Incomplete draft.
July 15, 2002

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 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.

JEL code: F1

Keywords: bilateral trade, market entry, developing countries, gravity equation.

Thanks to Martin Stewart for excellent research assistance. The comments and suggestions of seminar participants at INSEAD, LSE, HEI, University of Virginia, World Bank, and the European Research Workshop on International Trade are gratefully acknowledged. We also thank David Weinstein for his thoughtful discussant's remarks at a session at the American Economic Association's Annual Meeting in 2002.

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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 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 experience that exporters acquire from sales to existing export destinations that are proximate, in some sense, to these new trading partners.

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. 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

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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 North-South trade emphasize the importance of international technological differences and the distribution of income (Flam and Helpman, 1987; Stokey, 1991; and Matsuyama, 2000).

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 distance of the destination country from the supplier and the destination's market size and import demand structure, 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 hypothesise that, perhaps because of learning effects, the probability that a market is supplied depends on its proximity to other markets that have been previously supplied. Thus, there is a spillover from markets that are already supplied to the probability of supplying a new market, the strength of which depends on the new market's "proximity to the supply frontier". As the set of export destinations (for a given exporter and product) vary over time, so does the proximity to the supply frontier of those nations that do not currently import the product in question.

We investigate three different measures of proximity to the supply frontier.[5] One is based on the

[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

distance of a candidate export destination to the closest foreign market already receiving the product line from 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]. We, therefore, attempt to identify three channels through which experience gained in existing markets may spillover to facilitate entry to new markets.[8]

Analysis is based on over two thousand panels of product line-level export data for 23 developing economies which we use to estimate the contribution of each potential mechanism outlined above. Our most conservative parameter estimates suggest that in 25 percent of all product lines these spatial spillovers are statistically significant. What is more, there is a positive correlation between the number of product lines a nation exports and the percentage of product lines where these mechanisms operate. China and India, for example, export over 175 distinct product lines during 1970-1997 and more than 30 percent of them exhibit these dynamics. Throughout this time period China and India's exports grew in real terms 1356 and 324 percent, respectively. Our econometric

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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.

[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.

estimates also suggest that spillovers arising through common languages and shared borders encourage the geographic spread of exports less than half as often as learning about markets that are proximate measured simply on 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 trading 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 exports to new markets. 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]

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[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,

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, 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*;

$\Delta X_{i} \equiv \sum_k \Delta X_{i}^{k}$, 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

the former Soviet Union and successor states, and the former Yugoslavia. All of the 23 exporting nations considered here meet these criteria.

changes on existing products. We start by creating two indicators that determine whether nation i exported 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:

$D_i \equiv \left\{ k \mid I\left(X_i^k(70/4)\right) = 1 \cap I\left(X_i^k(93/7)\right) = 0 \right\}$, the set of product lines k that nation i exported in 1970-4 but no longer exported during 1993-7;

$N_i \equiv \left\{ k \mid I\left(X_i^k(70/4)\right) = 0 \cap I\left(X_i^k(93/7)\right) = 1 \right\}$, the set of product lines k that nation i did not export in 1970-4 but did export in 1993-7;

$C_i \equiv \left\{ k \mid I\left(X_i^k(70/4)\right) = 1 \cap I\left(X_i^k(93/7)\right) = 1 \right\}$, the set of product lines k that nation i exported in 1970-4 and continued to export in 1993-7;

$O_i \equiv \left\{ k \mid I\left(X_i^k(70/4)\right) = 0 \cap I\left(X_i^k(93/7)\right) = 0 \right\}$, 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.

We calculate the total change in the value exports associated with these sets, and express them as a percentage of the overall change in nation *i*'s exports from 1970-4 to 1993-7: this gives, $d_i = 100\sum_{k\in D_i} \Delta X_i^k / \Delta X_i$, $n_i = 100\sum_{k\in N_i} \Delta X_i^k / \Delta X_i$, $c_i = 100\sum_{k\in C_i} \Delta X_i^k / \Delta X_i$.

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 a maximum of 224) that were exported in 1993/97, 188 had been exported in 1970-74, and 26 were new; 2 of 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 - 0.01% 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 set of products that they export. Death of a product line is quite infrequent (with a \$50,000 cutoff) and the volumes of trade loss associated with death of product lines is generally negligible. Birth of new products is more frequent, although the importance of new products to trade growth is modest.

The summary for the exports of all 23 countries is given in the left hand panel of table 2. These are the aggregates across exporting countries, $100\sum_i \sum_{k\in C_i} \Delta X_i^k / \sum_i \Delta X_i$ and similarly for sets D_i and N_i. 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. The share of export growth attributable to the birth of new products is quite sensitive to this cutoff, and 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:

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

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

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:

$$D_i^k \equiv \left\{ j \mid S\left(X_{ij}^{k}(70/4)\right) = 1 \cap S\left(X_{ij}^{k}(93/7)\right) = 0 \right\},$$

$$N_i^k \equiv \left\{ j \mid S\left(X_{ij}^{k}(70/4)\right) = 0 \cap S\left(X_{ij}^{k}(93/7)\right) = 1 \right\},$$

$$C_i^k \equiv \left\{ j \mid S\left(X_{ij}^{k}(70/4)\right) = 1 \cap S\left(X_{ij}^{k}(93/7)\right) = 1 \right\}$$

Thus, D_i^k is the set of countries to which country *i* stopped exporting good *k*. The value of the change in exports 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 $d_i^* = 100\sum_k \sum_{j \in D_i^k} \Delta X_{ij}^k / \Delta X_i$. Similarly, for products traded with new partners and with continuing partners, we write $n_i^* = 100\sum_k \sum_{j \in N_i^k} \Delta X_{ij}^k / \Delta X_i$, and $c_i^* = 100\sum_k \sum_{j \in C_i^k} \Delta X_{ij}^k / \Delta X_i$. n_i^* 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.

Proportions of the change in the value of exports associated with these changes in partners are given in the right hand block of table 3. In Argentina's case c_i^* = 52, d_i^* = -5, and n_i^* = 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 2 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 exports?

[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? We address this question by looking separately at each country's exports of each product line to different destinations.

The economic forces determining whether or not a market is supplied can be divided into four broad categories. The first are supply side factors: the comparative advantage, exchange rate and cost levels of the supplying country. Since our approach is to estimate separately for each supplier and product line, these factors only vary in the time dimension, and we capture them by time trends or dummies. The second are 'between country' factors: from gravity modelling, these include distance of the destination market from the source, and whether or not they share a common border or language. They vary in the cross-section, but not in the time dimension. Third, are destination market characteristics, reflecting demand for the product. We will work with two such measures, one being the overall size of the country's imports, and the other being its revealed comparative advantage for the product under study. These measures vary both in the cross-section and time series. Finally, we hypothesis that there are experience effects. These operate both within the market (so can be captured by past supply to the market) and between markets – the spatial spillover effects from proximate markets that have been previously supplied. The next sub-section outlines a modelling approach to capture all these effects.

3.1 Model structure

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

[12] In this section we drop the subscripts for source and product-line. Thus, for source i and product k, $s_j(t) \equiv S\left(X_{ij}^k(t)\right)$.

$F_j(t)$; 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, several general points about our approach need to be made. The net revenues earned in market j will, we suppose, depend on supplier country factors, between country factors and destination market characteristics. The fixed costs $f_j(t)$ depends 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 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 final 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 spillover effects from entry (and spillover effects from markets that were entered because of the additional experience gained, 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 spillover effects we identify in the data are internalised within the firm. In fact, our straightforward model is consistent with intertemporal optimising behaviour if experience effects are 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, supply country characteristics – such as the productivity of its export sector and its exchange rate -- are captured simply as a function of time. We denote these by $E(t)$, and will represent them either by a time trend or time dummies. Between country effects include the proximity of country i to a potential export market j as 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.

There are two main characteristics of the potential destination market. The first is its size, which we measure by its total imports (of all goods from all sources), $m_j(t)$, expressed as the log of US dollar values. By working with imports we capture not just the economic size of the destination, but also its natural openness, trade policy, and bilateral exchange rate with the US dollar. The second market characteristic is its revealed comparative advantage in the product under study, as measured by the share of the product in its total imports, relative to the share of the product in world imports. Formally, we define $z_j^k(t) \equiv \sum_{i \neq i*} X_{ij}^k(t)$ as country j's imports of good k from all sources other than the exporter country under consideration.[13] Since we are looking at imports we define the revealed comparative disadvantage of country j in good k at time t, $RCD_j^k(t)$, as

[13] The exporter country under study is denoted $i*$ and stripped out of this measure for reasons of endogeneity.

$$RCD_j^k(t) = \frac{z_j^k(t) / \sum_k z_j^k(t)}{\sum_j z_j^k(t) / \sum_j \sum_k z_j^k(t)} \tag{2}$$

Thus, for a particular product line under study, $RCD_j(t)$ measures the extent to which country j's imports are skewed towards the product, relative to the pattern of world imports as a whole.

Pulling these elements together, we express revenue as:

$$r_j(t) = \alpha_0 + \alpha_1 m_j(t) + \alpha_2 RCD_j(t) + \alpha_3 D_j + \alpha_4 B_j + \alpha_5 L_j + \alpha_6 E(t). \tag{3}$$

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

$$f_j(t) = \beta_0 + \beta_1 s_j(t-1) + \beta_2 P_j(t-1)[1 - s_j(t-1)] + \beta_3 P_j(t-1) s_j(t-1) + u_j(t-1). \tag{4}$$

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 spillovers from experience gained in related or proximate markets which we denote $P_j(t\text{-}1)$. 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 $P_j(t\text{-}1)$, depends on the economic proximity of market j to other export markets that were supplied at t-1. This is 'proximity to the supply frontier', which we measure in three different ways. The first 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 $border_{jk}$ is the matrix of border dummies, with elements equal to 1 if and only if countries j and k share a common border, then, $bord_j(t-1) = 1$ if $\sum_k border_{jk} s_{jk}(t-1) > 0$, and zero otherwise. The second measure is a dummy variable for whether or not country j has a common business language with a country that was supplied in the preceding period. Proceeding as with the border measure, we construct $lang_j\,(t\text{-}1)$. The third measure is based on geographical distance. 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. Formally, $near_j(t-1) = -\min_k\{\ln(dist_{jk}/dist_{\max}) | s_k(t-1) = 1\}$. $dist_{jk}$ is distance from j to k, and we express it relative to the furthest distance between any pair of countries; for ease of interpretation of results we measure proximity rather than distance, hence the minus sign.

Each of these measures is interacted with market j experience, as already indicated in equation (4). As a matter of notation we use numbers 1 (and 2) to distinguish cases where market k was not (was) itself supplied in the preceding period. Thus, $near1_j(t-1) = near_j(t-1)[1 - s_j(t-1)]$ and $near2_j(t-1) = near_j(t-1)s_j(t-1)$, and similarly for $bord1_j\,(t\text{-}1)$, $bord2_j\,(t\text{-}1)$ and $lang1_j\,(t\text{-}1)$, $lang2_j\,(t\text{-}1)$. We anticipate that the spillover effects are strongest for markets that have not been previously supplied, so the variables $dist1_j\,(t\text{-}1)$, $bord1_j\,(t\text{-}1)$ and $lang1_j\,(t\text{-}1)$ will be our primary interest in the results that follow.

Pulling these elements together equation (4) becomes

$$f_j(t) = \beta_0 + \beta_1 s_j(t-1) + \beta_2 near1_j(t-1) + \beta_3 near2_j(t-1) + \beta_4 bord1_j(t-1) + \beta_5 bord2_j(t-1) + \beta_6 lang1_j(t-1) + \beta_7 lang2_j(t-1) + u_j(t). \tag{5}$$

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.[14]

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) for $m_j(t)$, data taken from the World Bank's *World Development Indicators*. The measure $RCD_j(t)$ was constructed, for each product line, from the NBER World Trade Database.

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, $dist_{ij.}$. Our proxy for a common business language was constructed from a database on the fifty most widely-spoken languages in the world.[15] 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.[16] 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 $E_j(t)$, the time-varying supply side characteristics of the exporter, the first of which is simply a time trend, denoted by t.

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[14] 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.

[15] 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.

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

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

$$s_j(t) = \alpha_0 + \alpha_1 m_j(t) + \alpha_2 RCD_j + \alpha_3 D_j + \alpha_4 B_j + \alpha_5 L_j + \alpha_6 t + \beta_1 s_j(t-1) + \beta_2 near1_j(t-1) + \beta_3 near2_j(t-1) + \beta_4 bord1_j(t-1) + \beta_5 bord2_j(t-1) + \beta_6 lang1_j(t-1) + \beta_7 lang2_j(t-1) + u_j(t). \tag{6}$$

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, straightforward logistic estimation was used to estimate the parameters.

Equation (6) provides the benchmark specification, and we estimate it by standard logit methods. We also believe that there may be 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,

$$s_j(t) = \alpha_0 + \alpha_1 m_j(t) + K_j + T(t) + \beta_1 s_j(t-1) + \beta_2 near1_j(t-1) + \beta_3 near2_j(t-1) + \beta_4 bord1_j(t-1) + \beta_5 bord2_j(t-1) + \beta_6 lang1_j(t-1) + \beta_7 lang2_j(t-1) + u_j(t). \tag{7}$$

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.[17]

3.3 Product-line estimation

We present results for both the specifications (6) and (7). The base specification (6) has the advantage of revealing the role of the usual gravity variables (distance, border and language) as well as using more information, i.e. including observations for countries where the dependent variable does not change during the period. The base specification (which we refer to as the logit estimates) plus the conditional logit estimation of equation (7) result 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, focussing on the explanatory power of the three spillover effects identified earlier.

The top left and top right blocks of table 4 present the results of estimating our logit and conditional logit specifications, initially with only the distance measure of proximity to the supply frontier. We see that the market size variable $m_j(t)$ is positive and statistically significant in 98.06 percent of China's 203 product lines, or 90.29 percent once time invariant country fixed effects and time dummies are included. The revealed comparative advantage of each market is positive and statistically significant in around two-thirds of cases. Conventional exporter-to-importer distance is negative and statistically significant in more than half of cases, 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 half of cases. 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 80% once fixed effects are included. Encouragingly, there are very few anomalous results—where the estimated parameter had the "wrong" sign and was statistically significant.

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[17] 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 variables measuring spillovers from presence in proximate markets, *near1* and *near 2* are in line with theoretical priors. They have a significant and positive impact in 30-40% of product lines where markets were not directly supplied in the previous period (*near1*). However, when the market was supplied in the previous year (*near2*), the spillover effect is positive and significant in only around 8-10% 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 71.8% of cases. The presence of country and time fixed effects reduces the number of Chinese product lines where these three mechanisms are jointly statistically significant, but 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 and in the vast majority (97% logit, 72% conditional logit) two or more of these mechanisms have a positive coefficient. The Chinese parameter estimates, then, are 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 spillover effects from existing foreign markets, especially those which are geographically close to those foreign markets that are currently supplied.

Looking at each of the proximity to the supply frontier measures separately, we see that each is significant in a proportion of cases, although their relative significance varies between the logit and conditional logit estimates. As we look at other countries, it is generally the case the geographical distance is the most important mechanism, followed by common border and language.

Results for other countries are given in appendix table 2, and results for all countries are summarised in Tables 5 and 6. The joint significance of these three proximity measures is reported on a country-by-country basis in table 5. The logit estimates indicate that in nearly half of cases the spillover effects are significant. In the most conservative parameter estimates (the conditional logit estimates including time and country fixed effects) suggest that in 25% percent of product lines these spillover effects have contributed to market entry. Countries with the lowest proportion of jointly significant effects are Tunisia, Nepal, and (according to the conditional logit estimates Egypt and Uganda). Interestingly, there is a positive correlation between the overall rate of growth of countries' exports over the period and the proportion of their product lines for which learning effects are significant.[18]

Table 6 looks at each of the proximity measures separately. We see that for the logit estimates border effects are the most important measure of proximity, while for the conditional logits the distance measure becomes the most important. In some 14.4% of cases the geographical distance to the supply frontier has a positive and significant effect on the probability of a market receiving 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 exports -- is important as the trade flows associated with it alone account for one third of developing economies' export growth since 1970, a fact we document here for 23 developing countries.

Naturally, much of the this spread is driven by supply side improvements in exporting countries, which we model as depending simply on time. But what determines *which* markets are entered? We show that it depends on three sorts of factors. One is market demand, measured both by overall import demand and by destination markets' revealed comparative advantage in the product. The second is distance from the supplier, measured by great circle distance, and sharing a common

[18] The raw correlation coefficient between the growth of exports and proportion of product lines where spillover effects are jointly significant is 21% for the conditional logit estimates and 12% for the logit estimates.

border or language. The third is experience gained, both in the destination market and from previous exports to proximate markets. These effects are significant in between 25% and 50% of cases studied. Thus, if, say, China has exported a particular product line to Germany, this raises the probability that it will come to export to countries close to Germany. Of course countries close to Germany share, with Germany, a similar distance from China, and possibly also similar comparative advantage and market size. However, even controlling for these factors we find the spillover effects from supplying proximate markets to be significant.

The presence of these spatial spillovers leaves open the question of exactly what mechanism is driving them. Learning effects are one likely candidate, although we cannot identify these separately from the effects of sunk investments in regional distribution networks. We show, however, that proximity effects operate most often through pure distance, rather than through either border effects or shared language effects.

In a sense our findings bode well for the future prospects for developing economies' exports. The findings suggest that there are costs of entering markets, but once overcome there is persistence of presence in the market, and entering related markets becomes more likely. Both geography and history matter in shaping which markets are supplied, but hysteresis and experience effects suggest a ratchet-like outcome, in which continuing export growth can be sustained

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Table 1: Export growth decompositions by product-line.

Economy	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 70/4 and 93/7	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

Economy	Product line count					% of the change in exports that fall in each category			
	Mean no. partnrs70/4	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^*	Loss of partnrs d_i^*	New partnrs n_i^*	Continuing 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	92.23	5.34	1.94	0.49				
mktsize,$m_j(t)$	0.00	0.00	1.94	98.06	0.00	0.49	9.22	90.29
$RCD_j(t)$	0.00	5.34	22.33	72.33	0.00	5.34	30.10	64.56
D_j	61.65	30.58	7.28	0.49				
B_j	0.00	4.39	42.44	53.17				
L_j	0.49	24.27	63.59	11.65				
time, t	11.17	9.71	13.11	66.02				
Lagged dep var, $s_j(t-1)$	0.00	0.00	0.00	100.00	0.00	0.97	15.05	83.98
$near1_j(t-1)$	1.94	10.19	45.63	42.23	0.49	16.50	53.88	29.13
$near2_j(t-1)$	7.28	40.29	43.20	9.22	3.40	36.41	52.43	7.77
constant	87.86	9.22	2.43	0.49				
mktsize,$m_j(t)$	0.00	0.00	0.97	99.03	0.00	0.97	8.74	90.29
$RCD_j(t)$	0.00	4.85	23.30	71.84	0.00	6.80	27.67	65.53
D_j	69.42	27.18	2.91	0.49				
B_j	0.00	5.85	42.93	51.22				
L_j	1.46	38.83	53.40	6.31				
time, t	12.14	9.22	13.59	65.05				
Lagged dep var, $s_j(t-1)$	0.00	0.00	16.10	83.90	0.00	9.76	38.05	52.20
$near1_j(t-1)$	4.85	39.81	50.49	4.85	1.46	21.84	54.85	21.84
$bord1_j(t-1)$	0.49	9.71	37.86	51.94	1.46	38.35	53.40	6.80
$lang1_j(t-1)$	0.49	9.71	58.25	31.55	6.31	31.07	51.46	11.17
$near2_j(t-1)$	6.31	44.66	43.20	5.83	2.91	39.81	50.97	6.31
$bord2_j(t-1)$	3.41	39.51	44.39	12.68	4.39	53.17	37.56	4.88
$lang2_j(t-1)$	1.95	29.27	50.73	18.05	6.80	40.78	49.51	2.91

Number of cases	206	206
% cases where proximity measures1 jointly significant	71.84	44.83
% of which: zero positive coeff	0.00	0.00
% of which: one positive coeff	2.70	12.09
% of which: two positive coeff	49.32	41.76
% of which: three positive coeff	47.97	30.1

Table 5: 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	55.75	21.84	0.00	0.00
Bangladesh	26	42.31	23.08	9.09	0.00
Bolivia	15	26.67	26.67	0.00	0.00
Brazil	187	57.75	29.95	1.85	3.57
Chile	123	40.65	20.33	2.00	0.00
China	206	71.84	30.10	0.00	0.00
Costa Rica	78	41.10	21.62	0.00	0.00
Egypt	70	48.57	14.29	2.94	0.00
El Salvador	36	51.72	21.88	0.00	14.29
Ghana	17	82.35	29.41	0.00	0.00
Greece	160	47.50	20.63	0.00	6.06
India	186	43.55	35.48	0.00	0.00
Korea	182	62.09	24.73	0.00	0.00
Malaysia	179	34.64	33.52	8.06	5.00
Mexico	176	43.75	25.00	0.00	2.27
Morocco	74	44.59	27.03	0.00	0.00
Nepal	16	31.25	18.75	0.00	0.00
Philippines	131	38.17	22.90	6.00	0.00
Thailand	176	36.93	22.73	0.00	2.50
Tunisia	74	22.97	14.86	5.88	27.27
Turkey	158	60.13	18.35	0.00	0.00
Uganda	7	42.86	14.29	0.00	0.00
Uruguay	58	60.34	27.59	0.00	0.00
Simple mean	109.09	47.28	23.70	1.56	2.65
Weighted mean		48.97	25.06	1.47	2.35

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

Exporter	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	9.77	45.98	9.20	11.49	8.05	5.75
Bangladesh	26	1154	19.23	7.69	3.85	11.54	3.85
Bolivia	15	667	20.00	0.00	0.00	6.67	0.00
Brazil	187	14.97	21.93	25.67	15.51	8.02	9.09
Chile	123	1463	21.14	0.81	10.57	4.07	5.69
China	206	485	51.94	31.55	21.84	6.80	11.17
Costa Rica	78	3590	3.85	2.74	15.38	6.41	2.70
Egypt	70	1286	30.00	18.57	1000	8.57	2.86
El Salvador	36	3611	2.78	3.45	13.89	8.33	0.00
Ghana	17	5294	29.41	0.00	17.65	11.76	0.00
Greece	160	1375	15.63	20.00	9.38	8.75	3.75
India	186	1613	26.88	4.30	23.66	11.83	10.22
Korea	182	1593	17.58	37.36	14.84	10.44	5.49
Malaysia	179	1061	13.41	2.79	16.76	8.94	12.29
Mexico	176	682	34.09	9.09	15.34	6.25	2.84
Morocco	74	1892	18.92	8.11	10.81	8.11	6.76
Nepal	16	3750	6.25	6.25	12.50	0.00	0.00
Philippines	131	21.37	6.11	3.82	14.50	2.29	4.58
Thailand	176	13.07	10.80	11.93	14.77	5.11	7.39
Tunisia	74	13.51	5.41	6.76	1.35	4.05	2.70
Turkey	158	22.15	20.89	36.08	11.39	10.13	4.43
Uganda	7	57.14	0.00	14.29	14.29	14.29	14.29
Uruguay	58	24.14	29.31	3.45	15.52	3.45	6.90
Simple mean	109.09	20.49	19.63	11.47	12.84	7.56	5.34
Weighted mean		15.22	23.08	14.96	14.43	7.57	6.46

Appendix 1: List of Potential Export destinations.

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

Appendix Two: Country-By-Country Econometric Estimates

Argentina

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j , time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	1.72	19.54	78.74	0.00	14.94	62.64	22.41
near1	9.20	49.43	31.61	9.77	2.87	33.91	51.72	11.49
bord1	0.57	10.92	42.53	45.98	2.87	31.03	58.05	8.05
lang1	7.47	38.51	44.83	9.20	3.45	39.08	51.72	5.75
near2	20.69	42.53	29.89	6.90	0.57	35.63	54.02	9.77
bord2	2.87	23.56	53.45	20.11	3.45	35.63	54.02	6.90
lang2	12.90	43.23	38.06	5.81	2.37	45.56	48.52	3.55
Number of cases	174				174			
% cases where proximity measures1 jointly significant	55.75				21.84			
% of which: zero positive coeff	0				0			
% of which: one positive coeff	24.74				28.95			
% of which: two positive coeff	55.67				42.11			
% of which: three positive coeff	19.59				28.95			

Bangladesh

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	7.69	46.15	46.15	0.00	30.77	42.31	26.92
near1	19.23	42.31	26.92	11.54	7.69	46.15	42.31	3.85
bord1	0.00	15.38	65.38	19.23	3.85	34.62	50.00	11.54
lang1	11.54	42.31	38.46	7.69	3.85	15.38	76.92	3.85
near2	7.69	46.15	46.15	0.00	11.54	42.31	38.46	7.69
bord2	3.85	30.77	53.85	11.54	7.69	23.08	50.00	19.23
lang2	16.67	41.67	33.33	8.33	3.85	26.92	61.54	7.69
Number of cases	26				26			
% cases where proximity measures1 jointly significant	42.31				23.08			
% of which: zero positive coeff	9.09				0.00			
% of which: one positive coeff	54.55				16.67			
% of which: two positive coeff	36.36				83.33			
% of which: three positive coeff	0.00				0			

Bolivia

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j time trend Neg/sig	Neg/insig	Pos/insig	Pos/sig	Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	13.33	13.33	73.33	0.00	13.33	53.33	33.33
near1	20.00	26.67	46.67	6.67	0.00	53.33	46.67	0.00
bord1	0.00	26.67	53.33	20.00	0.00	40.00	53.33	6.67
lang1	6.67	33.33	60.00	0.00	13.33	26.67	60.00	0.00
near2	6.67	60.00	26.67	6.67	0.00	46.67	46.67	6.67
bord2	13.33	46.67	40.00	0.00	0.00	40.00	60.00	0.00
lang2	6.67	53.33	26.67	13.33	0.00	46.67	46.67	6.67
Number of cases			15			15		
% cases where proximity measures1 jointly significant			26.67			26.67		
% of which: zero positive coeff			0.00			0.00		
% of which: one positive coeff			50.00			50.00		
% of which: two positive coeff			0.00			25.00		
% of which: three positive coeff			50.00			25.00		

Brazil

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j time trend Neg/sig	Neg/insig	Pos/insig	Pos/sig	Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	1.07	14.44	84.49	0.00	11.23	53.48	35.29
near1	16.04	32.09	36.90	14.97	0.53	34.22	49.73	15.51
bord1	1.07	24.06	52.94	21.93	2.14	38.50	51.34	8.02
lang1	7.49	22.46	44.39	25.67	5.88	42.78	42.25	9.09
near2	22.46	47.06	25.13	5.35	2.14	36.36	55.08	6.42
bord2	3.21	29.95	47.59	19.25	2.14	47.59	41.18	9.09
lang2	8.24	29.12	36.81	25.82	3.21	45.99	49.20	1.60
Number of cases			187			187		
% cases where proximity measures1 jointly significant			57.75			29.95		
% of which: zero positive coeff			1.85			3.57		
% of which: one positive coeff			19.44			28.57		
% of which: two positive coeff			50.93			46.43		
% of which: three positive coeff			27.78			21.43		

Chile

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	4.07	28.46	67.48	0.00	17.07	53.66	29.27
near1	7.32	32.52	45.53	14.63	1.63	28.46	59.35	10.57
bord1	1.63	24.39	52.85	21.14	4.07	42.28	49.59	4.07
lang1	8.13	56.91	34.15	0.81	4.88	47.15	42.28	5.69
near2	10.57	43.90	39.84	5.69	3.25	45.53	43.90	7.32
bord2	5.69	32.52	51.22	10.57	3.25	36.59	53.66	6.50
lang2	16.67	57.78	21.11	4.44	0.87	47.83	49.57	1.74
Number of cases			123			123		
% cases where proximity measures1 jointly significant			40.65			20.33		
% of which: zero positive coeff			2.00			0.00		
% of which: one positive coeff			34.00			24.00		
% of which: two positive coeff			56.00			44.00		
% of which: three positive coeff			8.00			32.00		

China

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	0.00	16.10	83.90	0.00	9.76	38.05	52.20
near1	4.85	39.81	50.49	4.85	1.46	21.84	54.85	21.84
bord1	0.49	9.71	37.86	51.94	1.46	38.35	53.40	6.80
lang1	0.49	9.71	58.25	31.55	6.31	31.07	51.46	11.17
near2	6.31	44.66	43.20	5.83	2.91	39.81	50.97	6.31
bord2	3.41	39.51	44.39	12.68	4.39	53.17	37.56	4.88
lang2	1.95	29.27	50.73	18.05	6.80	40.78	49.51	2.91
Number of cases			206			206		
% cases where proximity measures1 jointly significant			71.84			30.10		
% of which: zero positive coeff			0.00			0.00		
% of which: one positive coeff			2.70			17.74		
% of which: two positive coeff			49.32			48.39		
% of which: three positive coeff			47.97			33.87		

Costa Rica

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.00	12.82	38.46	48.72	3.85	20.51	50.00	25.64
near1	1.28	17.95	44.87	35.90	1.28	34.62	48.72	15.38
bord1	15.38	53.85	26.92	3.85	6.41	43.59	43.59	6.41
lang1	10.96	34.25	52.05	2.74	1.35	48.65	47.30	2.70
near2	5.13	25.64	37.18	32.05	2.56	44.87	44.87	7.69
bord2	8.97	46.15	37.18	7.69	5.13	41.03	50.00	3.85
lang2	17.86	50.00	28.57	3.57	2.17	41.30	52.17	4.35
Number of cases			78				78	
% cases where proximity measures1 jointly significant			41.10				21.62	
% of which: zero positive coeff			0.00				0.00	
% of which: one positive coeff			53.33				12.50	
% of which: two positive coeff			36.67				75.00	
% of which: three positive coeff			10.00				12.50	

Egypt

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	1.43	34.29	64.29	0.00	18.57	61.43	20.00
near1	10.00	42.86	34.29	12.86	1.43	35.71	52.86	10.00
bord1	4.29	25.71	40.00	30.00	5.71	34.29	51.43	8.57
lang1	0.00	28.57	52.86	18.57	4.29	45.71	47.14	2.86
near2	14.29	48.57	35.71	1.43	7.14	44.29	38.57	10.00
bord2	7.14	37.14	45.71	10.00	1.43	48.57	47.14	2.86
lang2	4.48	29.85	50.75	14.93	7.14	42.86	45.71	4.29
Number of cases			70				70	
% cases where proximity measures1 jointly significant			48.57				14.29	
% of which: zero positive coeff			2.94				0.00	
% of which: one positive coeff			5.88				50.00	
% of which: two positive coeff			79.41				40.00	
% of which: three positive coeff			11.76				10.00	

Ghana

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	0.00	23.53	76.47	0.00	11.76	41.18	47.06
near1	0.00	11.76	35.29	52.94	0.00	17.65	64.71	17.65
bord1	0.00	47.06	23.53	29.41	0.00	41.18	47.06	11.76
lang1	11.76	76.47	11.76	0.00	5.88	41.18	52.94	0.00
near2	0.00	52.94	41.18	5.88	0.00	52.94	47.06	0.00
bord2	5.88	23.53	64.71	5.88	0.00	29.41	58.82	11.76
lang2	29.41	41.18	29.41	0.00	23.53	41.18	35.29	0.00
Number of cases	17				17			
% cases where proximity measures1 jointly significant	82.35				29.41			
% of which: zero positive coeff	0.00				0.00			
% of which: one positive coeff	57.14				40.00			
% of which: two positive coeff	28.57				20.00			
% of which: three positive coeff	14.29				40.00			

Greece

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	2.50	21.25	76.25	0.00	18.13	59.38	22.50
near1	7.50	33.13	45.63	13.75	1.88	46.88	41.88	9.38
bord1	5.63	33.13	45.63	15.63	3.13	50.00	38.13	8.75
lang1	3.75	21.25	55.00	20.00	5.00	43.13	48.13	3.75
near2	18.13	47.50	31.25	3.13	3.13	43.13	48.13	5.63
bord2	5.00	36.88	44.38	13.75	3.75	36.25	51.88	8.13
lang2	3.16	22.15	50.00	24.68	1.88	55.63	40.63	1.88
Number of cases	160				160			
% cases where proximity measures1 jointly significant	47.5				20.63			
% of which: zero positive coeff	0.00				6.06			
% of which: one positive coeff	22.37				36.36			
% of which: two positive coeff	40.79				54.55			
% of which: three positive coeff	36.84				3.03			

India

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.54	2.69	13.98	82.80	0.00	9.14	53.76	37.10
near1	5.38	41.40	37.10	16.13	1.08	29.57	45.70	23.66
bord1	1.61	22.58	48.92	26.88	1.08	36.56	50.54	11.83
lang1	16.67	50.54	28.49	4.30	1.61	31.72	56.45	10.22
near2	11.83	46.24	37.10	4.84	2.69	39.25	50.54	7.53
bord2	3.76	45.16	43.01	8.06	2.15	32.26	55.91	9.68
lang2	19.67	49.73	27.32	3.28	3.23	40.32	53.23	3.23
Number of cases			186			186		
% cases where proximity measures1 jointly significant			43.55			35.48		
% of which: zero positive coeff			0.00			0.00		
% of which: one positive coeff			35.80			13.64		
% of which: two positive coeff			49.38			48.48		
% of which: three positive coeff			14.81			37.88		

South Korea

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	0.55	8.79	90.66	0.00	4.95	54.40	40.66
near1	7.69	33.52	42.86	15.93	1.10	25.82	58.24	14.84
bord1	3.30	20.88	58.24	17.58	3.30	37.36	48.90	10.44
lang1	0.55	11.54	50.55	37.36	1.65	37.91	54.95	5.49
near2	14.29	48.35	34.07	3.30	1.10	39.56	52.20	7.14
bord2	1.65	29.67	53.85	14.84	0.55	37.91	49.45	12.09
lang2	8.24	26.37	39.01	26.37	8.24	40.11	48.90	2.75
Number of cases			182			182		
% cases where proximity measures1 jointly significant			62.09			24.73		
% of which: zero positive coeff			0.00			0.00		
% of which: one positive coeff			11.50			20.00		
% of which: two positive coeff			48.67			48.89		
% of which: three positive coeff			39.82			31.11		

Morocco

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	2.70	22.97	74.32	2.70	20.27	47.30	29.73
near1	5.41	32.43	43.24	18.92	1.35	32.43	55.41	10.81
bord1	2.70	36.49	41.89	18.92	1.35	39.19	51.35	8.11
lang1	2.70	55.41	33.78	8.11	9.46	40.54	43.24	6.76
near2	16.22	44.59	33.78	5.41	4.05	37.84	47.30	10.81
bord2	5.41	39.19	40.54	14.86	0.00	40.54	59.46	0.00
lang2	13.64	34.85	48.48	3.03	4.11	45.21	50.68	0.00
Number of cases	74				74			
% cases where proximity measures1 jointly significant	44.59				27.03			
% of which: zero positive coeff	0.00				0.00			
% of which: one positive coeff	24.24				30.00			
% of which: two positive coeff	60.61				45.00			
% of which: three positive coeff	15.15				25.00			

Mexico

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0.57	1.70	26.70	71.02	1.14	16.48	53.41	28.98
near1	15.34	44.89	32.95	6.82	3.98	30.68	50.00	15.34
bord1	0.57	8.52	56.82	34.09	1.70	42.05	50.00	6.25
lang1	5.11	43.18	42.61	9.09	3.41	44.89	48.86	2.84
near2	27.84	53.41	14.77	3.98	1.70	38.64	52.27	7.39
bord2	3.98	27.27	49.43	19.32	3.41	37.50	52.27	6.82
lang2	8.59	30.06	49.69	11.66	2.29	45.14	48.57	4.00
Number of cases	176				176			
% cases where proximity measures1 jointly significant	43.75				25.00			
% of which: zero positive coeff	0.00				2.27			
% of which: one positive coeff	27.27				27.27			
% of which: two positive coeff	42.86				43.18			
% of which: three positive coeff	29.87				27.27			

Malaysia

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	4.49	22.47	73.03	0.56	22.03	55.37	22.03
near1	10.06	41.34	37.99	10.61	2.79	31.84	48.60	16.76
bord1	1.68	34.08	50.84	13.41	4.47	33.52	53.07	8.94
lang1	8.94	49.16	39.11	2.79	6.15	35.20	46.37	12.29
near2	20.67	45.81	28.49	5.03	5.03	35.75	49.16	10.06
bord2	11.43	40.57	39.43	8.57	6.82	48.86	38.64	5.68
lang2	14.29	48.00	27.43	10.29	1.69	43.26	51.12	3.93
Number of cases	179				179			
% cases where proximity measures1 jointly significant	34.64				33.52			
% of which: zero positive coeff	8.06				5.00			
% of which: one positive coeff	30.65				15.00			
% of which: two positive coeff	51.61				55.00			
% of which: three positive coeff	9.68				25.00			

Nepal

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	18.75	12.50	25.00	43.75	0.00	50.00	18.75	31.25
near1	12.50	31.25	18.75	37.50	0.00	37.50	50.00	12.50
bord1	0.00	68.75	25.00	6.25	18.75	31.25	50.00	0.00
lang1	6.25	37.50	50.00	6.25	12.50	43.75	43.75	0.00
near2	12.50	37.50	43.75	6.25	12.50	37.50	37.50	12.50
bord2	20.00	33.33	46.67	0.00	13.33	40.00	46.67	0.00
lang2	0.00	42.86	50.00	7.14	6.25	37.50	56.25	0.00
Number of cases	16				16			
% cases where proximity measures1 jointly significant	31.25				18.75			
% of which: zero positive coeff	0.00				0.00			
% of which: one positive coeff	80.00				66.67			
% of which: two positive coeff	20.00				33.33			
% of which: three positive coeff	0.00				0.00			

Philippines

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	0.76	23.66	75.57	0.76	19.85	56.49	22.90
near1	4.58	28.24	45.80	21.37	2.29	30.53	52.67	14.50
bord1	9.16	41.22	43.51	6.11	2.29	41.98	53.44	2.29
lang1	12.98	56.49	26.72	3.82	4.58	37.40	53.44	4.58
near2	15.27	51.91	32.06	0.76	3.82	37.40	44.27	14.50
bord2	7.63	37.40	45.04	9.92	3.05	44.27	45.80	6.87
lang2	13.08	54.62	29.23	3.08	5.34	47.33	45.80	1.53
Number of cases	131				131			
% cases where proximity measures1 jointly significant	38.17				22.90			
% of which: zero positive coeff	6.00				0.00			
% of which: one positive coeff	48.00				23.33			
% of which: two positive coeff	38.00				60.00			
% of which: three positive coeff	8.00				16.67			

El Salvador

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	27.78	30.56	41.67	2.78	47.22	30.56	19.44
near1	2.78	27.78	33.33	36.11	2.78	47.22	36.11	13.89
bord1	33.33	50.00	13.89	2.78	2.78	44.44	44.44	8.33
lang1	27.59	44.83	24.14	3.45	3.13	37.50	59.38	0.00
near2	0.00	33.33	50.00	16.67	2.78	22.22	61.11	13.89
bord2	14.29	42.86	34.29	8.57	5.56	38.89	50.00	5.56
lang2	7.14	71.43	7.14	14.29	4.76	47.62	47.62	0.00
Number of cases	36				36			
% cases where proximity measures1 jointly significant	51.72				21.88			
% of which: zero positive coeff	0.00				14.29			
% of which: one positive coeff	73.33				42.86			
% of which: two positive coeff	20.00				28.57			
% of which: three positive coeff	6.67				14.29			

Thailand

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	3.43	28.57	68.00	1.14	16.57	55.43	26.86
near1	6.82	36.93	43.18	13.07	1.70	27.84	55.68	14.77
bord1	3.98	34.09	51.14	10.80	2.27	44.32	48.30	5.11
lang1	6.25	31.25	50.57	11.93	3.98	35.23	53.41	7.39
near2	12.50	52.27	31.25	3.98	2.84	40.91	47.73	8.52
bord2	10.23	47.73	35.23	6.82	3.98	44.32	47.16	4.55
lang2	9.71	38.86	43.43	8.00	3.41	38.07	54.55	3.98
Number of cases	176				176			
% cases where proximity measures1 jointly significant	36.93				22.73			
% of which: zero positive coeff	0.00				2.50			
% of which: one positive coeff	26.15				17.50			
% of which: two positive coeff	55.38				42.50			
% of which: three positive coeff	18.46				37.50			

Tunisia

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	1.35	31.08	67.57	1.35	27.03	56.76	14.86
near1	10.81	39.19	36.49	13.51	4.05	47.30	47.30	1.35
bord1	6.76	44.59	43.24	5.41	8.11	52.70	35.14	4.05
lang1	5.41	45.95	41.89	6.76	6.76	40.54	50.00	2.70
near2	17.57	41.89	32.43	8.11	1.35	44.59	50.00	4.05
bord2	2.70	35.14	47.30	14.86	4.05	45.95	47.30	2.70
lang2	5.48	36.99	46.58	10.96	2.70	55.41	40.54	1.35
Number of cases	74				74			
% cases where proximity measures1 jointly significant	22.97				14.86			
% of which: zero positive coeff	5.88				27.27			
% of which: one positive coeff	52.94				36.36			
% of which: two positive coeff	29.41				36.36			
% of which: three positive coeff	11.76				0.00			

Turkey

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	2.55	20.38	77.07	0.64	27.39	53.50	18.47
near1	3.80	31.01	43.04	22.15	1.90	38.61	48.10	11.39
bord1	1.90	33.54	43.67	20.89	0.63	35.44	53.80	10.13
lang1	1.27	20.25	42.41	36.08	4.43	38.61	52.53	4.43
near2	7.59	56.96	31.65	3.80	3.80	41.77	47.47	6.96
bord2	4.43	36.08	50.00	9.49	4.43	40.51	52.53	2.53
lang2	3.16	25.32	48.73	22.78	5.70	50.00	42.41	1.90
Number of cases	158				158			
% cases where proximity measures1 jointly significant	60.13				18.35			
% of which: zero positive coeff	0.00				0.00			
% of which: one positive coeff	11.58				27.59			
% of which: two positive coeff	51.58				37.93			
% of which: three positive coeff	36.84				34.48			

Uganda

	Logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	14.29	28.57	57.14	0.00	0.00	57.14	42.86
near1	0.00	0.00	42.86	57.14	0.00	28.57	57.14	14.29
bord1	0.00	57.14	42.86	0.00	0.00	57.14	28.57	14.29
lang1	28.57	28.57	28.57	14.29	14.29	14.29	57.14	14.29
near2	14.29	28.57	28.57	28.57	14.29	42.86	42.86	0.00
bord2	14.29	42.86	42.86	0.00	14.29	28.57	42.86	14.29
lang2	0.00	85.71	14.29	0.00	0.00	57.14	42.86	0.00
Number of cases	7				7			
% cases where proximity measures1 jointly significant	42.86				14.29			
% 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: $m_j(t)$, $RCD_j(t)$, D_j, B_j, L_j, time trend				Conditional logit estimates Dependent variable $s_j(t)$ Other independent variables: $m_j(t)$, $RCD_j(t)$, time dummies			
	Neg/sig	Neg/insig	Pos/insig	Pos/sig	Neg/sig	Neg/insig	Pos/insig	Pos/sig
lagdep	0	10.34	27.59	62.07	0.00	15.52	43.10	41.38
near1	12.07	32.76	31.03	24.14	1.72	34.48	48.28	15.52
bord1	0.00	15.52	55.17	29.31	3.45	39.66	53.45	3.45
lang1	18.97	48.28	29.31	3.45	3.45	39.66	50.00	6.90
near2	12.07	51.72	29.31	6.90	1.72	50.00	39.66	8.62
bord2	5.17	36.21	51.72	6.90	3.45	41.38	51.72	3.45
lang2	14.58	33.33	35.42	16.67	0.00	42.59	51.85	5.56
Number of cases	58				58			
% cases where proximity measures1 jointly significant	60.34				27.59			
% of which: zero positive coeff	0.00				0.00			
% of which: one positive coeff	40.00				12.50			
% of which: two positive coeff	51.43				50.00			
% of which: three positive coeff	8.57				37.5			