UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

POLICY ISSUES IN INTERNATIONAL TRADE AND COMMODITIES
STUDY SERIES No. 46

ON THE DETERMINANTS OF EXPORTS SURVIVAL

by

Marco Fugazza
UNCTAD, Geneva

and

Ana Cristina Molina
Graduate Institute of International Studies, Geneva

UNITED NATIONS
New York and Geneva, 2011

Note

The purpose of this series of studies is to analyse policy issues and stimulate discussions in the area of international trade and development. The series includes studies by UNCTAD staff, as well as by distinguished researchers from academia. In keeping with the objective of the series, authors are encouraged to express their own views, which do not necessarily reflect the views of the UNCTAD secretariat or its member States.

The designations employed and the presentation of the material do not imply the expression of any opinion whatsoever on the part of the United Nations Secretariat concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Material in this publication may be freely quoted or reprinted, but acknowledgement is requested, together with a reference to the document number. It would be appreciated if a copy of the publication containing the quotation or reprint were sent to the UNCTAD secretariat at the following address:

Chief
Trade Analysis Branch
Division on International Trade in Goods and Services, and Commodities
United Nations Conference on Trade and Development
Palais des Nations
CH-1211 Geneva
Switzerland

Series editor:
Khalilur Rahman
Chief, Trade Analysis Branch

UNCTAD/ITCD/TAB/47

UNITED NATIONS PUBLICATION

ISSN 1607-8291

Abstract

The aim of this paper is to explore the patterns of trade duration across regions and to identify its determinants. Using an extended Cox model, we evaluate the effects of country and product characteristics, as well as of trade costs on the duration of trade relationships from 96 countries from 1995 to 2004. First, the duration of trade relationships increases with the region level of development: trade relationships from richer economies face lower hazard rates (i.e. longer duration). Second, trade relationships involving differentiated products show a hazard rate that is 6% to 14% lower than trade relationships involving homogeneous goods. Third, high export costs systematically increase the probability of export failure but the effect diminishes with time, thus suggesting that export experience plays a role. Finally, the size of exports also matters: the larger the transaction, the higher the probability of survival. This is true whether we take average or initial values of exports. This would be evidence of hysteresis in the export status if trade values are seen to reflect sunk costs to export.

Key words: Duration, Trade, Fixed Costs

JEL Classification: F1, C41

Acknowledgements

We are grateful to Olivier Cadot for helpful comments and suggestions. We also thank seminar participants at the Geneva Graduate Institute, the University of Geneva and UNCTAD for valuable comments.

Any mistakes or errors remain the authors' own.

Contents

List of figures

List of tables

1. Introduction

Trade duration (along with its determinants) has been most of the time overlooked in both theoretical and empirical literature. This is rather surprising considering that the length of trade relationships remains the main driver of the intensive margin, which is the most influential component of export growth (see *inter alia* Eaton et al., 2008; Besedes and Prusa, 2007; Brenton and Newfarmer, 2007; Helpman et al., 2008; Felbermayr and Kohler, 2006; Evenett and Venables, 2002).[1] Our data show that the number of times trade is disrupted after a short period of time is considerably large.[2] On average 3 out of 5 new trade relationships fail within our period of investigation (i.e. 10 years), implying that improving survival rates is a key component of a country's export strategy. But why do trade relationships fail? And what are the determinants of their persistence? These are the main questions that this paper attempts to answer.

In a prominent theoretical contribution, Rauch and Watson (2003) explore the duration of trade relationships through a search model. The authors study the creation and evolution of partnerships between buyers (in developed countries) and suppliers (in less developed countries). The model proceeds in three stages: search, investment (deepening), and rematch (abandon current relationship and search for another supplier). In this framework, buyers, i.e. importers, start with small purchases because of the uncertainty surrounding the supplier. Orders increase only if the seller delivered and complied with his clients' expectations. The model predicts that the length of a trade relationship is positively correlated with the initial amount of the transaction, and that the propensity to start low value transactions increases with the cost of search and decreases with reliability. Besedes and Prusa (2006a, 2006b) as well as Besedes (2008) test some of the main predictions of the Rauch-Watson model using data on imports from the United States at the TS (Tariff scheduled) 7-digit level and at the HS 10-digit level. In Besedes and Prusa (2006a, 2006b) the authors find that duration of trade relationships is longer for differentiated goods than for homogeneous goods. Their results also suggest that short trading relationships tend to be low-valued. Besedes (2008) also finds that duration increases with the initial value of exports. In addition his results highlight that many trade relationships begin with small initial values and are essentially short lived. However, another explanation for low export values at the beginning of the export activity could be related to the "traditional" product cycle: discovery, rapid growth, maturation and decline (Shepherd, 2007).[3]

In Besedes and Prusa (2007), the authors use non-parametric survival techniques (Kaplan-Meier estimator) to analyze the duration of exports to the United States from 46 countries at the SITC 4-digit level between 1975 and 2003. They observe higher survival rates for developed and successful developing countries. These results are consistent with those found in Nitsch (2008), who analyses the duration of German imports and its determinants at the 8-digit level from 1995 to 2005. In his analysis, the majority of trading relationships are of short duration and very often last only between one and three years. He also finds that duration depends on exporter and product characteristics, and on the size of the transaction.

All the authors cited above emphasize the role of the type of product and of trade values in determining the duration of trading relationships, but ignore the role of fixed costs whether the latter are sunk or paid in each period in order to operate in foreign markets. Yet, one possible explanation for trade stability (i.e. persistence of export status) goes back to the hysteresis trade literature of the 80's (Baldwin, 1988 and 1990, Baldwin and Krugman, 1989 and Dixit, 1989). Inspired by the effects of the

[1] Trade expansion can occur via two channels: the intensive and the extensive margin. Via the intensive margin countries increase exports of existing products with existing partners. Via the second channel countries expand their exports by introducing a new product in a new market, an existing product in a new market or a new product in an existing market.
[2] That is the number of times trade amounts to zero.
[3] In his study, Shepherd argues that most of the new products do not get into the maturation stage. Poor survival of low-valued trading relationships probably reflects the sensitivity to external supply or demand shocks.

dollar overvaluation between 1980 and 1985, these models explain the persistence (i.e. hysteresis) of firms' export participation as a consequence of the sunk costs associated with the entry into new markets.[4] Following the dollar appreciation, foreign firms entered the United States market (while United States firms exited some markets), but since they incurred entry costs they did not necessarily exit once the exchange rate went back to its initial value. Market entry is generally costly: firms have to meet market-specific standards and regulations, adapt their packaging, establish distribution channels, accumulate information about foreign markets, etc.

The key point in these models is that entry fixed costs can have an impact on firm's export status and therefore on trade duration. Based on these models, the empirical literature on export and firm performance has looked at the role of entry costs in the export decision process. In particular Roberts and Tybout (1997) and Bernard and Jensen (1999, 2004) investigate the presence of sunk costs and its influence on firms' market participation. Both studies use lagged export status as a proxy for sunk costs and find that they play a significant role in the decision to export. Roberts and Tybout (1997) employ a dynamic probit model to analyze the entry and exit decision patterns of a panel of Colombian manufacturing firms from 1981 and 1989. In their model, each firm has to pay a fixed cost before entering the export market. Following entry, firms only bear variable costs. They introduce dummies to control for the firm's past export status and show that exporting history matters. Bernard and Jensen (2004) use a linear probability framework to investigate the role and magnitude of sunk costs using a sample of continuously operating United States plants from 1984 to 1992. They also find that the entry costs are significant and that the probability of being an exporter today increases by 36 per cent the probability of being an exporter tomorrow. These papers identify the importance of entry fixed costs for export status, thereby providing evidence that they should also be included when explaining the duration of trading relationships.

Additional insights can be found in Irarrazabal and Opromolla (2009), who introduce uncertainty (firms' productivity evolves stochastically as a Brownian motion) in a trade model with heterogeneous firms. In addition, fixed export costs are decomposed into sunk and per-period components. In this context higher sunk costs imply higher initial export values. The authors define and characterize their model like in Dixit (1989) and test using simulations how a cut in per-period fixed costs and sunk costs could affect exporters and non-exporters' status. They find that history-dependent export decisions are a salient feature when export fixed costs are sunk upon entry in the foreign market. It is not necessarily the case when fixed costs are paid on a per-period basis. Moreover, the implications for the persistence of the export status are different. A reduction in per-period fixed costs increases persistence in export status for exporters and decreases persistence in non-export status for non-exporters. The logic behind this result is that, as fixed costs decline, the probability that an exporter would be able to cover his fixed costs increases and the probability to start exporting for domestic producers because of a positive shock increases. Empirically, we could then expect a negative relationship between per-period fixed cost and survival rates. On the other hand a reduction in sunk costs decreases the persistence in export status of exporters and non-exporters. This result is also found in other studies presenting a dynamic version of the export decision and export path in the presence of sunk costs to exporting such as Roberts and Tybout (1997), Das, Roberts and Tybout (2007), Constantini and Melitz (2007) and Eaton et al. (2008). We should then observe a positive empirical relationship between sunk costs and survival rates.

Following the empirical strategy adopted in Besedes and Prusa (2006b), we explore the patterns and determinants of trade duration for a set of 96 countries over the 1995-2004 period. To this

[4] In a more general framework, hysteresis can happen when the effect of any negative supply or demand shock persists even when the shock has vanished. Hysteresis models where demand factors play a role also predicts that new entrants initially facing low demand in foreign markets will not exit the market once the shock has vanished. In the next period, since consumers in the foreign market have tried their products, firms will now face higher demand curves. Consequently after the shocks vanished it is possible that not all the new entrants will be forced out. Essentially the shock leads to a lasting change in the information set of consumers and this structural change leads to hysteresis (Baldwin, 1988).

end, we analyse the sequence of export status at the HS 6-digit level using the semi-parametric Cox survival model controlling for factors possibly influencing export survival. We do not only extend Besedes and Prusa's analysis to a matrix of bilateral trade relationships but we also augment the list of duration determinants using recent data on export costs. In particular, we take a closer look at the role of countries development level, the type of product, the size of exports and the role of export costs.

Our empirical results first show that trading relationships involving developed and emerging economies face lower hazard rates, i.e. lower risk of "failure", than those involving developing countries. Second, they show that the relationship between trade duration and the type of product portrays the degree of competition/information patterns characterizing traded products. Third, initial export value appears to be positively correlated with export survival. Finally, export fixed costs affect positively trade duration, but their effect decreases with time and with the initial size of exports. Hence, our results support most predictions of recent theoretical contributions and are in line with existing empirical findings included those based on firm-level data. An important exception, however, is the estimated direct impact of fixed costs to exports.

The rest of the paper is organized as follows. The next section describes the raw data and identifies a series of stylized facts related to the duration of trade relationships. Section 3 presents the empirical strategy adopted. Empirical results are summarized in Section 4. Section 5 concludes.

2. Duration, trade and development

In this section we look at the features of trading relationships among 96 developed and developing countries in order to sketch trade duration patterns across regions. The data presented here are also used to carry out the empirical analysis. Our data are extracted from BACI, a trade database maintained by CEPII.[5] Based on the United Nations' COMTRADE database, BACI provides harmonized bilateral trade data[6] at the HS 6-digit level for a total of 5,017 categories.[7] Its main advantage is that by applying different harmonization procedures (see Gaulier and Zignago (2007) for details), BACI reconciles mirror flows, thus providing a more complete and refined geographical coverage. Therefore, BACI achieves a greater accuracy of the zeros (i.e. absence of trade) in the trade matrix, which is of particular importance in the present case, as it directly enters in the definition of trade duration.

For the purpose of our analysis, we define three groups of countries: North (30 countries), Emerging South (22 countries) and Developing South (44 countries).[8] This broad categorization reflects only major differences in economic development but already permits a relevant characterization of trade duration. We define a trading relationship as the combination of an exporter, an importer and a product. Based on this definition, we identify 7,114,784 trading relationships[9] over the 1995-2004 period, 762,622 (ca. 17,000 per country) of which involve exporters from the Developing South (DS) group, 2,106,814 (ca. 96,000 per country) involve exporters from the

[5] BACI is the French acronym for Base pour l'Analyse du Commerce International: Database for International Trade Analysis. CEPII stands for *Centre d'Etudes Prospectives et d'Informations Internationales*.

[6] Different procedures have been developed to harmonise the data: the evaluation of the quality of country declarations to average mirror flows, the evaluation of CIF rates to reconcile import and export declarations, the conversion in tonnes of other units of quantities exchanged.

[7] In our analysis, we can not distinguish the number of exporting firms since we use product level data. However, the absence of trade in one category allows inferring that no firm exports, and a positive trade value allows concluding that at least one firm exports the product. This implies that aggregation does smooth firms' entry-exit sequences but only partially.

[8] Appendix 1 contains the complete list of countries included in the sample as well as their group affiliation. Our classification follows the one in Akın and Kose (2007), who divide developing countries into two groups based on the extent of their integration into the global economy. The emerging economies group roughly corresponds to the economies included in the MSCI Emerging Economies index.

[9] We exclude trading relationships with values below $1,000 and trade relationships involving oil products.

Emerging South (ES) group and 4,245,348 (ca. 141,000 per country) involve exporters from the North (N) group.

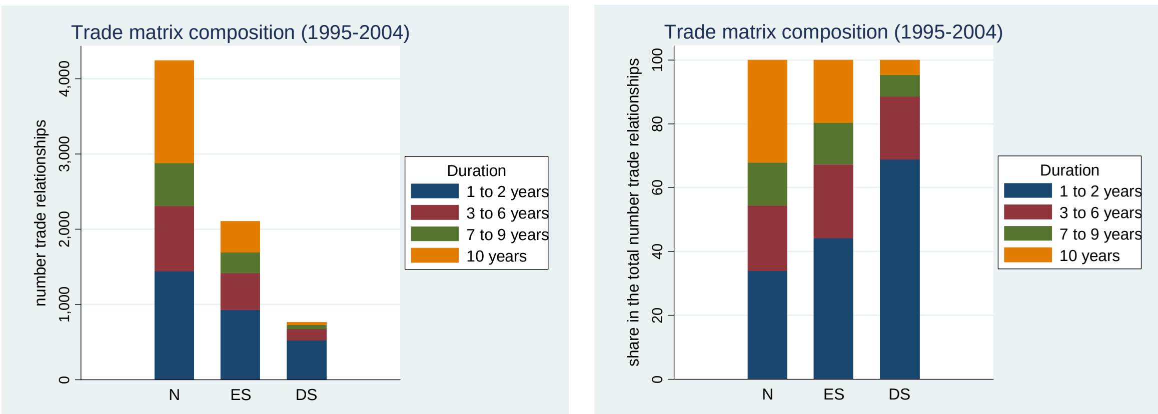
2.1. Trade duration: a first mapping

We first look at the extensive margin for each group of countries. New trade relationships[10] represent 81 per cent of total trade relationships recorded for the Developing South group. The figure is 62 per cent and 47 per cent for the Emerging South and North group respectively.

We then qualify trade failure patterns, by counting the number of the trade relationships that disappeared during the period under consideration. Failure happens when a trading relationship disappears until the end of the period under consideration. The data show that 68 per cent of the trade relationships initiated by the Developing South's exporters failed within that period. In the case of the Emerging South 57 per cent of the new trading relationships failed, while in the North group failure affected 62 per cent of the new trading relationships.

Finally, we investigate the patterns and differences in trade duration, i.e. the length of a trade relationship, across regions. The duration can be simply assessed by counting the number of years, not necessarily consecutive, an exporter has served a market. Besides recording errors, the approach is unavoidably subject to right and especially left censoring due to the limited and relatively short period of time covered by the analysis. Despite these drawbacks, and leaving statistical methods used to correct for them to the econometric analysis presented in section 4, we believe that a glance at the data remains relevant to identify any specific patterns in trade duration possibly related to differences in economic development or any other characteristic. We sort trading relationships based on their durations and report the results in Figures 1a and 1b.

Figures 1a and 1b. Trade matrix composition (1995-2004)



These graphs do not include values below $1,000.

First, we observe that the duration of trading relationships varies strongly across regions. Second, trading relationships are mostly of short duration. One and two-years old relationships account

[10] A trade relationship is assumed to be "new" in our sample if it appeared in 1996 or latter. We also conducted the analysis including as new only those relationships appeared in 1997 or after. In the latter case results in relative terms are only marginally modified.

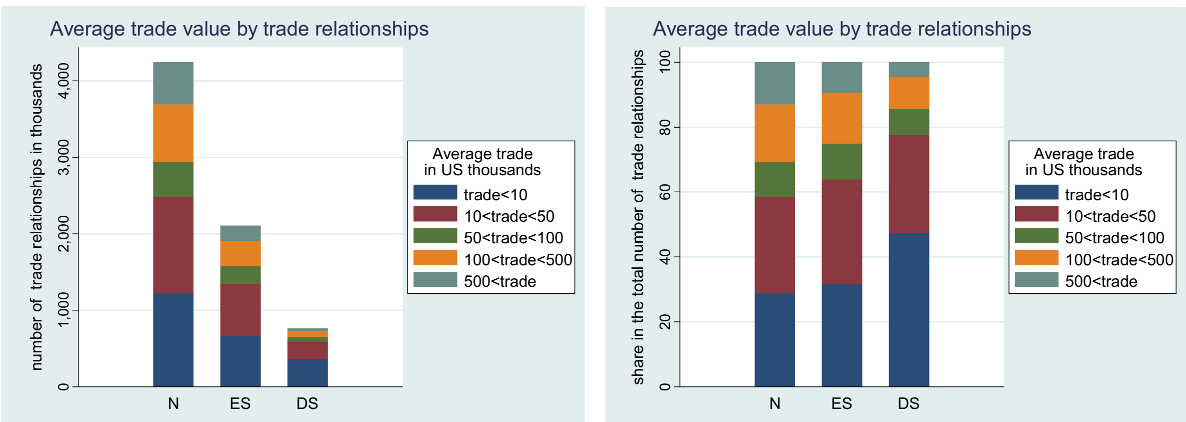
for at least one third of the total number of trading relationships in each region. The share is the largest in the case of the Developing South, with 67 per cent of total trading relationships. On the other hand trading relationships with no interruption, i.e. with 10-year duration, account only for a small share in the trade matrix: 32 per cent in the case of the North, 20 per cent in the case of the Emerging South and 4 per cent in the case of the Developing South group. The distribution of other durations i.e. durations longer than two years and shorter than 10 years, exhibits a remarkably similar pattern across regions as shown in Figure 1b. These figures show that although trade failure affects regions in a similar way; the time until failure varies strongly across regions.

2.2. Duration and trade values

Another important feature of a trade relationship is its value. All existing models dealing with trade duration generate a positive relationship between initial trade values and the length of a trade relationship. Such result unambiguously leads to a positive correlation also between the yearly average of the value and the duration of a trade relationship. The following graphs are based exclusively on average trade values but similar results are obtained using initial trade values. However, the use of average limits the potential bias due to either reporting errors or multiple spells relationships.

In order to sketch the distribution of trade values across regions, we first compute for each trading relationship its average trade value. The latter is the sum of the trade values in each year divided by the number of years of service. We then classify trade relationships according to their average trade value. Figures 2a and 2b show the results. The most striking fact is that between 55 per cent (North) and 75 per cent (Developing South) of the total number of trade relationships generate less than $50,000 on average per year. Trade relationships with an average value between $50,000 and $500,000 per year account for around 30 per cent in the North and Emerging South, and for 20 per cent in the Developing South. Trade relationships with an average value of more than $500,000 per year are rare, representing less than 15 per cent in all three regions.

Figures 2a and 2b. Average trade values (1995-2004)



These graphs do not include values below $1,000.

These figures show that the majority of the trade relationships (bottom-bars) are low-valued across regions. To get a sense of how average trade values vary with trade duration, we classify trade relationships according to their average trade and according to their duration. For accuracy purposes we exclude from our sample the one-year old trade relationships observed in 1995 (since we don't know if it started before) and in 2004 (for we don't know if they continue), as well as the ones concerning transportation equipment goods which are often a one-year-only transaction involving high trade values.[11] Results for each region are plotted in Appendix 2. Across regions more than half of the trade relationships that last for only one year have an average trade value lower or equal to $10,000 per year. This is also the case for around half of trade relationships that last for two years. From two years on, the majority of trade relationships have an average trade value larger than $10,000. In other words, as duration increases, the share of low-valued trade relationships (less than $10,000) decrease i.e. bottom zone shrinks. At the other end most of the relationships that lasted for 9 to 10 years have an average trade value that is larger than $50,000 per year.

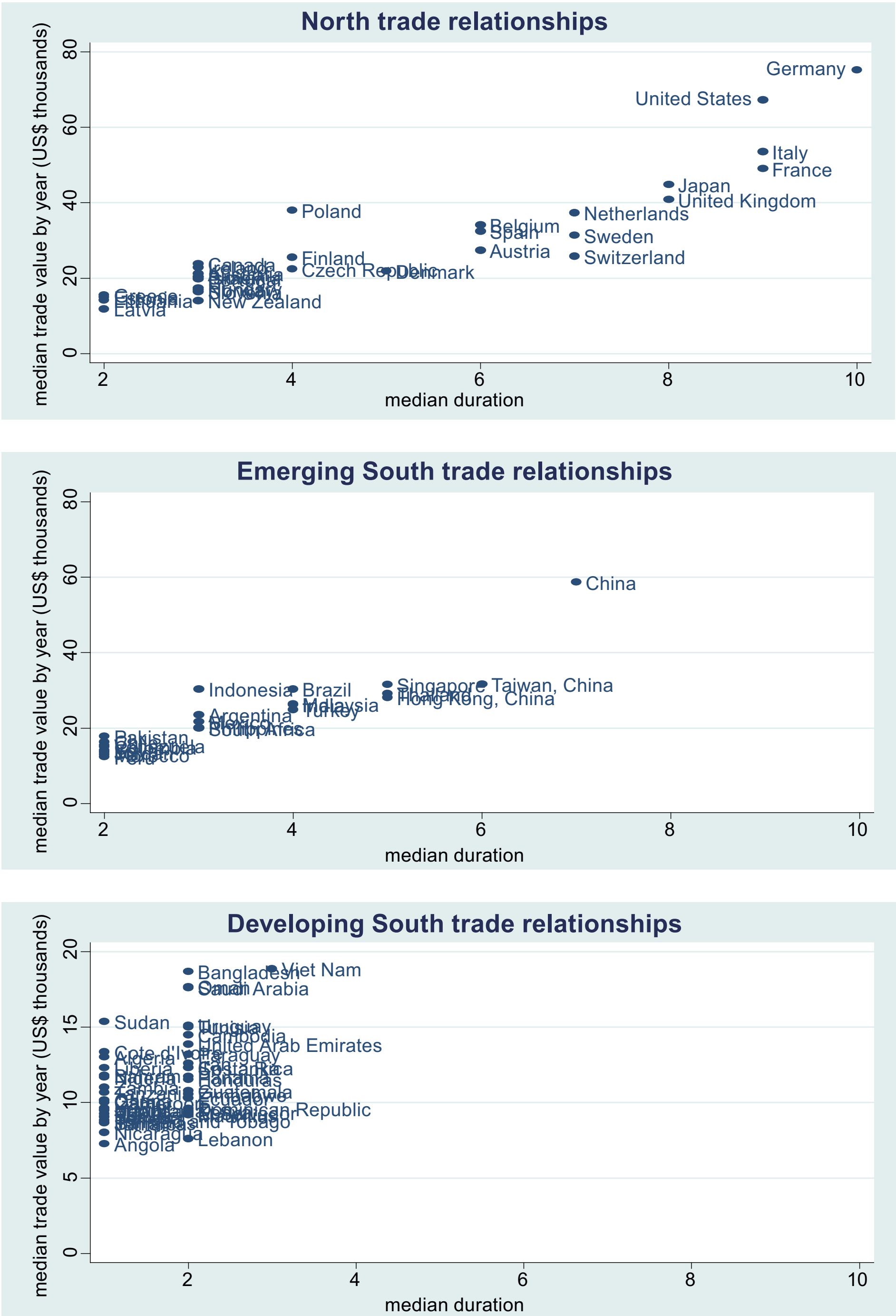
2.3. Duration, trade and development

So far we have characterized each trade relationship by its duration and average trade value. In this subsection, we take a closer look and examine how these characteristics vary across regions. For each country, we compute the median duration and the median average trade value. The results are plotted in Figures 3a, 3b and 3c. For countries in the North and in the Developing South, we find a positive relationship between the median duration and the median average trade value. Countries like Germany, the United States, Italy and France show the highest export performance in the Northern region in terms of duration. Eastern European economies and Greece show the lowest median duration and median average trade values.

As for the Emerging South, China is heading the group with the highest median duration (seven years) and average trade per year ($59,000). Contrary to the North and the Emerging South, none of the countries in the Developing South show a median duration longer than three years and a median average trade value larger than $20,000. The Developing South is also the only region to comprise countries with a median duration of one year. Indeed, the majority of countries in the Developing South are in the bottom-left part of the graph. Interestingly, these figures point to different stages of development and export performance across countries (in terms of duration and trade values). Moreover, average trade values associated with a given duration are consistent across regions. For instance, a two-year median duration in the North includes countries with median trade values between $10,000 and $15,000. In the case of the Emerging South, the median trade values of a median duration of two years range from $13,000 to $19,000. Trade relationships in the Developing South with a median duration of two years have a median average trade value that ranges from $8,000 to $19,000. The consistency of these numbers across regions reveals a possible trade threshold. Among the 96 countries, trade relationships with a median average trade value larger than $18,000 will last for at least three years in most of the cases. Countries whose median average trade value is between $20,000 and $40,000 per year will tend to export for four to seven years. Countries with a median trade value larger than $40,000 per year will tend to export more for more than eight years. The only exception is China, whose median average trade value is almost $60,000 and median duration, is seven years. These figures show that the patterns of trade duration portray countries' level of development.

[11] These correspond to HS 2-digit codes: 86 to 89.

Figures 3a, 3b and 3c. Duration and trade values by countries



3. Empirical analysis

This section sketches the empirical model implemented to identify the main determinants of trade duration echoing the stylized facts identified in the previous section.

3.1. Empirical strategy

As previously mentioned, the length of trade relationships can be examined using survival analysis techniques.[12] Hazard rate and hazard ratios are at the heart of this type of analysis. The hazard rate $h(t)$ is the ratio of the probability of failure to the probability of survival.

$$h(t) = \frac{f(t)}{S(t)}$$

In the continuous time case it can be interpreted as the risk of an event to happen (i.e. instantaneous rate of occurrence) by t, while in the discrete time case it is simply seen as the conditional probability that the event will occur in time t, given that it has not occurred before. We are interested in understanding how certain factors may affect the survival time of trading relationships. There is a large family of survival models that can be used for continuous or discrete time cases. We use the semi-parametric Cox (1972) model. This type of model has the advantage that it does not require the specification of the distribution of the duration dependency and it is therefore appropriate to assess the impact of explanatory variables on the hazard rate. The hazard rate in the Cox model is given by:

$$h_i(t) = h_0(t)e^{\beta' x_i}$$

where $h_0(t)$ is the baseline hazard function[13], which in the Cox model is assumed to be unknown and left unparametrized, x_i is a vector of covariates representing the characteristics of individual i, β is a vector of coefficients, accounting for the effect that those characteristics. By taking the natural logarithm, we obtain the additive log-linear model to be estimated:

$$\log\left(\frac{h_i(t)}{h_0(t)}\right) = \beta' x_i \quad (1)$$

The estimates of the covariates in Cox models are obtained by the estimation of the partial likelihood.[14] In our case since the data shows ties i.e. proper to non-continuous cases, the partial likelihood can only be approximated. As for the interpretation of the exponentiated coefficients, a value larger than one indicates a positive effect on the hazard rate, while a value between zero and one implies a negative effect on this latter. A value equal to one means the covariate does not have any effect on the hazard rate. A last point concerns the assumptions related to the model, the Cox model is

[12] Appendix 3 presents a general formulation of this survival analysis.

[13] The term $h_0(t)$ represents the risk at time t when $x_i(t) = 0$.

[14] The partial-likelihood approach is used to estimate β without specifying the form of the baseline hazard function $h_0(t)$.

a proportional hazard rate model, which means that the ratio of two hazard rates is a fixed proportion across time. We carried out the Schoenfeld test[15] based on the regression residuals to assess the validity of this assumption. The overall result pointed to the rejection of the proportional assumption. This is common, especially when time-varying covariates are included in the model, which is the case in the present study (i.e. GDP, trade value, competition, exchange rate).[16] To take into account of the time dependency of certain covariates vary with time, we took their average over the life period of a relationship, so that the variables GDP per capita, trade value, competition and exchange rate are spell-specific (i.e. period specific). As described below, we also use measures of export fixed costs (e.g. the time spent on export procedures) whose effects on trade duration are assumed to change over time. Indeed, it is reasonable to think that once exporters have learnt how to proceed, the time required to export in the next period would be lower. To account for such possibility we allow for non proportionality also on the export costs by adding an interaction term between the fixed costs and the time duration of a relationship (i.e. number of years, in logs).

In our analysis, we then implement an extended version of the Cox model that relaxes the proportionality hypothesis by including time-dependent covariates and time interaction terms.[17]

3.2. Data

A number of caveats in our dataset need to be highlighted. First and, as already mentioned, observations are likely to be subject to left and/or right censoring. In the case of left censoring we don't know if trading relationships with a positive value in 1995 began that year or any year before. For accuracy purposes we exclude possibly left censored relationships and keep only the ones that were established strictly after 1995. This reduces our sample by 19 per cent in the case of the Developing South (i.e. 619'218 trading relationships remain), 38 per cent in the case of the Emerging South (i.e. 1'310'746 trading relationships remain) and by 53 per cent in the case of the North (i.e. 2'003'678 trading relationships remain). As for right censoring, it involves trading relationships observed in 2004, for which we don't know if 2004 was the exit year. Unlike left censoring, right censoring can be easily handled by survival methods.

Second, there is the issue of multiple spells (see Appendix 4): a trading relationship can stop and be re-established once or several times over our 10-year period, after an interruption of one or more years.[18] In our dataset 13 per cent (in the case of the Developing South) to 20 per cent (in the case of the North) of the trading relationships show multiple spells.[19] In this exercise, we look at the duration of first spells only, while controlling for the existence of multiple spells.[20]

Finally, trade data can suffer from measurement errors. This is particularly important in the case of multiple spells. However if the interval between spells is just one year, the probability that this is due to misreporting is very high i.e. no trade recorded when in reality there was trade. Overlooking

[15] Under the null hypothesis, the proportional hazard ratio is accepted.
[16] In this case, the usual procedure is to model time dependency by introducing an interaction effect between some function of time and the covariate that does not comply with the proportionality assumption. By doing so, we relax the assumption that the hazard ratios are proportional across time for the covariate in question.
[17] Brenton et al. (2009) address the possible issue of heterogeneity by estimating a Prentice Gloeckler model incorporating a gamma mixture distribution. Their results suggest that individual heterogeneity is likely to bias results in a standard Cox model. However, as far as our analysis is concerned, the application of Brenton et al. (2009) approach would not allow us to identify the impact of costs to exports data as they would be absorbed by the treatment of individual effects.
[18] In other words, a multiple spell is composed by more than one spell, each of them separated by one or several years of non-service i.e. no trade.
[19] These figures refer to the situation after we corrected for the possibility of measurement errors.
[20] We reiterated the analysis counting as a single spell any multiple spell trade relationship. Estimates are only marginally affected when affected in most specifications.

this issue could lead to the underestimation of the duration of the first spell. In order to correct for this possibility we assume that a one–year gap is a measurement error and thus merge into one all the spells with a one-year gap.

3.3. Control variables

Our main interest is to identify the factors that could explain the duration of trading relationships across countries with possibly some regional specificity. To do so, we estimate equation (1), where the dependent variable is the hazard of a trade relationship, i.e. the rate of occurrence of a trading relationship exiting a market after *t* years, and where the vector of control variables is composed essentially of "gravity", product type and export costs variables. Sources and details for each variable used are provided in Appendix 5.

Gravity covariates

Variables used in standard gravity specifications retained for our analysis are: GDP per capita (in log), distance (in log), landlocked, border, common language and colonial links. The rationale is that these variables not only affect trade volumes, but also the occurrence of trade and thus its duration. As argued in Rauch (1999), proximity, common language and colony ties facilitate the establishment and increase the probability that a trade relationships succeed. As for the GDP per capita, it is a proxy for countries level of development as well as for (foreign) markets potential. The GDP per capita is an average over the period of service and is included in its log form for both exporting and importing countries.

Products characteristics

We include dummies by type of product. We follow the classification used by Rauch (1999) in which products are classified according to their degree of differentiation: commodities or reference priced goods, homogeneous products and differentiated products. The first category of goods refers to goods that are traded on organized exchange markets and that involve specialized traders that centralize prices. Homogeneous goods are goods that are not traded in organized exchange but have a reference price (for instance quoted in trade publications). Finally heterogeneous goods are "branded" goods. We expect that trade relationships based on differentiated goods will exhibit longer duration as they face lower competition.

Per-period fixed costs

To control for the fixed costs that exporters face each time they sale abroad, we use data from the Doing Business (DB) project, namely the time required to export.[21] This variable refers to the time

[21] Time is recorded in days. The time calculation for a procedure starts from the moment it is initiated and runs until it is completed. The procedures include preparation of bank documents, customs declaration and clearance documents, port filing documents, import/export licenses and other official documents exchanged between the concerned parties. Logistic procedures are also included; these range from packing the goods at the factory to their departure from the port of exit, like for instance the time to load a cargo. This implies that this variable, although it refers to fixed costs, its impact on business could decrease across time as a result of learning effects.

(in days) necessary to comply with all procedures required to export. [22] In our analysis, we prefer this time variable to the number of documents required to export (also provided by the DB database), which we consider less accurate: countries with the same number of procedures can require a different amount of time to complete them (Appendix 6).[23] We also consider the time required to import as a proxy for import costs and the time to start a business as a control for the business environment. The Doing Business project provides data for all the 96 countries in our sample but only from 2004 onwards in the case of the "Starting a Business" variables and from 2006 onwards in the case of the "Trade across Borders" variables. To deal with the lack of data between 1995 and 2003, we construct a set of dummies. For each cost variable we first compute the median cost across the whole sample. The associated dummy takes the value of 1 if the cost value is higher than the median time to export (which is 20 days) and 0 otherwise. In doing so, we assume that countries that were in the upper half (lower half) of the cost distribution between 2004 and 2008, were also in the upper half (lower half) of the cost distribution between 1995 and 2004. This assumption is based on the observation that variation of costs over the period 2004-2008 is relatively low. Therefore the probability of a country switching from one half to the other over the 1995-2004 period will also be low. At the same time a change in the ranking *within* one half does not affect the value of the dummy and thus of the results. We construct three cost related variables in the same way: one for the export costs, one for the import costs and finally one for the costs related to starting a business.

Sunk costs

As previously discussed, the existence of sunk costs is expected to affect the duration of a trade relationship. Higher sunk costs reduce exporters drop out and as such increase the length of positive export spells. Theoretically, higher sunk costs are associated with both higher initial and higher average export values. Figure 4 shows positive and significant unconditional correlations between average trade values and duration. We use both measures (separately as they are highly correlated) to check whether the sign and significance of the relationship are maintained in the presence of other controls.

Additional control variables

We control for the size of the importing market by including the average number of countries that export the same product to this market. The average is computed over the years for which the relationship existed. We test for the impact of the macroeconomic environment by accounting for variation in the exchange rate with respect to the United States Dollar. We control for multiple spells by adding a dummy that is 1 whenever a relationship has more than one spell. By doing so, we want to control for the possibility that the first spell in a multiple-spell relationship is systematically shorter than single-spell relationships. [24] If that was the case and uncontrolled for that could bias the results.[25] Finally, regional dummies are included whenever relevant.

[22] Other authors have also identified time as a trade barrier, although they have only focus on the time associated to transport (Hummels, 2001; Djankov S., Freund C. and Pham C. S., 2006).
[23] Figures in Appendix 6 show first that there is positive relationship between time and the number of documents required. Secondly, they show that the variability across countries is the largest for the time variable.
[24] First spells with only one year of service in a multiple-spell relationship accounted for 67.5 per cent of the total number of trading relationships, and first spells with less than three years accounted for 92 per cent of the total number of trading relationships.
[25] See for instance Hamerle (1989) for discussion and empirical illustration.

4. Results

We first estimate the model in equation (1) for the whole sample of countries. Results are reported in Table 1. Second, we estimate the survival equation for each group of countries separately: Developing South, Emerging South and the North (Tables 2a, 2b and 2c). Third, we estimate the model for all countries including a measure of volatility in trade policy in importing countries. Due to limited data availability only observations on manufactured goods are included in the estimation (Table 3). Tables 1 and 3 are organized in a similar manner. Two different specifications are considered. The first one is the baseline model where only export sunk costs are considered. Per-period export fixed costs are introduced in the second specification. The first two columns of each table show the results obtained using initial trade values as a proxy for sunk costs. The last two show the results obtained using average trade values as a proxy for sunk costs.[26] In case of multiple spells, the average trade value is the one of the first spell. Table 2 reports only results for specifications including all cost variables that is two for each regional country group.

As a last step, we do some robustness checks (Table 4). We first introduce an interaction term between trade values indicators and per-period fixed export costs variables. Second, we further interact export costs with the log of duration of the trade relationship.

All coefficients are presented in their exponential form. A value lower than one indicates that the effect of changes in the covariate on the hazard rate is negative (higher values of the covariate decrease the hazard rate). A value larger that one indicates that the effect of changes in the covariate on the hazard rate is positive (higher values of the covariate increase the hazard rate). For dummies, a coefficient in its exponential form can be easily transformed in a percentage change.[27]

4.1. Whole sample

Generally speaking, whether we use average trade value or initial value as a control variable it does not affect the sign of other coefficients estimates. In terms of magnitude, the variation is at maximum 5 per cent. We also obtain that our measures of export fixed costs are mostly orthogonal to other covariates.

The relationship between average trade values and duration observed in section 2 is confirmed by our empirical results: relationships with higher average trade values face lower hazards. This is also true when initial trade values are considered. However, the magnitude of the impact is much stronger with average trade values. Doubling the initial value would lead to a reduction of 4.4 per cent in the hazard rate. The same increase in average trade value would decrease the hazard rate by slightly more than 12 per cent. Average trade values are likely to reflect other elements than simply sunk costs. This is also true for initial trade value but perhaps in a less prominent manner. Higher average trade values could reflect for instance relatively lower arrival rates of shocks because of more maturity in the trade relationship or high quality products.

[26] Results appearing in the last two columns are taken from Fugazza and Molina (2009), where only the average values where used as covariate.
[27] Details are presented in the second section of Appendix 3.

Table 1. Cox proportional hazard ratios estimates (all countries)

Variables	reg1	reg2	reg3	reg4
Exporter GDP (log)	0.953[a]	0.917[a]	0.933[a]	0.902[a]
Importer GDP (log)	1.003[a]	0.968[a]	1.001	0.972[a]
Initial trade value (log)	0.938[a]	0.939[a]		
Average trade value (log)			0.828[a]	0.829[a]
Common language	0.987[a]	0.985[a]	0.985[a]	0.982[a]
Border	0.923[a]	0.939[a]	0.923[a]	0.937[a]
Colonial link	0.957[a]	0.949[a]	0.939[a]	0.935[a]
Landlocked	1.102[a]	1.097[a]	1.082[a]	1.080[a]
Distance (log)	1.105[a]	1.108[a]	1.089[a]	1.093[a]
Change_ER	0.969[a]	0.966[a]	0.960[a]	0.957[a]
Average_competition	0.983[a]	0.982[a]	0.986[a]	0.985[a]
Multiple_spells	2.052[a]	2.046[a]	1.988[a]	1.974[a]
Differentiated goods	0.983[a]	0.984[a]	0.930[a]	0.931[a]
Homogeneous goods	1.052[a]	1.049[a]	1.083[a]	1.079[a]
Business (time)		0.950[a]		0.931[a]
Export costs (time)		0.908[a]		0.936[a]
Import costs (time)		0.885[a]		0.903[a]
Region DS	1.333[a]	1.360[a]	1.221[a]	1.254[a]
Region ES	0.909[a]	0.920[a]	0.919[a]	0.931[a]
Countries	96	96	96	96
Observations	3’517’835	3’517’835	3’517’835	3’517’835

Estimation with robust standard errors. Significance level: [a] p<0.01, [b] p<0.05, [c] p<0.1.

Estimated coefficients of the export fixed costs are to a large extent in contrast with existing theoretical and empirical evidence. Other things equal, countries with higher export fixed costs, measured by the time required to export show lower hazard rates (i.e. longer duration). The effect is even stronger for import costs in destination countries. Figures are -10 per cent and -12 per cent respectively, when the control is initial trade. They become -7 per cent and -10 per cent respectively, when the control is average trade. This would contradict theoretical predictions in most papers such as Irarrazabal and Opromolla (2009).

A sound business environment (captured in our case by the Doing Business variable measuring the time-cost of starting a business) is also found to be synonymous of lower hazard rates. Other results are in line qualitatively with those presented in the existing literature.

They suggest that a doubling in the GDP/capita of the exporting country reduces the hazard by between 7 per cent (i.e. $0.902^{\log(2)}$ -1) and 3 per cent (i.e. $0.953^{\log(2)}$ -1).[28] This result is consistent with the figures shown in the first part of this study, in which trade relationships from the North and in the Emerging South tend to have longer duration than the ones from the Developing South. The impact of a rise in partner size is not uniformly signed but in general remains very small in magnitude.

As for the type of products, we choose *reference priced goods* as the base category. Our results show that the hazard rate for differentiated goods is 1.6 per cent (initial trade) to 6.9 per cent (average trade) lower than that of reference priced goods. In the case of homogeneous goods the hazard rate is 5 per cent (initial trade) to 8 per cent (average value) higher than the one for reference priced goods. These results are comparable to those of Besedes and Prusa (2006b), although the magnitude differs.[29] Differentiated products survive the longest, followed by reference priced goods and then by homogeneous goods. These estimates suggest that trade duration increases as products become more differentiated. Indeed, poor duration could result from strong competition in international markets: exporters of homogeneous products like primary goods are likely to face fiercer competition and therefore lower survival.

Trade relationships that are disrupted at least once and are re-established face a hazard rate that is on average twice as much as the hazard of single spells trade relationships. In other words, the first spell of a multiple spell trade relationships will be systematically shorter than single spells trade relationships.

Both fiercer competition in destination markets and depreciating currencies with respect to the United States dollar are associated with lower hazard rates. The former result may indicate that a higher number of competitors not only reflect markets with larger capacity of absorption but also deeper maturity and as such less turnover across time. The latter result may reflect the impact of maintained international competitiveness due to a weaker currency. It could be argued that the inclusion of the United States in sample biases the results as their currency is the reference. We thus reran all regressions by excluding the United States from the sample with no significant impact on any coefficient estimates.

The coefficient on the region dummies DS and ES are both statistically significant (with the North as the base region). According to the results, the hazard of trading relationships from the Developing South is always more than 25 per cent higher than the ones involving exporters from the North. In the case of Emerging South, trading relationships have a lower hazard rate (between 7 per cent and 9.1 per cent depending on the specification) than the one involving exporters from the North. Then, compared to the North, trade relationships from the Developing South are shorter while the ones from the Emerging South last longer.

4.2 Group specificities

In the second set of regressions reported in Table 2, we estimate survival equations separately for each region. The sample of exporters is then a region-specific sub-set of the original sample and the sample of destination markets remains the original one.[30] Only specifications that include our fixed costs variables are reported. The set of first columns (Reg1) again refer to specifications with initial

[28] In 2004, the country in our sample with the lowest GDP/capita was Zimbabwe (with \$202 (PPP)) and the largest were Norway (with \$45,154 (PPP)) and Qatar (with \$68,166 (PPP)).

[29] The authors find that the hazard for differentiated products is 18 per cent lower than for the reference priced products and 25 per cent lower than homogeneous goods.

[30] The scope of the exercise is to identify possible region specific features keeping in mind however likely statistical constraints and caveats.

trade values as control while the set of second columns (Reg2) refer to specifications with average trade values as control.

One important feature of the results is the consistency of the coefficients on trade values across regions. Estimates obtained for each sample are similar to those obtained for the full sample. Hence, the expectation that sunk costs and the maturity of a trade relationship positively affect its duration is always verified and appears to be a general property.

Table 2. Cox proportional hazard ratios estimates (Developing South – Emerging South – North)

	Developing		Emerging		North	
Variables	**Reg1**	**Reg2**	**Reg1**	**Reg2**	**Reg1**	**Reg2**
Exporter GDP (log)	0.959[a]	0.931[a]	0.955[a]	0.965[a]	0.558[a]	0.578[a]
Importer GDP (log)	0.965[a]	0.971[a]	0.993[a]	0.985[a]	0.960[a]	0.975[a]
Trade values (log)	0.930[a]	0.847[a]	0.939[a]	0.825[a]	0.947[a]	0.835[a]
Common language	1.022[a]	1.035[a]	1.022[a]	0.976[a]	0.969[a]	0.963[a]
Border	0.948[a]	0.952[a]	1.030[a]	1.000	0.814[a]	0.824[a]
Colonial link	1.032[a]	1.016[a]	1.117[a]	1.122[a]	0.892[a]	0.820[a]
Landlocked	1.140[a]	1.067[a]			1.052[a]	1.044[a]
Distance (log)	1.093[a]	1.076[a]	1.113[a]	1.085[a]	1.149[a]	1.146[a]
Change_ER	0.987[a]	0.990[a]	0.840[a]	0.845[a]	1.715[a]	1.816[a]
Average_competition	0.991[a]	0.992[a]	0.981[a]	0.985[a]	0.968[a]	0.972[a]
Multiple_spells	1.517[a]	1.694[a]	2.129[a]	2.149[a]	1.854[a]	1.770[a]
Differentiated goods	0.991[c]	0.935[a]	0.963[a]	0.902[a]	0.996	0.948[a]
Homogeneous goods	0.940[a]	0.989	1.077[a]	1.107[a]	1.071[a]	1.093[a]
Business (time)	0.993	0.885[a]	0.851[a]	0.891[a]	0.894[a]	0.964[a]
Export costs (time)	0.961[a]	1.046[a]	0.870[a]	0.887[a]	0.974[a]	0.977[a]
Import costs (time)	0.882[a]	0.878[a]	0.884[a]	0.887[a]	0.911[a]	0.938[a]
Countries	44	44	22	22	30	30
Observations	562’419	562’419	1’176’586	1’176’586	1’778’830	1’778’830

Estimation with robust standard errors. Significance level: [a] p<0.01, [b] p<0.05, [c] p<0.1.

Coefficient estimates on export and import costs variables show a similar pattern across country groups. The pattern is also similar to the one shown in Table 1. Magnitudes vary across groups with larger effects on hazard rates found for the Emerging South group. The Developing South group is characterized by larger effects of import costs and smaller of export costs always compared to coefficients estimated for the whole sample. In this case the sign of the impact (coefficient becomes larger than one) is even reverted when the sunk costs control variable becomes the average trade value. Actually the latter would be the only case that reconciles, although not completely as the impact of import costs goes the opposite direction, our empirical results and existing theoretical predictions.

Other results are comparable to those obtained in estimations with the full sample reported in Table 1,[31] except for some gravity variables and product characteristics.

Domestic and foreign market sizes are associated with lower hazard rates in all cases. However, the impact of domestic market size is much more pronounced for the Northern countries. This result is most probably due to a strong composition effect, which reflects the lower hazard rates that Northern countries face in average.

As to other gravity controls, common language behaves differently across country samples and across specifications in the case of Emerging South. A common language would unambiguously increase hazards for the Developing South group and Emerging South group when initial trade is the control. In the second specification, results for Northern and Emerging south countries are in line with those in the full sample.

Contrasting results between the Developing and Emerging south groups on one hand and the North group (and full sample) on the other are also obtained for the *colonial link* variable. As for the Developing South region, results are again linked to the fact that countries governing the ones in the variable are characterized by relatively higher hazard rates. As far as the Emerging South group is concerned, the result is essentially a China effect.

In the case of the Developing South, coefficients on the *homogenous goods* variable are now below unity. Those obtained for the two other country groups are similar to those obtained in full-sample estimations. Then, while homogenous goods face lower hazard rates than reference priced goods for the Developing South sample, they face higher hazard rates for the Emerging South and North samples. This is essentially a consequence of the fact that amongst developing south countries a certain number of them are exporters of few homogenous goods only but in which they have a strong comparative advantage that translated into significantly lower than average hazard rates.

Coefficients estimates for the exchange rate variable are below unity for both the Developing and Emerging South country groups. The fact that they stand strongly above unity for the North country group is the reflection of its very definition, as discussed in the previous section. Again, removing the variable in any country sample does not affect the rest of the results and thus is not critical to their interpretation.

4.3 Trade protection

In the third set of regressions, we include import tariffs from the data base "Trade, Production and Protection" (Nicita and Olarreaga, 2007) to control for the impact of trade policy in importing countries on trade duration. Trade policy could be expected to affect both trade values (especially average trade value) and hazard rates. As such, its exclusion from estimations could introduce an omitted variable bias. As indicated previously we consider the coefficient of variation of tariffs across destination markets for a given product. Because of data availability, we had to restrict our sample to manufactured products.

Results are presented in Table 3. Again similarity to figures in Table 1 is a feature common to most estimated coefficients despite a drop of more than quarter in the number of observations. We also observe that the drop of observations does not show any specific group pattern and can be seen to a large extent as a random draw. Rerunning the whole set of estimations without our tariffs variable leave all results unchanged. This seems to underline strongly the non relevance of a possible omitted variable bias in previous results.

[31] We also try a specification with strata by type of product (HS 4-digit level). The results remain very similar and are not presented here.

The coefficient estimated for our trade policy variable is statistically significant and below unity. We also apply the average tariff (results not shown) over the period instead of the coefficient of variation. No major difference is found: the coefficient remains below unity and is statistically significant. Then higher volatility in protection across destination countries or higher protection on average are both associated with longer duration. Following Besedes and Prusa (2006b) argument, higher tariffs (or higher tariff variation across countries) lower hazards as it implies less competition for incumbent firms. From a purely theoretical point of view, in models with heterogeneous firms, destinations with relatively higher tariffs or in general markets characterized by relatively higher protection across countries will be served only by the most productive firms of each source country. Such a feature can be easily related to longer lasting export status.

Table 3. Cox proportional hazard ratios estimates (All countries, manufactures)

Variables	reg1	reg2	reg3	reg4
Exporter GDP (log)	0.951[a]	0.915[a]	0.928[a]	0.897[a]
Importer GDP (log)	1.000	0.960[a]	1.000	0.970[a]
Initial trade value (log)	0.938[a]	0.938[a]		
Average trade value (log)			0.826[a]	0.826[a]
Common language	0.976[a]	0.975[a]	0.976[a]	0.973[a]
Border	0.904[a]	0.921[a]	0.903[a]	0.917[a]
Colonial link	0.964[a]	0.958[a]	0.946[a]	0.945[a]
Landlocked	1.093[a]	1.090[a]	1.075[a]	1.075[a]
Distance (log)	1.099[a]	1.103[a]	1.082[a]	1.086[a]
Change_ER	0.966[a]	0.963[a]	0.955[a]	0.952[a]
Tariff change	0.984[a]	0.985[a]	0.986[a]	0.986[a]
Average_competition	0.983[a]	0.982[a]	0.986[a]	0.985[a]
Multiple_spells	2.092[a]	2.084[a]	2.013[a]	1.997[a]
Differentiated goods	0.983[a]	0.984[a]	0.925[a]	0.926[a]
Homogeneous goods	1.057[a]	1.052[a]	1.083[a]	1.079[a]
Business (time)		0.949[a]		0.927[a]
Export costs (time)		0.912[a]		0.940[a]
Import costs (time)		0.874[a]		0.903[a]
Region DS	1.374[a]	1.400[a]	1.245[a]	1.277[a]
Region ES	0.913[a]	0.923[a]	0.921[a]	0.932[a]
Countries	96	96	96	96
Observations	2’716’330	2’716’330	2’716’330	2’716’330

Estimation with robust standard errors. Significance level: [a] p<0.01, [b] p<0.05, [c] p<0.1.

4.4 Robustness and extensions

To check the robustness of our results, we first interact the fixed costs variables i) with the sunk costs and with ii) a time measure. Secondly, we also used a more detailed classification of our export cost variable. Tables 4 and 5 present the results obtained with initial trade values as a control for sunk costs. Estimates with average trade are similar but are not shown for a matter of clarity.

The first column of Table 4 is our benchmark specification and is taken from Table 1. Column two of Table 4 shows estimates obtained with the inclusion of interaction terms between the sunk costs and the fixed costs variables. The third column of Table 4 includes an additional interaction term between the fixed export costs variable and the log of the duration (in years) of the trade relationship. In the Cox model, the dependent variable is time until an event occurs, this is why we do not include the variable "Time" when it is interacted with other covariates in the model. If we include time as a covariate, we would obviously be explaining time until event occurs with a time counter. However, the latter interaction is a straightforward but consistent method to relax the assumption of proportionality.[32]

The inclusion of an interaction term between fixed costs variables and the initial trade value (column two) does not affect any coefficient estimates but those for the fixed costs variables. However, only the coefficient for the export cost variable varies significantly. The direct impact of the latter on the hazard rate remains negative but its magnitude is reduced. Results on interaction terms suggest that sunk costs and export fixed costs have complementary effects on the hazard rate. The reverse is true if we consider sunk costs and import fixed costs in destination countries. A possible explanation for such results is that sunk and per period fixed costs faced by exporters in their home country are unavoidable and as such can be expected to increase export status duration. Import fixed costs are destination specific and as such can simply be lowered by "picking up" the right destinations. As a consequence exporters will aim at reducing the time spent on higher cost level destinations and shift to lower cost ones as soon as possible assuming that sunk costs are not destination specific.

Introducing the interaction between export fixed costs and the log of duration affects most coefficients more or less significantly but never dramatically. The coefficient representing the direct effect of export fixed costs on the hazard rate has turned positive and the effect of the interaction term is strongly negative. This means that the effect of fixed costs to export on the hazard rate decrease with the duration of a trade relationship. Results could indicate that exporters face a learning curve in dealing with per period fixed costs. As administrative procedures are likely to be the same across periods, it is very plausible that exporters become more efficient with time in treating them. This is equivalent to say that the effective cost is exporter specific and decreases with persistence in the export status of exporters.

Table 5 reports results obtained for a three–level export cost covariate rather than a two-level cost covariate. In other words we define three dummies for the export costs variable instead of two: LowCost (*cat1*) equals 1 when the number of days to export ranges from 1 to 16 and zero otherwise, MiddleCost (*cat2*) equals 1 when the number of days to export ranges from 17 to 23 and zero otherwise, finally HighCost (*cat3*) equals 1 when the number of days to export is larger than 23 and zero otherwise. We do this to have a more accurate idea of the level of the fixed costs in each country and allow for greater flexibility in the model. Our based category is category 1.

[32] See for instance Kovacevic and Georgia (2007), Ezell et al. (2003), Box-Steffensmeier and Zorn (2002) for a detailed discussion and application.

Table 4. Cox proportional hazard ratios estimates (All countries, Robustness Checks I)

Variables	reg1	reg2	reg3
Exporter GDP (log)	0.917[a]	0.917[a]	0.932[a]
Importer GDP (log)	0.968[a]	0.968[a]	0.970[a]
Initial trade value (log)	0.939[a]	0.940[a]	0.930[a]
Common language	0.985[a]	0.984[a]	0.983[a]
Border	0.939[a]	0.939[a]	0.972[a]
Colonial link	0.949[a]	0.950[a]	0.923[a]
Landlocked	1.097[a]	1.097[a]	1.056[a]
Distance (log)	1.108[a]	1.109[a]	1.104[a]
Change_ER	0.966[a]	0.966[a]	0.978[a]
Average_competition	0.982[a]	0.982[a]	0.984[a]
Multiple_spells	2.046[a]	2.046[a]	1.820[a]
Differentiated goods	0.984[a]	0.983[a]	0.986[a]
Homogeneous goods	1.049[a]	1.049[a]	1.042[a]
Business (time)	0.950[a]	0.946[a]	0.968[a]
Export costs (time)	0.908[a]	0.939[a]	1.541[a]
Import costs (time)	0.885[a]	0.876[a]	0.894[a]
Init. trade value(log)* business(time)		1.002	1.000
Init. trade value(log)*exp. costs(time)		0.985[a]	1.066[a]
Init. trade value(log)*imp. costs(time)		1.005[a]	1.002[a]
Inter_time			0.309[a]
Region DS	1.360[a]	1.359[a]	1.235[a]
Region ES	0.920[a]	0.920[a]	0.948[a]
Countries	96	96	96
Observations	3,517,835	3,517,835	3,517,835

Estimation with robust standard errors. Significance level: [a] p<0.01, [b] p<0.05, [c] p<0.1.

Table 5. Cox proportional hazard ratios estimates (All countries, Robustness Checks II)

Variables	Reg1	Reg2	Reg3
Exporter GDP (log)	0.930[a]	0.930[a]	0.941[a]
Importer GDP (log)	0.968[a]	0.968[a]	0.970[a]
Init. trade value(log)	0.938[a]	0.940[a]	0.924[a]
Common language	0.986[a]	0.986[a]	0.988[a]
Border	0.938[a]	0.937[a]	1.002
Colonial link	0.955[a]	0.955[a]	0.925[a]
Landlocked	1.106[a]	1.106[a]	1.064[a]
Distance (log)	1.108[a]	1.108[a]	1.091[a]
Change_ER	0.969[a]	0.969[a]	1.001[a]
Average_competition	0.982[a]	0.982[a]	0.987[a]
Multiple_spells	2.048[a]	2.048[a]	1.708[a]
Differentiated goods	0.984[a]	0.984[a]	0.989[a]
Homogeneous goods	1.048[a]	1.049[a]	1.043[a]
Business (time)	0.943[a]	0.945[a]	0.989[a]
Import costs (time)	0.884[a]	0.876[a]	0.905[a]
Export cost(cat2)	0.975[a]	0.989[a]	1.755[a]
Export cost(cat3)	0.954[a]	0.971[a]	1.610[a]
Init. trade value (log)*exp. cost(cat2)		0.993[a]	1.080[a]
Init. trade value (log)*exp. cost(cat3)		0.992[a]	1.078[a]
Time (log)*exp. cost(cat2)			0.277[a]
Time (log)*exp. cost(cat3)			0.288[a]
Init. trade value(log)* business(time)		0.999	0.996[a]
Init. trade value(log)*imp. costs(time)		1.004[a]	0.999
DS	1.355[a]	1.355[a]	1.210[a]
ES	0.924[a]	0.924[a]	0.963[a]
Countries	96	96	96
Observations	3’517’835	3’517’835	3’517’835

Estimation with robust standard errors. Significance level: [a] p<0.01, [b] p<0.05, [c] p<0.1.

The first specification includes the business, imports and new exports costs variables. In the second specification, we control for the interaction between the initial trade value of the transaction and the export costs variables. Finally, we add the time interaction term as described above.

Overall comments applying to Tables 1 and 4 also apply to Table 5. In particular we do find that increasing export fixed costs are associated lower hazard. However, column one also shows that the transformation of our export fixed cost variable translates into weaker impact on the hazard rate. Complementarities between per period and sunk export fixed costs are also found to be weaker (almost absent) as shown in column 2. The last column reveals that learning about exporting procedures remains a plausible feature of exporter status. Learning appears to be sharper for intermediate levels of costs (cat2). Coefficients also indicate that the direct positive impact on hazard rates is likely to dominate the learning through time impact in the first two periods.

5. Conclusions

Exporters' survival in foreign markets is essential to achieve sustained export growth. This paper presents an empirical investigation of possible determinants of exports survival rates following insights from recent theoretical developments and empirical findings, in particular those related to the role of fixed and sunk cost to export. Our analysis is based on disaggregated bilateral trade data for a sample of 96 developed and developing countries over the 1995-2004 period.

Descriptive statistics reveal a series of stylized facts that qualifies trade duration across groups of countries: (a) more advanced countries are involved in a larger number of trade relationships than less advanced countries; (b) the extensive margin of trade is more prominent in trade relationships for less advanced countries; (c) failure rates are not dramatically different across groups of countries and are even larger on average for more advanced countries; (d) very short duration characterizes trade relationships in less advanced countries; (e) across regions the majority of trade relationships have an average trade value lower than \$50,000 (f) trade relationships with low average trade values (less than \$10,000) tend to have shorter durations and (g) trade duration portrays countries' level of development.

Some of these unconditional properties are confirmed by the results of survival analysis. Our estimation strategy is primarily based on the canonical version of the Cox model. However, we also implement an extended version of this model that relaxes the proportionality hypothesis by including time-dependent covariates and time interaction terms. We find that export status increases with the level of development of both the origin and destination countries measured by their GDP per capita. Moreover, our results by region suggest that the effect of an increase in the GDP/capita on trade duration is larger for higher levels of GDP. We also have that the duration of trade varies with the type of product, which is in line with previous studies (Rauch, 1999; Besedes and Prusa, 2006b). Our results further suggest that this effect is very similar across regions. Trade relationships involving differentiated goods show a probability of failure that is 6 per cent to 14 per cent lower than the one obtained for trade relationships involving homogeneous goods. As for trade costs, high export costs increase the hazard in all regions but by less in the North and the Emerging South. This is not surprising given that exporters in the Emerging South and in the North face on average lower fixed costs than exporters in the Developing South. However, this result is in clear contrast with recently established theoretical predictions. Results obtained with the augmented version of the Cox model further indicate that the effect of fixed costs on hazard rates falls over time, suggesting the existence of learning effects (i.e. export experience matters).

Finally, our results also show that overall trade relationships with either higher average or initial trade values face lower hazard rates. The effect is highly consistent across regions and has important policy implications.

Our results suggest that one way of improving export survival rates will be to implement policies that aim to increase export revenues. As listed in Das et al. (2007), these policies can range from having preferential access to inputs, credits, insurance to policies that reduce transports costs or any other variable cost that firms face. According to their findings on a sample of Colombian manufacturing producers, subsidies on export earnings have a more significant impact on export revenues (per dollar spent) than subsidies that aim to reduce the entry (sunk) costs or entry fixed costs faced by new exporters. Indeed, such policies would not only help incumbent exporters to increase their profits and therefore to improve their survival rates, but also encourage the entry of firms into the export market.

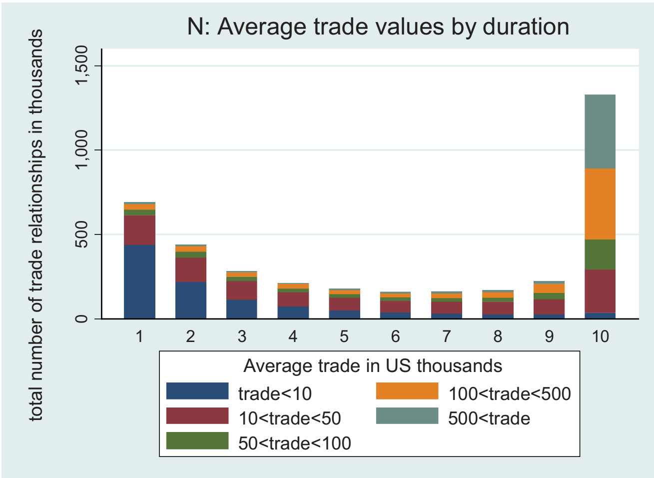
Further investigation will explore to what extent poor survival prevents developing economies from diversifying into new products or new markets.

Appendix 1

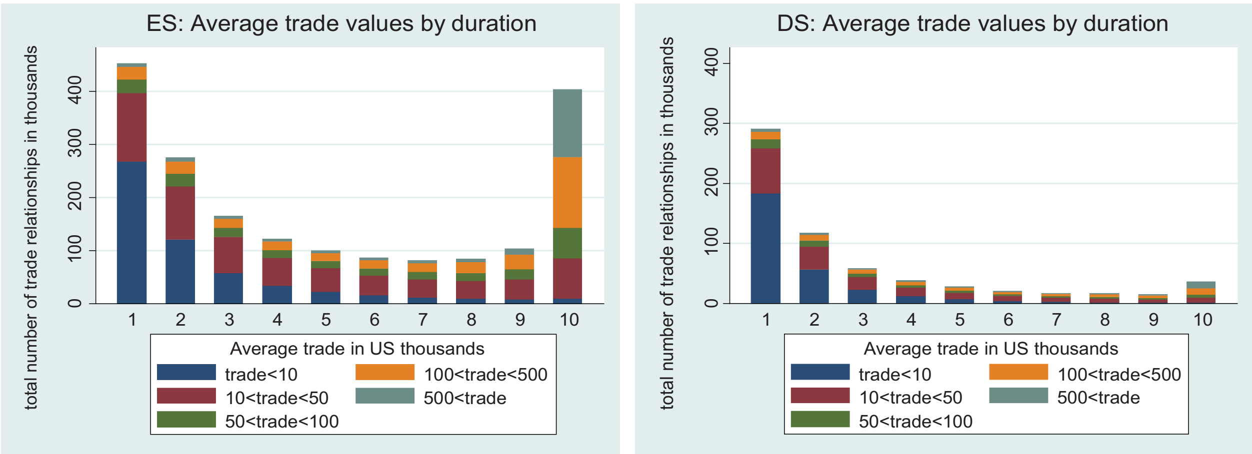
exporter	region	exporter	region	exporter	region
Algeria	DS	Trinidad and Tobago	DS	Australia	N
Angola	DS	Tunisia	DS	Austria	N
Bahamas	DS	Uganda	DS	Belgium	N
Bahrain	DS	United Arab Emirates	DS	Canada	N
Bangladesh	DS	United Rep. of Tanzania	DS	Czech Republic	N
Bolivia (Plurinational	DS	Uruguay	DS	Denmark	N
State of)		Viet Nam	DS	Estonia	N
Cambodia	DS	Yemen	DS	Finland	N
Cameroon	DS	Zambia	DS	France	N
Costa Rica	DS	Zimbabwe	DS	Germany	N
Côte d'Ivoire	DS			Greece	N
Dominican Republic	DS			Hungary	N
Ecuador	DS			Ireland	N
El Salvador	DS	Argentina	ES	Israel	N
Ghana	DS	Brazil	ES	Italy	N
Guatemala	DS	Chile	ES	Japan	N
Honduras	DS	China	ES	Latvia	N
Iran (Islamic Rep. of)	DS	Colombia	ES	Lithuania	N
Jamaica	DS	Egypt	ES	Netherlands	N
Kenya	DS	Hong Kong, China	ES	New Zealand	N
Kuwait	DS	India	ES	Norway	N
Lebanon	DS	Indonesia	ES	Poland	N
Liberia	DS	Jordan	ES	Portugal	N
Mauritania	DS	Malaysia	ES	Slovakia	N
Mauritius	DS	Mexico	ES	Slovenia	N
Nicaragua	DS	Morocco	ES	Spain	N
Nigeria	DS	Pakistan	ES	Sweden	N
Oman	DS	Peru	ES	Switzerland	N
Panama	DS	Philippines	ES	United Kingdom	N
Paraguay	DS	Singapore	ES	United States	N
Qatar	DS	South Africa	ES		N
Saudi Arabia	DS	Taiwan Province of China	ES		N
Senegal	DS	Thailand	ES		N
Sri Lanka	DS	Turkey	ES		N
Sudan	DS	Venezuela (Bolivarian Republic of)	ES		N

Appendix 2

Figure A1a. Average trade values by duration in the North



Figures A1b and A1c. Average trade values by duration in the South



Appendix 3. Duration models

Survival or duration methods were initially applied in medical and biological research to study the effect of certain independent variables on the occurrence of an event. Today duration models are also applied in labour economics (i.e. employment /unemployment duration), development economics (i.e. duration in poverty) and very recently in trade economics with the analysis of the duration of export activity.

General framework

In our framework, the event of interest is the "*death*", i.e. failure, of a trading relationship. Duration models assume there is a random continuous (general case) variable T, whose distribution is specified by:

- a cumulative distribution function *(cdf):* $F(t) = \Pr(T < t)$,which gives the probability of the event taking place by time *t* and
- a probability density function *(pdf):* $f(t) = \dfrac{dF(t)}{dt}$

The survival function *S(t)* is defined as the complement of the *cdf* and thus gives the probability of being alive at duration *t*:

$$S(t) = \Pr(T \geq t)$$

$$S(t) = 1 - F(t)$$

Another key component in duration models is the Hazard function *h(t)*, also called instantaneous rate of occurrence of the event. It is given by

$$h(t) = \lim_{dt \to 0} \frac{\Pr\{t < T < T + dt | T > t\}}{dt}$$

Which can be written (after a few computations) as:

$$h(t) = \frac{f(t)}{S(t)}$$

The hazard rate corresponds to the ratio of the probability of failure to the probability of survival. In the continuous time case, it can be interpreted as the risk of an event to happen (i.e. instantaneous rate of occurrence) by *t*, while in the discrete time case it is simply seen as the conditional probability that the event will occur in time *t*, given that it has not occurred before. There is a large family of survival models that can be used for continuous or discrete time cases to analyze the effect of certain covariates on the hazard rate. The most general version of the hazard rate model is given by:

$$h_i(t, x_i(t)) = h_0(t) e^{\beta(t)' x_i(t)}$$

Where $x_i(t)$ is a vector of time-varying covariates representing the characteristics of individual *i* at time t, $\beta(t)$ is a vector of time-dependent coefficients, accounting for the effect that those characteristics have at time *t* (i.e. the effect of covariates varies across time). Within this family of survival models, the Cox (1972) model has the advantage that it does not need to specify the distribution of the duration dependency and so it is appropriate when we assess the impact of explanatory variables on the hazard rate. The hazard rate in the Cox model is given by:

$$h_i(t) = h_0(t)e^{\beta' x_i}$$

Where $h_0(t)$ is the baseline hazard function, which is assumed to be unknown and left unparametrized. The term $h_0(t)$ represents the risk at time t when $x_i(t) = 0$ and $\beta' x_i$ are time-independent covariates.

Interpretation of the coefficients of the explanatory variables

The interpretation of the coefficients of the explanatory variables depends on the model specification and do not have the same interpretation as in a linear model. The sign of the coefficient indicates the direction of the effect of the covariate on the risk of experiencing the event by *t*. In other words, the sign indicates whether some particular variable increases or decreases the hazard rate. The percentage change in the risk of experiencing the event in the case of a dichotomous covariate is given by:

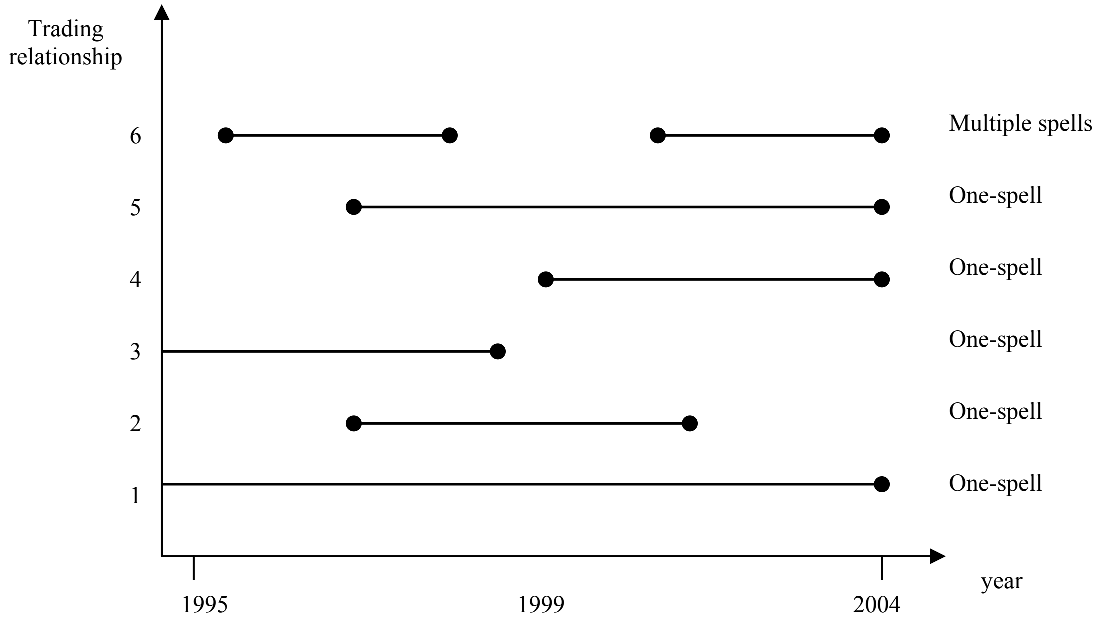
$$\Delta\% h(t) = 100 * \frac{e^{\beta_k * 1} - e^{\beta_k * 0}}{e^{\beta_k * 0}} = 100 * \left(e^{\beta_k * 1} - 1\right)$$

In the case of a continuous covariate the percentage change in the hazard rate for a δ unit change in the explanatory variable *x* is given by:

$$\Delta\% h(t) = 100 * \frac{e^{\beta_k * (x+\delta)} - e^{\beta_k * x}}{e^{\beta_k * x}} = 100 * \frac{e^{\beta_k * x} e^{\beta_k * \delta} - e^{\beta_k * x}}{e^{\beta_k * x}}$$
$$= 100 * \left(e^{\beta_k * \delta} - 1\right)$$

A value larger than one indicates a positive effect, a value between zero and one a negative effect on the hazard rate. A value equal to one means the covariate does not have any effect on the hazard rate.

Appendix 4

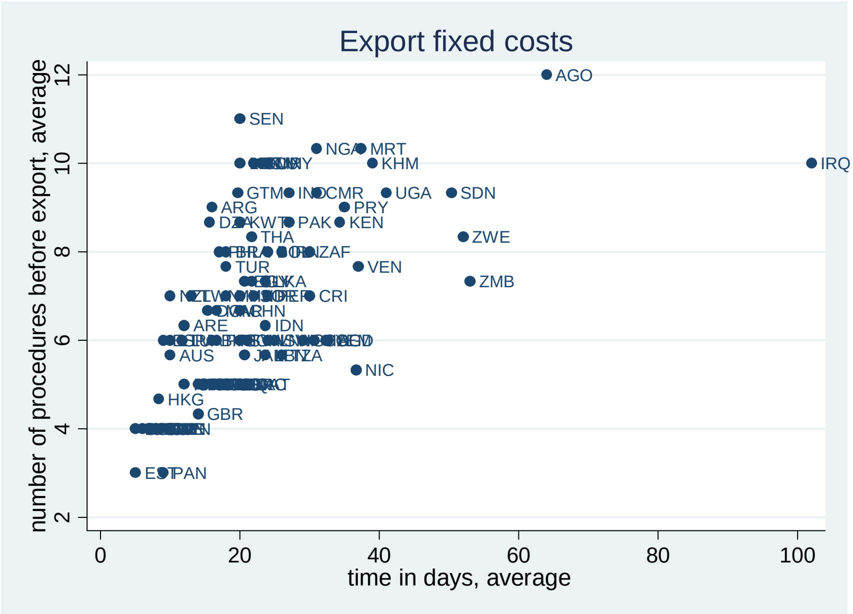


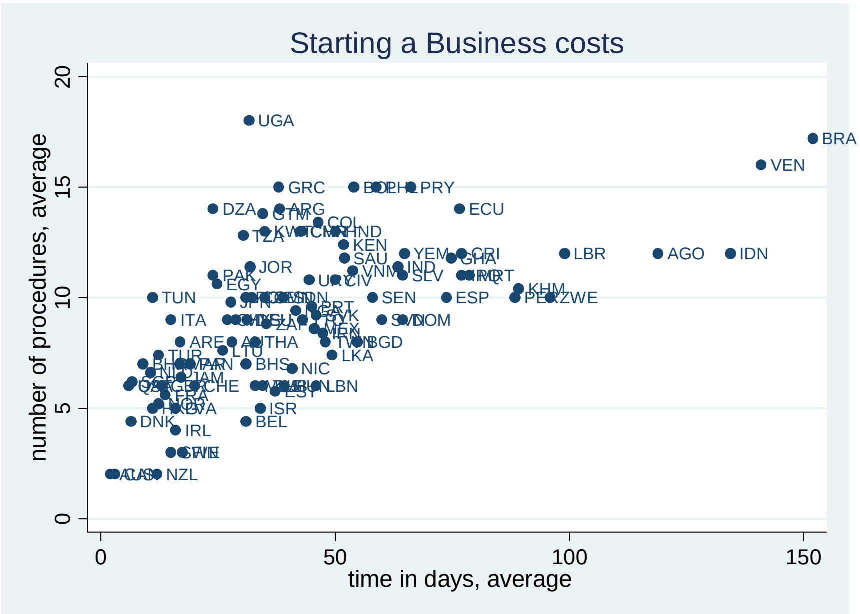
Trading relationship
6
5
4
3
2
1
Multiple spells
One-spell
One-spell
One-spell
One-spell
One-spell
1995
1999
2004
year

Appendix 5

Variables	Description	Source
GDP per capita	In US PPP for the 1994-2005 period	IMF
Distance	Distance in km between the two largest cities in each country	CEPII
Border	Dummy variable, equals 1 if common border	CEPII
Landlocked	Dummy variable, equals 1 if country is landlocked	CEPII
Common language	Dummy variable, equals 1 if common language	CEPII
Colonial link	Dummy variable, equals 1 if colonial relationship	CEPII
Depreciation rate	The change in the exchange rate by spell. The exchange rate is the nominal value of national currency per United States dollars for the 1994-2005 period	World Development Indicators
Competition	Average number of countries that export product X, over the spell	Author's calculations
Tariffs	Weighted applied tariff from the database "Trade, Production and Protection, 1976-2004", 3-digit level (ISIC, rev2)	World Bank, Nicita A. and M. Olarreaga (2006)
Business costs (Entry regulations)	Include the number of procedures and the time until the process is complete before a business can be established. (2004-2008)	Doing Business, WB
Export costs (Trading across borders)	Include the number of export procedures and time until the procedures are completed (2006-2008)	Doing Business, WB
Import costs (Trading across borders)	Include the number of import procedures and time until the procedures are completed (2006-2008)	Doing Business, WB

Appendix 6





Note: Country abbreviations used are ISO ALPHA-3 codes.

References

Akin C and Kose MA (2007). Changing Nature of North–South Linkages: Stylized Facts and Explanations. IMF Working Paper No. 07/280.

Baldwin R (1990). Hysteresis in Trade. Empirical Economics, vol. 15(2): 127–42.

Baldwin R (1988). Hysteresis in Import Prices: The Beachhead Effect. The American Economic Review. Vol.78, Issue 4: 773–785.

Baldwin R and Krugman P (1989). Persistent Trade Effects of Large Exchange Rate Shocks.

The Quarterly Journal of Economics. Vol. 104, No. 4: 635–654.

Bernard AB and Jensen JB (2004). Why Some Firms Export. The Review of Economics and Statistics, MIT Press. Vol. 86(2): 561–569, 04.

Bernard AB and Jensen JB (1999). Exceptional exporter performance: cause, effect, or both? Journal of International Economics. Vol. 47: 1–25.

Besedes TA (2008). Search Cost Perspective on Formation and Duration of Trade. Review of International Economics. 16(5): 835–849.

Besedes T and Prusa TJ (2007). The Role of Extensive and Intensive Margins and Export Growth. NBER Working Papers 13628, National Bureau of Economic Research.

Besedes T and Prusa TJ (2006a). Ins, Outs, and the Duration of Trade. Canadian Journal of Economics, 39(1): 266-295.

Besedes T and Prusa TJ (2006b). Product Differentiation and Duration of U.S. Import Trade? Journal of International Economics. 70(2): 339–358.

Box-Steffensmeier J and Zorn C (2002). Duration Models for Repeated Events. The Journal of Politics. Vol. 64, No. 4 (Nov., 2002), pp. 1069–1094.

Brenton P, Saborowski C and von Uexkull E (2009). What Explains the Low Survival Rate of Developing Country Export Flows. World Bank Policy Research Working Paper No. 4951.

Brenton P and Newfarmer R (2007). Watching More than the Discovery Channel: Export Cycles and Diversification in Development. World Bank Policy Research Working Paper No. 4302.

Constantini JA and Melitz M (2007). The Dynamics of Firm-Level Adjustment to Trade Liberalization. Mimeo Princeton University.

Das M, Roberts MJ, Tybout JR (2007). Market Entry Costs, Producer Heterogeneity and Export Dynamics. Econometrica, Econometric Society. Vol. 75(3): 837-873, 05.

Djankov S, Freund C and Pham CS (2006). Trading on time. Policy Research Working Paper Series 3909. The World Bank.

Dixit A (1989). Hysteresis, Import Penetration, and Exchange Rate Pass-Through. The Quarterly Journal of Economics. Vol. 104, No. 2: 205-228.

Eaton J, Eslava M, Kugler M, Tybout JR (2008). The Margins of Entry into Export Markets: Evidence from Colombia, in: Helpman E, Marin D, Verdier T (Eds.). The Organization of Firms in a Global Economy, Cambridge, MA: Harvard University Press.

Evenett S and Venables A (2002). Export Growth by Developing Countries: Market Entry and Bilateral Trade Flows. Working paper: http://www.alexandria.unisg.ch/Publications/22177/.

Ezell M, Land K, Cohen L (2003). Modeling Multiple Failure Time Data: A Survey of Variance-Corrected Proportional Hazards Models with Empirical Applications to Arrest Data. Journal of Sociological Methodology. Vol. 33: 111-167.

Felbermayr GJ and Kohler W (2006). Exploring the Intensive and Extensive Margins of World Trade. Review of World Economics. Vol. 142, Number 4.

Fugazza M and Molina AC (2009). The Determinants of Trade Survival. HEI Working Papers No. 5.

Gaulier G and Zignago S (2008). BACI: A World Database of International Trade Analysis at the Product-level. CEPII Working Paper.

Hamerle A (1989). Multiple-Spell Regression Models for Duration Data. Journal of Applied Statistics. Vol. 38, No. 1 (1989), pp. 127-138.

Helpman E, Melitz MJ and Rubinstein Y (2008). Estimating Trade Flows: Trading Partners and Trading Volumes. The Quarterly Journal of Economics. Vol. 123, No. 2, Pages 441-487.

Hummels D (2001). Time as a Trade Barrier. GTAP Working Papers 1152, Center for Global Trade Analysis, Department of Agricultural Economics, Purdue University.

Irarrazabal A and Opromolla LD (2009). A theory of Entry and Exit into Exports Markets. unpublished manuscript.

Kovacevic M and Georgia R (2007). Modelling durations of multiple spells from longitudinal survey data. Survey Methodology. Vol. 33, N#1 PP13-22. Statistics Canada.

Nicita A and Olarreaga M (2007). "Trade, Production, and Protection Database, 1976--2004," World Bank Economic Review, Oxford University Press, vol. 21(1), pages 165-171.

Nitsch V (2008). Die Another Day: Duration in German Import Trade. CESifo Working Paper Series No. 2085, forthcoming in Review of World Economics.

Rauch JE (1999). Networks versus markets in international trade. Journal of International Economics. Vol. 48, Issue 1: 7–35.

Rauch JE and Watson J (2003). Starting small in an unfamiliar environment. International Journal of Industrial Organization. Vol. 21(7): 1021-1042.

Roberts MJ and Tybout JR (1997). The Decision to Export in Colombia: An Empirical Model of Entry with Sunk Costs. The American Economic Review. Vol. 87, No. 4, pp. 545–564.

Shepherd B (2007). Product Standards, Harmonization, and Trade: Evidence from the Extensive Margin. Policy Research Working Paper Series 4390. The World Bank.

UNCTAD Study Series on

POLICY ISSUES IN INTERNATIONAL TRADE AND COMMODITIES

No. 1 Erich Supper, **Is there effectively a level playing field for developing country exports?**, 2001, 138 p. Sales No. E.00.II.D.22.

No. 2 Arvind Panagariya, **E-commerce, WTO and developing countries**, 2000, 24 p. Sales No. E.00.II.D.23.

No. 3 Joseph Francois, **Assessing the results of general equilibrium studies of multilateral trade negotiations**, 2000, 26 p. Sales No. E.00.II.D.24.

No. 4 John Whalley, **What can the developing countries infer from the Uruguay Round models for future negotiations?**, 2000, 29 p. Sales No. E.00.II.D.25.

No. 5 Susan Teltscher, **Tariffs, taxes and electronic commerce: Revenue implications for developing countries**, 2000, 57 p. Sales No. E.00.II.D.36.

No. 6 Bijit Bora, Peter J. Lloyd, Mari Pangestu, **Industrial policy and the WTO**, 2000, 47 p. Sales No. E.00.II.D.26.

No. 7 Emilio J. Medina-Smith, **Is the export-led growth hypothesis valid for developing countries? A case study of Costa Rica**, 2001, 49 p. Sales No. E.01.II.D.8.

No. 8 Christopher Findlay, **Service sector reform and development strategies: Issues and research priorities**, 2001, 24 p. Sales No. E.01.II.D.7.

No. 9 Inge Nora Neufeld, **Anti-dumping and countervailing procedures – Use or abuse? Implications for developing countries**, 2001, 33 p. Sales No. E.01.II.D.6.

No. 10 Robert Scollay, **Regional trade agreements and developing countries: The case of the Pacific Islands' proposed free trade agreement**, 2001, 45 p. Sales No. E.01.II.D.16.

No. 11 Robert Scollay and John Gilbert, **An integrated approach to agricultural trade and development issues: Exploring the welfare and distribution issues**, 2001, 43 p. Sales No. E.01.II.D.15.

No. 12 Marc Bacchetta and Bijit Bora, **Post-Uruguay round market access barriers for industrial products**, 2001, 50 p. Sales No. E.01.II.D.23.

No. 13 Bijit Bora and Inge Nora Neufeld, **Tariffs and the East Asian financial crisis**, 2001, 30 p. Sales No. E.01.II.D.27.

No. 14 Bijit Bora, Lucian Cernat, Alessandro Turrini, **Duty and quota-free access for LDCs: Further evidence from CGE modelling**, 2002, 130 p. Sales No. E.01.II.D.22.

No. 15 Bijit Bora, John Gilbert, Robert Scollay, **Assessing regional trading arrangements in the Asia-Pacific**, 2001, 29 p. Sales No. E.01.II.D.21.

No. 16 Lucian Cernat, **Assessing regional trade arrangements: Are South-South RTAs more trade diverting?**, 2001, 24 p. Sales No. E.01.II.D.32.

No. 17 Bijit Bora, **Trade related investment measures and the WTO: 1995-2001**, 2002.

No. 18 Bijit Bora, Aki Kuwahara, Sam Laird, **Quantification of non-tariff measures**, 2002, 42 p. Sales No. E.02.II.D.8.

No. 19 Greg McGuire, **Trade in services – Market access opportunities and the benefits of liberalization for developing economies**, 2002, 45 p. Sales No. E.02.II.D.9.

No. 20 Alessandro Turrini, **International trade and labour market performance: Major findings and open questions**, 2002, 30 p. Sales No. E.02.II.D.10.

No. 21 Lucian Cernat, **Assessing south-south regional integration: Same issues, many metrics**, 2003, 32 p. Sales No. E.02.II.D.11.

No. 22 Kym Anderson, **Agriculture, trade reform and poverty reduction: Implications for Sub-Saharan Africa**, 2004, 30 p. Sales No. E.04.II.D.5.

No. 23 Ralf Peters and David Vanzetti, **Shifting sands: Searching for a compromise in the WTO negotiations on agriculture**, 2004, 46 p. Sales No. E.04.II.D.4.

No. 24 Ralf Peters and David Vanzetti, **User manual and handbook on Agricultural Trade Policy Simulation Model (ATPSM)**, 2004, 45 p. Sales No. E.04.II.D.3.

No. 25 Khalil Rahman, **Crawling out of snake pit: Special and differential treatment and post-Cancun imperatives**, 2004.

No. 26 Marco Fugazza, **Export performance and its determinants: Supply and demand constraints**, 2004, 57 p. Sales No. E.04.II.D.20.

No. 27 Luis Abugattas, **Swimming in the spaghetti bowl: Challenges for developing countries under the "New Regionalism"**, 2004, 30 p. Sales No. E.04.II.D.38.

No. 28 David Vanzetti, Greg McGuire and Prabowo, **Trade policy at the crossroads – The Indonesian story**, 2005, 40 p. Sales No. E.04.II.D.40.

No. 29 Simonetta Zarrilli, **International trade in GMOs and GM products: National and multilateral legal frameworks**, 2005, 57 p. Sales No. E.04.II.D.41.

No. 30 Sam Laird, David Vanzetti and Santiago Fernández de Córdoba, **Smoke and mirrors: Making sense of the WTO industrial tariff negotiations**, 2006, Sales No. E.05.II.D.16.

No. 31 David Vanzetti, Santiago Fernandez de Córdoba and Veronica Chau, **Banana split: How EU policies divide global producers**, 2005, 27 p. Sales No. E.05.II.D.17.

No. 32 Ralf Peters, **Roadblock to reform: The persistence of agricultural export subsidies**, 2006, 43 p. Sales No. E.05.II.D.18.

No. 33 Marco Fugazza and David Vanzetti, **A South-South survival strategy: The potential for trade among developing countries**, 2006, 25 p.

No. 34 Andrew Cornford, **The global implementation of Basel II: Prospects and outstanding problems**, 2006, 30 p.

No. 35 Lakshmi Puri, IBSA: **An emerging trinity in the new geography of international trade**, 2007, 50 p.

No. 36 Craig VanGrasstek, **The challenges of trade policymaking: Analysis, communication and representation**, 2008, 45 p.

No. 37 Sudip Ranjan Basu, **A new way to link development to institutions, policies and geography**, 2008, 50 p.

No. 38 Marco Fugazza and Jean-Christophe Maur, **Non-tariff barriers in computable general equilibrium modelling**, 2008, 25 p.

No. 39 Alberto Portugal-Perez, **The costs of rules of origin in apparel: African preferential exports to the United States and the European Union**, 2008, 35 p.

No. 40 Bailey Klinger, **Is South-South trade a testing ground for structural transformation?**, 2009, 30 p.

No. 41 Sudip Ranjan Basu, Victor Ognivtsev and Miho Shirotori, **Building trade-relating institutions and WTO accession**, 2009, 50 p.

No. 42 Sudip Ranjan Basu and Monica Das, **Institution and development revisited: A nonparametric approach**, 2010, 26 p.

No. 43 Marco Fugazza and Norbert Fiess, **Trade liberalization and informality: New stylized facts**, 2010, 45 p.

No. 44 Miho Shirotori, Bolormaa Tumurchudur and Olivier Cadot, **Revealed factor intensity indices at the product level,** 2010, 55 p.

No. 45 Marco Fugazza and Patrick Conway, **The impact of removal of ATC Quotas on international trade in textiles and apparel,** 2010, 50 p.

No. 46 Marco Fugazza and Ana Cristina Molina, **On the determinants of exports survival,** 2011, 40 p.

United Nations Publications

All orders from **North America, Latin America, the Caribbean and Asia and the Pacific** should be sent to:

United Nations Publications
Room DC2-853, 2 UN Plaza
New York, NY 10017, USA
Telephone: (212) 963-8302, Toll Free 1-800-253-9646 (North America only)
Fax: (212) 963-3489
E-mail: publications@un.org

Customers in **Europe, Africa and the Middle East** should send their orders to:

Section des Ventes et Commercialisation
Bureau E-4, CH-1211
Geneva 10, Switzerland
Telephone: 41 (22) 917-2613/2614
Fax: 41 (22) 917-0027
E-mail: unpubli@unog.ch

For further information, please visit: *http://www.unctad.org/tab*

QUESTIONNAIRE

UNCTAD Study series on

POLICY ISSUES IN INTERNATIONAL TRADE AND COMMODITIES

(Study series no. 46: On the determinants of exports survival)

Readership Survey

Since 1999, the Trade Analysis Branch of the Division on International Trade in Goods and Services, and Commodities of UNCTAD has been carrying out policy-oriented analytical work aimed at improving the understanding of current and emerging issues in international trade and development. In order to improve the quality of the work of the Branch, it would be useful to receive the views of readers on this and other similar publications. It would therefore be greatly appreciated if you could complete the following questionnaire and return to:

Trade Analysis Branch, DITC
Rm. E-8065
United Nations Conference on Trade and Development
Palais des Nations
CH-1211 Geneva 10, Switzerland

1. Name and address of respondent (optional):

____

____

____

____

2. Which of the following describes your area of work?

Government	☐	Public enterprise	☐
Private enterprise institution	☐	Academic or research	☐
International organization	☐	Media	☐
Not-for-profit organization	☐	Other (specify)	________________

3. In which country do you work? ____

4. Did you find this publication to your work? ☐ Very useful ☐ Of some use ☐ Little use

5. What is your assessment of the contents of this publication?
☐ Excellent ☐ Good ☐ Adequate ☐ Poor

6. Other comments:

____

____

____

____