of trading partners. This number can be expressed relative to the change in country i 's total exports to give $d_i^c = 100\sum_k \sum_{j \in D_i^k} \Delta X_{ij}^k / \Delta X_i$. Similarly, for products traded with new partners and with contuing partners, we write $n_i^c = 100\sum_k \sum_{j \in N_i^k} \Delta X_{ij}^k / \Delta X_i$, and $c_i^c = 100\sum_k \sum_{j \in C_i^k} \Delta X_{ij}^k / \Delta X_i$. n_i^c is therefore the value of country i's exports of long standing product lines to new partners, expressed as a percentage of country i's overall export growth.

This second decomposition, which recall is only applied to goods k that were exported by nation i in both 1970-4 and 1993-7, is reported in table 3. The left hand block gives the average (across product lines) number of export partners of each country. This number typically increases significantly across the period. For example, Argentina's mean number of partners increased from

12.6 to 20.4. There is also some loss of partners, implying a substantial number of new partners – an average of 11.3 for Argentina. For 18 of the 23 countries the mean number of new partners exceeds the mean number for 1970/4.

The share of the change in the value of exports associated with these changes in partners is given in the right hand block of table 3. In Argentina's case c_i^c = 52, d_i^c = -5, and n_i^c = 51; these numbers are for continuing product-lines, so sum to the share of Argentina's export growth in continuing product lines given in the right hand column of the table. Thus, for Argentina, 51 per cent of the observed increase in Argentina's total exports was accounted for by foreign sales of goods that (i) were exported at the beginning and the end of the sample and (ii) were exported to trading partners in 1993-7 that did not receive such exports in 1970-4. In other words, over half of Argentina's export growth can be accounted for by this proliferation of trading partners.

Looking across countries, the share of export growth that can be attributed to sales of existing product lines to new trading partners in sizeable. In only three countries (Mexico, Nepal and Uganda) does the geographic spread of exports in long-standing product lines account for less than 25% of total export growth.[11] The median share of export growth in our 23 economies that can be attributed to proliferation of export partners is 37 percent, and table 3 reports the share of the total export growth of all 23 countries that is attributable to exporting to new partners. At a $50,000 cutoff this is 31.5%, and raising the cutoff level increases this share to nearly 40%; even if the cutoff is set at zero it is still the case that 21% of export growth is attributable to reaching new partners. While these numbers are smaller than the share of export growth attributable to selling greater volumes to existing partners, they are nevertheless very substantial, and are the subject of econometric investigation in the next section.

3. What determines the geographic spread of trade?

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[11] The fact that Mexico and Nepal both export a high proportion of their respective exports to large neighbours may well account for this finding.

The preceding section showed that a substantial part of the growth in developing country exports arises from selling products to new export markets—filling in the zeros in the product line bilateral trade matrix. What economic forces drive this process?

3.1 Theoretical considerations

If a particular source country exports a particular product to destination market j at time t we write $s_j(t) = 1$, while $s_j(t) = 0$ if this bilateral export flow is zero or below the cutoff value[12]. In a given year, the decision to supply an export market depends on the revenue net of operating costs that can be earned in the market, relative to the recurring fixed cost of supplying the market. We denote the potential flow of operating profit earned in destination market j at time t by $R_j(t)$, and the fixed costs $F_j(t)$; or in logs, $r_j(t)$, $f_j(t)$. We therefore have,

$$s_j(t) = \begin{cases} 1 \ \ if \ \ r_j(t) \geq f_j(t), \\ 0 \ \ otherwise. \end{cases} \quad (1)$$

Before outlining in detail the modelling of net revenues and costs, two general points about our approach need to be made. First, fixed costs $f_j(t)$ will in general depend on experience gained in market j and in other markets that are in some sense proximate to j. Thus, in a world with K potential export destinations, it will generally be the case that $f_j(t) = f_j(s_1(t\text{-}1), s_2(t\text{-}1),..., s_j(t\text{-}1),..., s_K(t\text{-}1); u_j(t\text{-}1))$ where $u_j(t\text{-}1)$ is some random shock. The form of the function $f_j(...)$ is export destination-specific, because we hypothesise that it will depend strongly on experience gained in the destination country, $s_j(t\text{-}1)$, while the influence of other countries will depend on their proximity to market j. These relationships could, in principle, create a complex system of stochastic difference equations, in which entry to one market changes the costs of selling to that and to other markets in the next period. Thus, exporting to Germany might provide experience in selling to (or information about) other European markets, making it more likely that the latter will be supplied in the next

[12] In this section we drop the subscripts for source and product-line. For source i and product k, ...

period. There is therefore a potential 'bridgehead' effect; with export growth being path dependent and exhibiting regional effects as sales spread from one country to others in close proximity.

The second general point about our approach is that we model export supply as a comparison of instantaneous benefits and costs, thereby ignoring forward-looking behaviour on the part of exporters. We have two reasons for making this assumption, the first of which is simplicity. Each exporter has number of state variables equal to the number of potential export markets and a shadow value (costate variable) for each market. This value equals the direct value of entering that market plus the value of learning effects from entry (and learning effects from markets that were entered because of the additional learning, and so on). This contrasts with the single state variable (to export or not) found in formulations by Roberts and Tybout (1997), amongst others. Essentially, the geographical issues on which we focus would, in a fully specified intertemporal model, increase the complexity of the problem by an order of magnitude. The other reason we ignore forward-looking behaviour is that we have product line, not firm level data. There is, therefore, no presumption that the learning effects we identify in the data are internalised within the firm. In fact, our straightforward model is consistent with intertemporal optimising behaviour if learning is external to firms and each firm is small enough to ignore the effects of its actions on the aggregate stock of (product- and country-specific) experience. We therefore make the (not uncommon) assumption that each product line contains a large number of similar firms.

We now turn to looking in more detail at the determinants of net revenues and costs. Looking first at net revenues, we assume that they exhibit the usual gravity features of depending on characteristics of the market being potentially supplied, including its proximity to the source country. The main market characteristic is size, and we denote export destination j's market size in year t by $m_j(t)$ and assume that growth in this market size encourages exports. Economic proximity of country i to a potential export market j depends is measured by distance, the presence of a common border and whether businesses in both the exporter and the potential export destination use a common business language, so facilitating contracting and communication. We denote these three effects D_j, B_j and L_j respectively.

Net revenue also depends on a number of time-varying characteristics of the exporter, such as the productivity of its export sector and its exchange rate. We denote these by $P(t)$, so in log formulation, then, revenues can be expressed as:

$$r_j(t) = \alpha_0 + \alpha_1 m_j(t) + \alpha_2 D_j + \alpha_3 B_j + \alpha_4 L_j + \alpha_5 P(t). \quad (2)$$

Turning to fixed costs, our basic formulation is, in logarithmic form,

$$f_j(t) = \beta_1 s_j(t-1) + \beta_1 \delta_j(t-1)[1 - s_j(t-1)] + \beta_3 \delta_j(t-1) s_j(t-1) + u_j(t-1). \quad (3)$$

This expression has the following interpretation. The fixed cost of supplying market j depends on knowledge that has been gained about that market. The knowledge comes from two sources. One is previous experience in market j, as measured by the variable $s_j(t\text{-}1)$. The other is knowledge spillovers from experience gained in related or proximate markets which we denote $\delta_j(t\text{-}1)$. The importance of such spillovers is likely to depend on whether or not experience has been gained directly in market j, hence the interaction of the variable with $s_j(t\text{-}1)$; if experience has not been gained, $s_j(t\text{-}1) = 0$, then β_2 measures the value of the spillover. If market j experience has been already obtained directly, $s_j(t\text{-}1) = 1$, then the case for obtaining further knowledge through spillovers from other markets seems likely to be much reduced; we include the effect in any case, and it is measured by β_3.

Experience gained in related markets, variable $\delta_j(t\text{-}1)$, depends on the economic proximity of market j to other export markets that were supplied at t-1. We call this term 'proximity to the supply frontier', and use several different measures. One is simply the geographic proximity of markets that were supplied in the previous period. Thus, $near_j(t\text{-}1)$ measures the log distance from market j to the closest foreign market that was supplied in period t-1: ie, $near_j(t-1) = -\min_k\left\{dist_{jk} | s_k(t-1) = 1\right\}$, where $dist_{jk}$ is distance from j to k. (Of course, for this to measure proximity rather than distance it has negative sign). To capture the interaction with market k experience, as given in equation (2), we will denote $near1_j(t-1) = near_j(t-1)[1 - s_j(t-1)]$ and $near2_j(t-1) = near_j(t-1)\, s_j(t-1)$. Thus, we use numbers 1 (and 2) to distinguish cases where market *k* was not (was) itself supplied in the preceding period.

The second proximity measure is a dummy for whether or not country *j* has a common border with a country that was supplied in the preceding period. Thus, if $border_{ij}$ is the matrix of border dummies, with elements equal to 1 if countries share a common border and zero otherwise, then, $bord_j = 1$ if $\sum_k border_{jk} s_{jk}(t-1) > 0$ and zero otherwise. Interacting with $s_j(t\text{-}1)$ this gives two variables, $bord1_j(t\text{-}1)$ and $bord2_j(t\text{-}1)$. The third measure is a dummy variable for whether or not country *k* has a common business language with a country that was supplied in the preceding period. Proceeding analagously, we construct $lang1_j(t\text{-}1)$ and $lang2_j(t\text{-}1)$.

Pulling these elements together equation (3) becomes

$$f_j(t) = \beta_0 + \beta_1 s_j(t-1) + \beta_2 near1_j(t-1) + \beta_3 near2_j(t-1) + \beta_4 bord1_j(t-1) + \beta_5 bord2_j(t-1) + \beta_6 lang1_j(t-1) + \beta_7 lang2_j(t-1) + u_j(t). \qquad (4)$$

3.2 Data and estimation

To ensure comparability with the product-line decompositions described in section 2 we assembled, for each of the 23 developing economies, a panel dataset for each product line where exports to at least one trading partner exceeded a cutoff level, $\bar{x}$, here taken to be $50,000. For each product line, we created the dichotomous dependent variable $s_j(t)$ for each potential export destination *j* (of which there are 92 in our study) in each year, 1970-1997. As will become clear below, we drop the first year of data (1970) leaving each panel with 27 annual observations.[13]

[13] As is well known, when employing datasets with dichotomous dependent variables, there has to be a sufficient number of ones and zeros for the estimation routines to converge onto a set of parameter estimates. For this reason, a number of product-lines were dropped during estimation. In tables 5 and 6 we report the number of product-lines for which panel estimation was possible and there is a considerable variation across countries. For instance, only five of Uganda's product lines were estimated, whereas 203 panels were estimated for China. The simple mean of the number of product lines estimated for our 23 countries was 105.96.

Turning to the independent variables, we used the U.S. dollar value of a potential export destination's total imports (of all goods from all sources) as our proxy for $m_j(t)$. This proxy captures a number of factors that influence the potential market size for an import good, namely, the export destination's trade policies, its natural openess and its bilateral exchange rate with the U.S. dollar, s well as its national income. The data source for this proxy for $m_j(t)$ is taken from the World Bank's *World Development Indicators*.

Our proxy for transportation costs is, following the gravity literature, the distance between the capital cities of the exporter and a potential overseas market, measured in log kilometres, $distance_{ij}$. Our proxy for a common business language was constructed from a database on the fifty most widely-spoken languages in the world.[14] Specifically, we assembled a dataset for our 23 exporting nations and our 92 potential export destinations that indicate whether English, French, German, Spanish, Portuguese, or Mandarin Chinese are commonly used business languages in each economy.[15] Our proxy for $language_{ij}$ was based on whether or not an export destination and an exporter both used any one of these six languages for business purposes.

In the absence of product-line data on productivity, wage, and costs for all 23 economies, we employed two types of proxies for $P_j(t)$, the time-varying supply side characteristics of the exporter, the first of which is simply a time trend, denoted by T.

Combining the elements of the revenue and cost functions gives an estimating equation of the form:

$$\begin{aligned} s_j(t) = {} & \alpha_0 + \alpha_1 m_j(t) + \alpha_2 D_j + \alpha_3 B_j + \alpha_4 L_j + \alpha_5 t + \beta_1 s_j(t-1) + \beta_2 near1_j(t-1) + \beta_3 near2_j(t-1) \\ & + \beta_4 bord1_j(t-1) + \beta_5 bord2_j(t-1) + \beta_6 lang1_j(t-1) + \beta_7 lang2_j(t-1) + u_j(t). \end{aligned} \tag{5}$$

[14] Grimes (1996) contains the base data on the languages used in business. However, a useful summary of this dataset can be found in tabular form at www.infoplease.com/ipa/A0774735.htm.

[15] It is worth noting that in many countries the list of official languages is a subset of those used to conduct business.

This relatively parsimonious specification provides a point of departure for more sophisticated alternatives. The presence of the lagged dependent variable requires truncation of each panel from 28 years to 27 years in length. As no attempt is made to include export-destination fixed effects in this specification, then straightforward logistic estimation was used to estimate the parameters.

Equation (3) provides the benchmark specification, but we also believe that there are both country and time fixed effects that are not captured in this specification. First, the supply side changes in the exporting nation, as well as bilateral exchange rate changes, are likely to be better captured with time dummies than with a time trend. Thus, we replace the time trend by a full set of time dummies, $T(t)$. Second, export destination-specific effects are likely to influence the dependent variable. To the extent that these effects are time invariant (such as climate and, to a lesser extent, governance) then they can be captured by fixed effects. We therefore also include country fixed effects, K_j; these obviously replace time invariant country characteristics, giving estimating equation of the form,

$$\begin{aligned} s_j(t) \;=\; & \alpha_0 + \alpha_1 m_j(t) + K_j + T(t) + \beta_1 s_j(t-1) + \beta_2 near1_j(t-1) + \beta_3 near2_j(t-1) \\ & + \beta_4 bord1_j(t-1) + \beta_5 bord2_j(t-1) + \beta_6 lang1_j(t-1) + \beta_7 lang2_j(t-1) + u_j(t). \end{aligned} \tag{6}$$

Incorporating the country fixed effects, however, creates problems in panels with dichotomous dependent variables. As Anderson (1973), Chamberlain (1980), and Hsiao (1986) have demonstrated, logit estimation with fixed effects generates inconsistent maximum likelihood estimates of *both* the fixed effects and the slope parameters. Fortunately, Anderson (1970, 1973) and McFadden (1974) have shown that the slope parameters (but not the fixed effects) can be consistently estimated using data on those "individuals" in the panel where the dependent variable switches value during the sample. We employ such conditional logit estimation here.[16]

3.3 Product-line estimation

[16] We have only begun to tackle the problems created by the inclusion of the lagged dependent variable. We have tried instrumenting for the latter and, for what it is worth, our preliminary finding is failure to instrument reduces the significance of the learning effects considered here.

The base specification plus the conditional logit estimation results in over 4,000 sets of parameter estimates. To facilitate a discussion of the estimation results, we first present the findings for China (for whom the largest number of panels were estimated) in table 4. Then we present in tables 5 and 6 summaries of the findings for each of the 23 economies, focusing here on the explanatory power of the three learning channels identified earlier.

The top left and top right blocks of table 4 present the results of estimating our logit and conditional logit specifications (equations (3) and (4)), initially with only the distance measures of proximity to the supply frontier. The market size variable, $m_j(t)$ is positive and statistically significant in 95.57 percent of China's 203 product lines, or 77.83% once time invariant country fixed effects are included. Conventional exporter-to-importer distance is negative and statistically significant in more than half of case which, along with the market size parameter estimates, confirms the importance of two traditional "gravity variables." The presence of a common border between China and an export destination adds significantly to the probability of being supplied in over a third of cases (42.9 percent). Hysteresis effects are strong, as evidenced by the fact that the lagged dependent variable is statistically significant in 100% of cases for the logit estimates, and more than 98% once fixed effects are included. Encouragingly, there are very few anomalous results—where the estimated parameter had the "wrong" sign and was statistically significant.

The learning variables, *near1* and *near 2* are in line with theoretical priors. Learning effects have a significant impact in around half of product lines, where markets were not directly supplied in the previous period (*near1*). When the market was supplied (*near2*), the effect operates in only around 10-15% of product lines.

Remaining parts of table 4 report results when all the proximity to the frontier variables are included. Correlation between these variables reduces the proportion of cases in which any one is separately significant, and we report joint significance tests (Wald test) in the bottom part of the table. For the logit estimates the three effects *near1, bord1* and lang1 are jointly significant in 79.3% of cases. Controlling for time dummies and for fixed effects reduces the number of Chinese product lines where the three principal learning mechanisms about new export markets (*near1*, *bord1*, and *lang1*) are jointly statistically significant, see table 4. Even so, these effects remain significant in over 44 percent of product lines. Moreover, in every single product line at least one of the three learning mechanisms is estimated to have a positive coefficient. The Chinese parameter estimates, then, is supportive of the broad hypothesis that the path of her entry into overseas markets since 1970 has been influenced not only by traditional gravity variables, but also by learning about potential overseas markets—especially those which are geographically close to those foreign markets that are currently supplied. We take this as strong confirmation of the importance of these learning effects.

Looking at each of the learning mechanisms separately, the estimation results suggest that most learning takes place through shared borders (*bord1*) and common business languages (*lang1*), rather than through the information from the supply frontier (*near1*). However, this finding is *reversed* once on conditions for time dummies and export destination-specific fixed effects, as can be seen in the right centre section of table 4. The effect of proximity to the supply frontier on whether an economy actually receives goods from the exporter is now found to be positive and statistically significant in three times as many product lines as shared borders and common business languages. These parameter estimates provide different views of the dynamics of Chinese entry into new foreign markets. The logit estimates would suggest a process whereby traditional gravity factors determine in large part the probability of entry into a new foreign market, with some reinforcement by learning effects in those foreign markets that adjoin existing markets for Chinese products, or use the same business languages as them. In contrast, the conditional logit effects paint a picture of the frontier of Chinese export markets moving out over time, with distance (not linguistic similarity or shared borders) acting as the constraint on this process.

Tables 5 and 6 present country-by-country summaries of the importance of the three learning mechanisms (*near1*, *bord1*, and *lang1*) on which we focus. As in the case of China, conditioning for time dummies and fixed effects, increases the relative importance of the proximity to the supply frontier as a mechanism for learning about new export markets. Weighing each country by the number of product lines it exports, such conditioning leads to a slight decrease (from 18.10 percent to 17.97 percent) in the number of product lines where proximity to the supply frontier has positively and significantly contributed to entry into new export markets. In contrast, such conditioning halves the importance of common business languages as a learning mechanism, and cuts by two thirds the importance of shared borders. Overall, learning about new markets that are proximate to the exporter's current supply frontier occurs two and a half times as often as learning about new markets that share languages or borders with existing export destinations.

The joint significance of these three learning mechanisms is reported on a country-by-country basis in table 6. Our most conservative parameter estimates (obtained from the conditional logit estimation) suggest that in 29.05 percent of product lines these learning mechanisms have contributed towards export growth. Furthermore, there is a positive raw (and Spearman rank) correlation between the number of product lines a country exports and the percentage of those product lines where these learning mechanisms are jointly statistically significant.[17] Further analysis reveals that this correlation is driven by the effect of learning about new markets through common business languages (and less so by learning through shared borders), and not by proximity to the supply frontier. To the extent that poorer and smaller countries export fewer product lines, then this suggests that the principal mechanism through which these nations learn about potential export markets is through their sales to existing overseas markets. If the latter are geographically distance from as yet unsupplied export markets, then our results imply that poorer and smaller countries are less likely to see much change over time in the geographical distribution of their exports.

4. Conclusions

The literature on the determination of bilateral trade flows has paid little attention to the falling number of zeros in bilateral trade matrices that has been occurred since 1970. This phenomenon—which we call the geographic spread of trade—is important as the trade flows associated with it alone account for one third of developing economies' export growth since 1970,

[17] For the conditional logit estimates the raw correlation coefficient between the number of product lines exported by a nation and the percentage of those lines for which the learning mechanisms are jointly statistically significant is 0.31.

a fact we document here for 23 developing countries. Turning next to explanations for this geographic spread, we find that the variables traditionally emphasised in the gravity literature are provide only a partial account of the entry into new overseas markets by developing economies. We present evidence that the probability of a previously unsupplied overseas market receiving goods from an exporter in the future depends on the proximity of the former from markets that the exporter currently supplies. We hypothesise that this proximity can taken three forms: geographic proximity in terms of distance and in terms of shared borders, and linguistic proximity in terms of common use of business languages. Each form of proximity facilitates learning about new export markets, and our econometric estimates help identify the relative importance of these three learning mechanisms. In our most elaborate econometric specification, we find that learning through proximity to the supply frontier occurs in just under a fifth of all product lines, and is by far the most prevalent learning mechanism.

In a sense our findings bode well for the future prospects for developing economies' exports, especially if learning about export markets that are further away becomes easier over time. Had we found that most learning occurs through shared borders and common language use, then given these factors are if not exogenous then at least very slow to change over time, this would have implied that the number of potential export destinations that a developing economy exporter would be learning about would essentially be quite constrained over time. Instead, learning from about markets that are close to those already supplied is in some sense less constrained as it includes markets that are close to those existing exporters which do not share common borders or common business languages.

One concern with our analysis is that the proximity to the supply frontier is picking up something other factor than learning that accounts for the geographic spread of exports. An obvious alternative candidate is similarities in factor endowments between those markets that are currently being supplied by an exporter and those as yet unsupplied. In the case of factor endowments, one could envisage a border arbitrarily dividing a multi-country region which has common factor endowments. Here, one might expect that the presence of a common border between members in such a region would provide a better proxy for the effect of factor endowment differences on the geographic spread of trade than a measure of distance between the capital cities of those supplied and unsupplied markets. It is, therefore, worth noting that in only three countries (Bangladesh, Ghana, and Tunisia) do we find that the effect of learning through common borders is prevalent in more product lines than learning about markets that are close to the exporters' supply frontier.[18] Another candidate are similarities in technologies between those markets that are currently supplied and those that are not. We concede that this explanation is, in principle, possible. However, the strength of this alternative explanation rests on the presumption that bilateral technological differences at the industry level (presumably total factor productivity differences) fall off with distance—a claim which, to the best of our knowledge, has yet to find support in the empirical literature.

[18] We use the conditional logit estimates to make this statement, see columns 5 and 6 of table 5.

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Table 1: Export growth decompositions by product-line.

	Product line count					% of the change in exports that fall in each category			
	No. of product lines exp 70/4	No. traded both $\#C_i$	No. that die $\#D_i$	No. new $\#N_i$	No. of product lines exp 93/7	Product traded both c_i	Death of product d_i	New product n_i	% change in exports 1970/4-93/7
Argentina	190	188	2	26	214	98	0	2	168
Bangladesh	37	31	6	67	98	44	0	56	757
Bolivia	41	30	11	86	116	112	-326	314	14
Brazil	203	198	5	17	215	98	0	2	234
Chile	98	92	6	104	196	86	0	14	247
China	206	204	2	16	220	97	0	3	1356
Costa Rica	105	97	8	63	160	88	0	12	214
Egypt	102	97	5	65	162	80	0	20	106
El Salvador	116	100	16	38	138	64	-10	46	9
Ghana	43	34	9	48	82	-149	-2	251	10
Greece	166	160	6	46	206	93	0	8	222
India	195	191	4	23	214	99	0	1	324
Korea	187	184	3	29	213	93	0	7	1533
Malaysia	201	200	1	16	216	100	0	0	773
Mexico	188	187	1	32	219	94	0	6	1216
Morocco	123	108	15	53	161	94	-1	8	100
Nepal	44	25	19	42	67	64	-11	47	414
Philippines	138	133	5	52	185	86	0	14	291
Thailand	164	162	2	49	211	78	0	22	1205
Tunisia	111	102	9	79	181	85	-1	16	369
Turkey	144	140	4	71	211	84	0	16	603
Uganda	34	15	19	23	38	119	-2	20	-40
Uruguay	100	93	7	68	161	85	0	16	180

Table 2: Export growth decompositions for entire 23 country sample.

Percentage of the change in export values (all 23 countries) that fall in each category.

Various cutoffs.

Cutoff	Decomposition by product lines			For continuing product lines, decomposition by trading partners			Below cutoff
	Product traded 1970/4 and 1993/7	Death of product	New product	Same partners	Loss of partners	Export to new partners	
0	98.3	0	1.7	78.0	-0.8	21.0	0
10k	96.8	0	3.2	70.2	-0.9	27.6	0
50k	93.2	-0.1	6.8	62.8	-1.1	31.5	0.1
100k	91.3	-0.2	8.7	58.8	-1.3	33.7	0.2
500k	81.9	-0.3	17.7	46.8	-1.7	36.7	0.8

Table 3: Export growth decompositions by partner

	Product line count					% of the change in exports that fall in each category			
	Mean no partnrs 70/4	mean no cont partnrs $\#C_i^k$	mean no lost partnrs $\#D_i^k$	mean no new partnrs $\#N_i^k$	mean no partnrs 93/7	Same partnrs c_i^c	Loss of partnrs d_i^c	New partnrs n_i^c	Contin uing product lines
Argentina	12.6	9.4	4.6	11.5	20.4	52	-5	51	98
Bangladesh	5.2	5	2.4	11.7	14.7	7	-1	38	44
Bolivia	4.5	3.4	3	4.5	6.6	44	-76	143	112
Brazil	15.8	13.8	3.9	23	36.1	63	-3	39	98
Chile	5.4	4.8	2.3	13.3	17.5	44	-1	43	86
China	18	15.9	3.4	34.7	49.9	66	0	31	97
Costa Rica	4.8	4.1	1.9	6	9.6	60	-1	30	88
Egypt	7.2	5	3.8	10.8	14.4	10	-14	84	80
El Salvador	3.7	2.8	2.3	2.9	5.3	-23	-102	189	64
Ghana	6.4	4.8	4.1	5.7	8.6	-232	-90	173	-149
Greece	9.2	7.8	2.9	15.5	22.4	60	-4	37	93
India	18.5	15.9	4	23.9	38.7	74	-2	28	99
Korea	10.6	9.6	2.9	33.5	42.5	58	0	35	93
Malaysia	6.4	5.8	2.4	23.5	28.4	64	0	36	100
Mexico	9.5	7.9	3.3	17.9	24.9	86	0	9	94
Morocco	6.8	5.4	3.1	7.3	11.8	52	-9	50	94
Nepal	2.6	1.4	2.6	3.2	3	59	-8	13	64
Philippines	6.6	5.2	3.9	13.3	17.6	55	-7	38	86
Thailand	8.4	7.2	3.5	30.2	36.9	43	-1	36	78
Tunisia	4.2	3	3.2	6.6	8.8	56	-4	33	85
Turkey	7.5	6.9	2.6	26.3	32.2	48	-1	37	84
Uganda	8.3	4.4	4.8	3.9	7.2	-87	-44	13	119
Uruguay	4.3	3	3.1	6	8.3	43	-9	51	85

Table 4: Estimation results for China
Proportion of product lines for which estimated coefficient falls into each sign and significance category.

Parameter estimate on...	Logit estimates Dependent variable $s_j(t)$ Time trend				Conditional fixed effects logit estimates Dependent variable $s_j(t)$ Time dummies			
	Neg/sig	Neg /insig	Pos/insig	Pos/sig	Neg/sig	Neg /insig	Pos /insig	Pos/sig
constant	100.00	0.00	0.00	0.00				
mktsize,m_{kt}	0.00	0.49	3.94	95.57	0.49	3.45	18.23	77.83
D_j	51.72	32.51	14.78	0.99				
$bord_k$	0.00	19.21	37.93	42.86				
$lang_k$	2.46	16.26	68.97	12.32				
time, t	6.90	11.82	14.78	66.50				
Lagged dep variable, s_{kt-1}	0.00	0.00	0.00	100.00	0.00	0.49	1.48	98.03
$near1_{kt-1}$	0.99	8.87	36.45	53.69	0.00	11.82	43.35	44.83
$near2_{kt-1}$	6.40	37.44	45.81	10.34	1.97	27.59	57.14	13.30
constant	99.01	0.49	0.49	0.00				
mktsize,m_{kt}	0.00	0.49	1.97	97.54	0.49	2.96	18.72	77.83
D_j	66.50	28.57	4.43	0.49				
$bord_k$	0.49	23.65	39.90	35.96				
$lang_k$	3.45	35.96	55.17	5.42				
time, t	6.90	12.81	15.27	65.02				
Lagged dep variable, s_{kt-1}	0.00	0.00	0.99	99.01	0.00	2.48	11.39	86.14
$near1_{kt-1}$	4.43	33.99	54.68	6.90	1.48	17.24	51.23	30.05
$bord1_{kt-1}$	0.49	9.36	32.51	57.64	0.99	30.54	56.65	11.82
$lang1_{kt-1}$	0.00	6.90	54.19	38.92	4.93	30.54	53.69	10.84
$near2_{kt-1}$	5.91	43.84	42.86	7.39	1.97	31.53	57.14	9.36
$bord2_{kt-1}$	2.46	37.44	46.31	13.79	4.43	49.75	40.89	4.93
$lang2_{kt-1}$	2.48	23.27	53.47	20.79	5.42	38.42	52.71	3.45

	Logit estimates	Conditional fixed effects logit estimates
Number of cases	203	203
% cases where proximity measures (1) jointly significant	79.31	44.83
% of which: no positive coeff	0.00	0.00
% of which: one positive coeff	3.73	12.09
% of which: two positive coeff	40.37	41.76
% of which: three positive coeff	55.90	46.15

Table 5: Country-by-country summary of statistical significance of different learning mechanisms.

Economy	Number of product lines estimated	Logit estimation, percentage of product lines with positive and statistically significant coefficients for			Conditional logit estimation, percentage of product lines with positive and statistically significant coefficients for		
		near1	*bord1*	*lang1*	*near1*	*bord1*	*lang1*
Argentina	174	11.49	45.98	13.79	15.52	5.75	6.32
Bangladesh	25	24.00	12.00	4.00	8.00	12.00	12.00
Bolivia	17	17.65	17.65	5.88	5.88	5.88	0.00
Brazil	187	15.51	24.06	28.34	17.65	7.49	11.23
Chile	113	19.47	23.89	0.88	14.16	1.77	6.19
China	203	6.90	57.64	38.92	30.05	11.82	10.84
Costa Rica	74	36.49	2.70	5.80	18.92	8.11	4.29
Egypt	63	14.29	34.92	17.46	12.70	9.52	1.59
El Salvador	47	36.17	2.13	2.63	14.89	8.51	6.98
Ghana	19	47.37	26.32	0.00	15.79	21.05	0.00
Greece	147	15.65	21.77	22.45	14.97	6.12	4.76
India	179	18.44	30.73	3.91	25.14	12.82	13.97
Korea	180	17.78	20.56	50.00	19.44	11.67	11.11
Malaysia	175	13.71	16.00	4.00	16.00	9.14	15.43
Mexico	173	12.14	28.90	12.14	20.23	8.09	3.47
Morocco	70	25.71	24.29	8.57	14.29	7.14	7.14
Nepal	9	55.56	11.11	0.00	44.44	0.00	0.00
Philippines	127	25.20	8.66	3.15	19.69	3.94	7.87
Thailand	174	16.67	17.82	20.69	15.52	4.60	12.64
Tunisia	69	15.94	4.35	10.14	2.90	4.35	4.35
Turkey	152	25.00	26.97	34.87	14.47	11.18	5.92
Uganda	5	40.00	0.00	20.00	20.00	0.00	20.00
Uruguay	55	30.91	32.73	3.64	18.18	3.64	7.27
Simple mean	105.96	23.57	21.36	13.53	17.34	7.59	7.54
Weighted mean		18.10	25.81	18.16	17.97	8.08	8.64

Table 6: Country-by-country summary of joint significance of learning mechanisms.

Economy	Number of product lines estimated	Percentage of product lines where near1, bord1, and lang1 are jointly significant		Percentage of product lines where no learning dynamic was positive	
		Logit estimation	Conditional logit estimation	Logit estimation	Conditional logit estimation
Argentina	174	62.07	21.84	0.00	0.00
Bangladesh	25	52.00	24.00	7.69	0.00
Bolivia	17	29.41	23.53	0.00	0.00
Brazil	187	59.89	29.95	1.79	1.79
Chile	113	39.82	21.24	4.44	0.00
China	203	79.31	44.83	0.00	0.00
Costa Rica	74	37.68	22.86	0.00	0.00
Egypt	63	57.14	15.87	2.78	0.00
El Salvador	47	44.74	27.91	0.00	0.00
Ghana	19	73.68	31.58	0.00	0.00
Greece	147	56.46	23.81	0.00	2.86
India	179	49.72	42.46	0.00	0.00
Korea	180	71.11	34.44	0.00	0.00
Malaysia	175	34.86	33.71	3.28	1.69
Mexico	173	49.13	28.32	1.18	2.04
Morocco	70	51.43	30.00	0.00	0.00
Nepal	9	44.44	22.22	0.00	0.00
Philippines	127	40.94	29.13	1.92	0.00
Thailand	174	48.85	24.71	1.18	0.00
Tunisia	69	34.78	13.04	8.33	11.11
Turkey	152	70.39	22.37	0.00	0.00
Uganda	5	60.00	40.00	0.00	0.00
Uruguay	55	61.82	25.45	0.00	0.00
Simple mean	105.96	52.59	27.53	1.10	1.04
Weighted mean		54.73	29.05	1.17	1.09

Appendix 1: List of Potential Export destinations.

Algeria	Finland	Malaysia	Spain
Argentina	France	Mali	Sri Lanka
Australia	Gabon	Mauritius	Sudan
Austria	Germany	Mexico	Sweden
Bangladesh	Ghana	Morocco	Switzerland
Belgium (includes Luxembourg)	Greece	Myanmar (formerly Burma)	Syrian Arab Republic
Benin	Guatemala	Nepal	Taiwan
Bolivia	Haiti	Netherlands	Tanzania
Brazil	Honduras	New Zealand	Thailand
Burkina Faso	Hong Kong	Nicaragua	Trinidad and Tobago
Cameroon	India	Nigeria	Tunisia
Canada	Indonesia	Norway	Turkey
Chile	Iran	Oman	Uganda
China	Ireland	Pakistan	United Arab Emirates
Colombia	Israel	Panama	United Kingdom
Congo, Republic of	Italy	Papua New Guinea	United States of
Costa Rica	Jamaica	Paraguay	Uruguay
Cote d'Ivoire	Japan	Peru	Venezuela
Denmark	Jordan	Philippines	Zaire (now Democratic Republic of the Congo)
Dominican Republic	Kenya	Portugal	Zambia
Ecuador	Korea, Republic of (South)	Saudi Arabia	Zimbabwe
Egypt	Kuwait	Senegal	
El Salvador	Madagascar	Singapore	
Ethiopia (includes Eritrea)	Malawi	South Africa	

Appendix Two: Country-By-Country Econometric Estimates

Argentina

	Logit estimates Dependent variable s_{jt} Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	2.30	97.70	0.00	0.57	12.07	87.36
near1	10.34	41.38	36.78	11.49	2.30	30.46	51.72	15.52
bord1	1.15	12.64	40.23	45.98	2.30	36.21	55.75	5.75
lang1	6.90	36.21	43.10	13.79	5.17	34.48	54.02	6.32
near2	21.84	42.53	29.31	6.32	1.15	33.33	55.75	9.77
bord2	3.45	24.14	49.43	22.99	2.30	33.91	55.75	8.05
lang2	16.88	40.91	36.36	5.84	2.96	44.38	47.34	5.33
Number of cases			174		174			
% cases where proximity measures (1) jointly significant			62.07		21.84			
% of which: zero positive coeff			0.00		0.00			
% of which: one positive coeff			19.44		28.95			
% of which: two positive coeff			61.11		42.11			
% of which: three positive coeff			19.44		28.95			

Bangladesh

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	4.00	96.00	4.00	16.00	32.00	48.00
near1	20.00	32.00	24.00	24.00	4.00	48.00	40.00	8.00
bord1	0.00	12.00	76.00	12.00	0.00	28.00	60.00	12.00
lang1	16.00	24.00	56.00	4.00	4.00	16.00	68.00	12.00
near2	12.00	48.00	40.00	0.00	8.00	40.00	44.00	8.00
bord2	4.00	24.00	64.00	8.00	4.00	16.00	64.00	16.00
lang2	25.00	37.50	29.17	8.33	4.00	32.00	60.00	4.00
Number of cases			25		25			
% cases where proximity measures (1) jointly significant			52.00		24.00			
% of which: zero positive coeff			7.69		0.00			
% of which: one positive coeff			38.46		33.33			
% of which: two positive coeff			38.46		66.67			
% of which: three positive coeff			15.38		0.00			

Bolivia

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	0.00	100.00	0.00	5.88	11.76	82.35
near1	11.76	41.18	29.41	17.65	0.00	47.06	47.06	5.88
bord1	0.00	35.29	47.06	17.65	0.00	35.29	58.82	5.88
lang1	17.65	29.41	47.06	5.88	5.88	29.41	64.71	0.00
near2	5.88	52.94	35.29	5.88	0.00	58.82	35.29	5.88
bord2	17.65	47.06	35.29	0.00	0.00	41.18	52.94	5.88
lang2	0.00	56.25	31.25	12.50	0.00	41.18	52.94	5.88
Number of cases			17		17			
% cases where proximity measures (1) jointly significant			29.41		23.53			
% of which: zero positive coeff			0.00		0.00			
% of which: one positive coeff			40.00		0.00			
% of which: two positive coeff			40.00		75.00			
% of which: three positive coeff			20.00		25.00			

Brazil

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	0.53	99.47	0.00	0.53	5.35	94.12
near1	13.37	32.62	38.50	15.51	1.60	24.06	56.68	17.65
bord1	3.21	22.46	50.27	24.06	2.67	39.04	50.80	7.49
lang1	5.35	17.65	48.66	28.34	4.28	40.11	44.39	11.23
near2	24.60	43.32	25.13	6.95	1.60	31.02	56.68	10.70
bord2	3.21	28.88	46.52	21.39	2.67	47.59	40.64	9.09
lang2	7.10	26.23	38.25	28.42	4.28	41.18	52.94	1.60
Number of cases			187		187			
% cases where proximity measures (1) jointly significant			59.89		29.95			
% of which: zero positive coeff			1.79		1.79			
% of which: one positive coeff			12.50		19.64			
% of which: two positive coeff			55.36		48.21			
% of which: three positive coeff			30.36		30.36			

Chile

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	0.00	100.00	0.00	1.77	17.70	80.53
near1	6.19	34.51	39.82	19.47	0.88	23.89	61.06	14.16
bord1	1.77	28.32	46.02	23.89	6.19	41.59	50.44	1.77
lang1	10.62	49.56	38.94	0.88	7.08	44.25	42.48	6.19
near2	15.04	35.40	42.48	7.08	4.42	39.82	46.02	9.73
bord2	6.19	35.40	46.02	12.39	2.65	38.94	48.67	9.73
lang2	13.10	54.76	26.19	5.95	1.89	46.23	50.94	0.94
Number of cases	113				113			
% cases where proximity measures (1) jointly significant	39.82				21.24			
% of which: zero positive coeff	4.44				0.00			
% of which: one positive coeff	33.33				16.67			
% of which: two positive coeff	44.44				58.33			
% of which: three positive coeff	17.78				25.00			

China

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	0.99	99.01	0.00	2.48	11.39	86.14
near1	4.43	33.99	54.68	6.90	1.48	17.24	51.23	30.05
bord1	0.49	9.36	32.51	57.64	0.99	30.54	56.65	11.82
lang1	0.00	6.90	54.19	38.92	4.93	30.54	53.69	10.84
near2	5.91	43.84	42.86	7.39	1.97	31.53	57.14	9.36
bord2	2.46	37.44	46.31	13.79	4.43	49.75	40.89	4.93
lang2	2.48	23.27	53.47	20.79	5.42	38.42	52.71	3.45
Number of cases	203				203			
% cases where proximity measures (1) jointly significant	79.31				44.83			
% of which: zero positive coeff	0.00				0.00			
% of which: one positive coeff	3.73				12.09			
% of which: two positive coeff	40.37				41.76			
% of which: three positive coeff	55.90				46.15			

Costa Rica

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	1.35	2.70	95.95	0.00	9.46	32.43	58.11
near1	1.35	18.92	43.24	36.49	1.35	39.19	40.54	18.92
bord1	13.51	58.11	25.68	2.70	4.05	44.59	43.24	8.11
lang1	5.80	36.23	52.17	5.80	0.00	47.14	48.57	4.29
near2	6.76	17.57	41.89	33.78	1.35	39.19	45.95	13.51
bord2	6.76	51.35	32.43	9.46	8.11	32.43	56.76	2.70
lang2	21.43	46.43	28.57	3.57	2.27	31.82	63.64	2.27
Number of cases			74		74			
% cases where proximity measures (1) jointly significant			37.68		22.86			
% of which: zero positive coeff			0.00		0.00			
% of which: one positive coeff			42.31		25.00			
% of which: two positive coeff			50.00		62.50			
% of which: three positive coeff			7.69		12.50			

Egypt

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	1.59	98.41	0.00	4.76	30.16	65.08
near1	6.35	36.51	42.86	14.29	0.00	33.33	53.97	12.70
bord1	3.17	28.57	33.33	34.92	4.76	28.57	57.14	9.52
lang1	1.59	26.98	53.97	17.46	4.76	38.10	55.56	1.59
near2	12.70	42.86	42.86	1.59	3.17	44.44	36.51	15.87
bord2	7.94	33.33	50.79	7.94	4.76	42.86	49.21	3.17
lang2	4.84	25.81	50.00	19.35	4.76	41.27	47.62	6.35
Number of cases			63		63			
% cases where proximity measures (1) jointly significant			57.14		15.87			
% of which: zero positive coeff			2.78		0.00			
% of which: one positive coeff			13.89		40.00			
% of which: two positive coeff			58.33		40.00			
% of which: three positive coeff			25.00		20.00			

Ghana

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	5.26	94.74	0.00	5.26	31.58	63.16
near1	0.00	15.79	36.84	47.37	0.00	31.58	52.63	15.79
bord1	0.00	57.89	15.79	26.32	0.00	36.84	42.11	21.05
lang1	21.05	57.89	21.05	0.00	5.26	47.37	47.37	0.00
near2	10.53	47.37	36.84	5.26	0.00	57.89	42.11	0.00
bord2	5.26	36.84	57.89	0.00	0.00	21.05	68.42	10.53
lang2	21.05	42.11	26.32	10.53	10.53	47.37	42.11	0.00
Number of cases			19		19			
% cases where proximity measures (1) jointly significant			73.68		31.58			
% of which: zero positive coeff			0.00		0.00			
% of which: one positive coeff			57.14		50.00			
% of which: two positive coeff			28.57		33.33			
% of which: three positive coeff			14.29		16.67			

Greece

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	0.68	99.32	0.00	3.40	15.65	80.95
near1	8.16	23.81	52.38	15.65	2.04	38.10	44.90	14.97
bord1	6.12	25.17	46.94	21.77	4.76	38.10	51.02	6.12
lang1	2.04	20.41	55.10	22.45	6.80	32.65	55.78	4.76
near2	17.01	48.98	31.97	2.04	2.04	36.05	53.74	8.16
bord2	4.76	31.97	48.30	14.97	1.36	36.05	52.38	10.20
lang2	6.80	18.37	48.98	25.85	4.08	49.66	43.54	2.72
Number of cases			147		147			
% cases where proximity measures (1) jointly significant			56.46		23.81			
% of which: zero positive coeff			0.00		2.86			
% of which: one positive coeff			15.66		31.43			
% of which: two positive coeff			38.55		54.29			
% of which: three positive coeff			45.78		11.43			

India

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend Neg/sig	Neg/insig	Pos/insig	Pos/sig	Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	0.56	99.44	0.00	2.79	17.32	79.89
near1	7.82	32.96	40.78	18.44	0.56	25.14	49.16	25.14
bord1	1.12	18.99	49.16	30.73	0.00	34.08	53.07	12.85
lang1	15.08	48.60	32.40	3.91	1.12	30.73	54.19	13.97
near2	10.61	44.13	39.66	5.59	2.23	39.11	49.16	9.50
bord2	3.35	40.78	47.49	8.38	0.56	34.64	55.31	9.50
lang2	20.11	49.16	27.93	2.79	2.79	39.66	53.63	3.91
Number of cases			179		179			
% cases where proximity measures (1) jointly significant			49.72		42.46			
% of which: zero positive coeff			0.00		0.00			
% of which: one positive coeff			30.34		11.84			
% of which: two positive coeff			50.56		52.63			
% of which: three positive coeff			19.10		35.53			

South Korea

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend Neg/sig	Neg/insig	Pos/insig	Pos/sig	Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	1.11	98.89	0.00	1.11	12.78	86.11
near1	6.67	30.00	45.56	17.78	0.56	21.67	58.33	19.44
bord1	2.78	19.44	57.22	20.56	1.67	38.89	47.78	11.67
lang1	0.00	8.33	41.67	50.00	2.22	32.78	53.89	11.11
near2	12.22	45.00	37.22	5.56	1.11	34.44	56.11	8.33
bord2	2.22	26.11	55.00	16.67	0.00	35.56	53.33	11.11
lang2	5.56	26.11	36.11	32.22	7.22	36.67	51.11	5.00
Number of cases			180		180			
% cases where proximity measures (1) jointly significant			71.11		34.44			
% of which: zero positive coeff			0.00		0.00			
% of which: one positive coeff			5.47		16.13			
% of which: two positive coeff			42.97		46.77			
% of which: three positive coeff			51.56		37.10			

Morocco

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	1.43	98.57	0.00	0.00	22.86	77.14
near1	1.43	24.29	48.57	25.71	2.86	32.86	50.00	14.29
bord1	5.71	30.00	40.00	24.29	1.43	37.14	54.29	7.14
lang1	5.71	40.00	45.71	8.57	7.14	34.29	51.43	7.14
near2	15.71	45.71	31.43	7.14	2.86	34.29	50.00	12.86
bord2	10.00	34.29	42.86	12.86	0.00	42.86	55.71	1.43
lang2	10.77	32.31	52.31	4.62	4.35	37.68	57.97	0.00
Number of cases	70				70			
% cases where proximity measures (1) jointly significant	51.43				30.00			
% of which: zero positive coeff	0.00				0.00			
% of which: one positive coeff	22.22				23.81			
% of which: two positive coeff	38.89				33.33			
% of which: three positive coeff	38.89				42.86			

Mexico

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	1.16	98.84	0.00	2.31	19.08	78.61
near1	11.56	43.35	32.95	12.14	2.31	27.75	49.71	20.23
bord1	0.58	10.98	59.54	28.90	1.73	41.04	49.13	8.09
lang1	6.36	31.21	50.29	12.14	2.89	43.35	50.29	3.47
near2	24.28	54.91	15.61	5.20	1.73	35.26	53.76	9.25
bord2	4.62	28.32	45.66	21.39	2.89	35.84	52.60	8.67
lang2	8.12	19.38	58.12	14.38	2.34	44.44	48.54	4.68
Number of cases	173				173			
% cases where proximity measures (1) jointly significant	49.13				28.32			
% of which: zero positive coeff	1.18				2.04			
% of which: one positive coeff	20.00				20.41			
% of which: two positive coeff	51.76				42.86			
% of which: three positive coeff	27.06				34.69			

Malaysia

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.57	0.00	6.32	93.10	0.57	8.62	37.93	52.87
near1	10.86	33.71	41.71	13.71	2.86	29.14	52.00	16.00
bord1	1.14	29.71	53.14	16.00	4.00	32.00	54.86	9.14
lang1	7.43	47.43	41.14	4.00	5.14	33.14	46.29	15.43
near2	20.57	45.14	27.43	6.86	5.14	32.57	52.57	9.71
bord2	10.86	41.14	40.00	8.00	6.29	45.71	42.86	5.14
lang2	14.53	47.09	29.65	8.72	2.29	45.14	46.86	5.71
Number of cases			175		175			
% cases where proximity measures (1) jointly significant			34.86		33.71			
% of which: zero positive coeff			3.28		1.69			
% of which: one positive coeff			22.95		13.56			
% of which: two positive coeff			54.10		49.15			
% of which: three positive coeff			19.67		35.59			

Nepal

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	0.00	100.00	0.00	0.00	33.33	66.67
near1	0.00	33.33	11.11	55.56	0.00	11.11	44.44	44.44
bord1	11.11	55.56	22.22	11.11	33.33	33.33	33.33	0.00
lang1	11.11	44.44	44.44	0.00	11.11	66.67	22.22	0.00
near2	0.00	33.33	33.33	33.33	0.00	33.33	44.44	22.22
bord2	22.22	22.22	55.56	0.00	0.00	22.22	77.78	0.00
lang2	0.00	22.22	77.78	0.00	11.11	44.44	44.44	0.00
Number of cases			9		9			
% cases where proximity measures (1) jointly significant			44.44		22.22			
% of which: zero positive coeff			0.00		0.00			
% of which: one positive coeff			50.00		100.00			
% of which: two positive coeff			50.00		0.00			
% of which: three positive coeff			0.00		0.00			

Philippines

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.79	3.94	95.28	0.00	5.51	40.94	53.54
near1	3.94	25.98	44.88	25.20	1.57	24.41	54.33	19.69
bord1	4.72	40.94	45.67	8.66	3.15	43.31	49.61	3.94
lang1	10.24	48.82	37.80	3.15	7.09	35.43	49.61	7.87
near2	14.96	49.61	33.07	2.36	2.36	38.58	43.31	15.75
bord2	7.87	35.43	48.03	8.66	3.94	48.03	44.09	3.94
lang2	11.81	48.82	36.22	3.15	6.30	47.24	44.09	2.36
Number of cases			127		127			
% cases where proximity measures (1) jointly significant			40.94		29.13			
% of which: zero positive coeff			1.92		0.00			
% of which: one positive coeff			38.46		18.92			
% of which: two positive coeff			44.23		56.76			
% of which: three positive coeff			15.38		24.32			

El Salvador

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	4.26	10.64	85.11	2.13	14.89	38.30	44.68
near1	2.13	12.77	48.94	36.17	2.13	40.43	42.55	14.89
bord1	42.55	51.06	4.26	2.13	4.26	42.55	44.68	8.51
lang1	21.05	42.11	34.21	2.63	0.00	39.53	53.49	6.98
near2	0.00	27.66	48.94	23.40	4.26	29.79	55.32	10.64
bord2	19.57	41.30	32.61	6.52	2.13	40.43	53.19	4.26
lang2	7.14	78.57	0.00	14.29	4.35	39.13	56.52	0.00
Number of cases			47		47			
% cases where proximity measures (1) jointly significant			44.74		27.91			
% of which: zero positive coeff			0.00		0.00			
% of which: one positive coeff			76.47		41.67			
% of which: two positive coeff			23.53		41.67			
% of which: three positive coeff			0.00		16.67			

Thailand

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend Neg/sig	Neg/insig	Pos/insig	Pos/sig	Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	2.30	97.70	0.57	6.90	33.33	59.20
near1	6.32	33.33	43.68	16.67	3.45	26.44	54.60	15.52
bord1	1.72	28.16	52.30	17.82	2.87	39.66	52.87	4.60
lang1	4.60	27.59	47.13	20.69	4.60	28.74	54.02	12.64
near2	12.07	51.72	29.31	6.90	2.87	41.95	45.98	9.20
bord2	7.47	44.83	39.08	8.62	4.60	44.83	46.55	4.02
lang2	12.07	33.33	43.10	11.49	4.60	36.21	53.45	5.75
Number of cases		174			174			
% cases where proximity measures (1) jointly significant		48.85			24.71			
% of which: zero positive coeff		1.18			0.00			
% of which: one positive coeff		12.94			23.26			
% of which: two positive coeff		57.65			37.21			
% of which: three positive coeff		28.24			39.53			

Tunisia

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend Neg/sig	Neg/insig	Pos/insig	Pos/sig	Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	0.00	100.00	0.00	7.25	42.03	50.72
near1	10.14	31.88	42.03	15.94	2.90	46.38	47.83	2.90
bord1	7.25	34.78	53.62	4.35	5.80	53.62	36.23	4.35
lang1	5.80	49.28	34.78	10.14	8.70	36.23	50.72	4.35
near2	20.29	42.03	33.33	4.35	4.35	43.48	47.83	4.35
bord2	0.00	36.23	47.83	15.94	2.90	43.48	49.28	4.35
lang2	5.88	30.88	51.47	11.76	2.90	52.17	39.13	5.80
Number of cases		69			69			
% cases where proximity measures (1) jointly significant		34.78			13.04			
% of which: zero positive coeff		8.33			11.11			
% of which: one positive coeff		33.33			33.33			
% of which: two positive coeff		33.33			55.56			
% of which: three positive coeff		25.00			0.00			

Turkey

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	3.29	96.71	0.00	8.55	32.24	59.21
near1	3.29	23.68	48.03	25.00	2.63	34.21	48.68	14.47
bord1	2.63	25.00	45.39	26.97	1.32	35.53	51.97	11.18
lang1	0.66	19.08	45.39	34.87	3.95	35.53	54.61	5.92
near2	4.61	61.84	30.26	3.29	1.97	36.84	53.95	7.24
bord2	3.95	31.58	50.66	13.82	5.92	39.47	50.66	3.95
lang2	4.61	26.97	46.71	21.71	5.92	45.39	48.03	0.66
Number of cases			152		152			
% cases where proximity measures (1) jointly significant			70.39		22.37			
% of which: zero positive coeff			0.00		0.00			
% of which: one positive coeff			4.67		23.53			
% of which: two positive coeff			49.53		44.12			
% of which: three positive coeff			45.79		32.35			

Uganda

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00
near1	0.00	0.00	60.00	40.00	0.00	40.00	40.00	20.00
bord1	0.00	40.00	60.00	0.00	20.00	40.00	40.00	0.00
lang1	0.00	80.00	0.00	20.00	0.00	40.00	40.00	20.00
near2	0.00	20.00	60.00	20.00	0.00	60.00	40.00	0.00
bord2	0.00	60.00	40.00	0.00	0.00	40.00	40.00	20.00
lang2	0.00	60.00	40.00	0.00	0.00	20.00	60.00	20.00
Number of cases			5		5			
% cases where proximity measures (1) jointly significant			60.00		40.00			
% of which: zero positive coeff			0.00		0.00			
% of which: one positive coeff			33.33		0.00			
% of which: two positive coeff			66.67		100.00			
% of which: three positive coeff			0.00		0.00			

Uruguay

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, ldist, bord, lang, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: mktsize, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	0.00	0.00	100.00	0.00	1.82	18.18	80.00
near1	10.91	29.09	29.09	30.91	0.00	36.36	45.45	18.18
bord1	0.00	18.18	49.09	32.73	1.82	49.09	45.45	3.64
lang1	14.55	45.45	36.36	3.64	1.82	41.82	49.09	7.27
near2	14.55	40.00	38.18	7.27	1.82	45.45	45.45	7.27
bord2	1.82	40.00	52.73	5.45	0.00	38.18	58.18	3.64
lang2	11.11	44.44	31.11	13.33	0.00	44.00	50.00	6.00
Number of cases			55		55			
% cases where proximity measures (1) jointly significant			61.82		25.45			
% of which: zero positive coeff			0.00		0.00			
% of which: one positive coeff			26.47		21.43			
% of which: two positive coeff			58.82		57.14			
% of which: three positive coeff			14.71		21.43			