

Preliminary
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**Die Another Day:
Duration in German Import Trade***

Volker Nitsch
Freie Universität Berlin

Abstract

International trade patterns at the product level are surprisingly dynamic. The majority of trade relationships exist for just a few, often only two to four, years. In this paper, I examine empirically the duration in German import trade at the 8-digit product level from 1995 to 2005. I find that survival probabilities are affected by product type, exporter characteristics and market structure. Specifically, I show that the duration of exporting a product to Germany is longer for differentiated products, for products with a low elasticity of substitution, for products obtained from a large exporter that is geographically close to the German market, and for products in markets with increasing import demand.

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Address:
Volker Nitsch
Free University Berlin
Department of Economics
Boltzmannstrasse 20
14195 Berlin
Germany
Tel.: (030) 838-56280
Fax: (030) 838-54142
E-mail: vnitsch@wiwiss.fu-berlin.de
Web: <http://userpage.fu-berlin.de/~vnitsch>

1. Introduction

In 2004, Germany reported positive imports in 9,756 product categories, according to the most detailed (8-digit) product level classification in European trade statistics. The products were obtained from 236 countries and territories. However, most products were imported from more than one supplier, so that, in total, there were 206,727 product-country pairs. For other years, numbers of similar magnitude are observed. For instance, there were 202,604 trade pairs in 2003 (with imports of 9,976 products from 236 countries) and 200,706 trade pairs in 2005 (with imports of 9,697 from 239 countries). In combination with other evidence on the (short-run) persistence in international trade (e.g., the empirical success of the gravity model of trade, the role of networks in trade), the small variation in the total number of product-level trade relationships may be just another indication that trade patterns are relatively stable over time.

Contrary to this belief, however, Besedeš and Prusa (2006a, 2006b) have recently argued in a series of papers that trade relationships are often very short-lived. Examining the duration of U.S. imports, they find that the U.S. pattern of foreign sourcing is surprisingly dynamic; the median duration of importing a product from a foreign supplier is just one year. As a result, the stability of aggregate trade patterns may mask considerable turnover at the product level, with a large fraction of suppliers entering and exiting the market each year.

Data for German import trade generally confirm Besedeš and Prusa's (2006a) findings. Of the 206,727 product-country pairs in 2004, 49,621 (~24%) pairs were non-existent a year earlier, while 49,928 (~24%) pairs died in the following year; a subset of 27,824 (~13%) pairwise trade relationships was observed in 2004 (i.e., in one year) only. However, there is also considerable heterogeneity across products and countries. Most notably, some products were repeatedly imported from a particular country over a relatively long period of time; about a third of all trade relationships in 2004 have been in existence for at least a decade.

This paper examines the duration of trade relationships in more detail. In particular, I aim to identify relationship-specific characteristics that help to explain the observed differences in the duration of trade. Besedeš and Prusa (2006b) find, based on a matching model, that survival rates are higher for differentiated products than for homogeneous products; they also show that duration increases with initial trade size. In this paper, I take a much broader view. In particular, I ask: Do product characteristics, such as product sophistication, matter for survival? Are there any country characteristics, such as proximity or common language, that affect the duration of trade? And to what extent do market characteristics play a role, such as market entry of a foreign competitor?

To analyze these questions, I examine a new data set of German import trade from 1995 to 2005. The data set comprises trade values and quantities at the 8-digit Combined Nomenclature (CN) level which is the most detailed product classification to designate goods and merchandise in European Union trade statistics; the CN-8 level contains about 13,000 product codes.

I find that the duration of a trade relationship is indeed strongly and significantly associated with specific features of the imported product, characteristics of the supplier country as well as the structure of the (import) market. Specifically, I find that a trade relationship lasts longer for differentiated products, for products with a low elasticity of substitution, and (somewhat surprisingly) for products with low contract intensity. Also, large initial and current transaction values as well as growing import demand increase the probability of survival. Finally, country pair-specific features that are typically identified to increase bilateral trade in gravity models are found to be beneficial for the duration of trade.

The remainder of the paper is organized as follows. Section 2 briefly reviews the relevant literature. Section 3 describes the data, followed by a presentation of the empirical results. Section 5 provides a short conclusion.

2. Literature

In standard models of international trade, the duration of trade is typically ignored. Some models appear to imply that trade patterns are highly persistent. In these models, a trade relationship, once established, will almost last forever. For instance, according to the factor proportions theory, trade is based on differences in (relative) factor endowments. To the extent that such differences remain in place (as they often do between countries over time), a trade relationship remains undissolved. Other models focus (more explicitly) on the dynamics of trade, but rarely discuss exits from export markets. These models typically cover trade dynamics by considering market entry of new exporters. The implications of growing trade diversity for existing exporters, however, are often unclear; initial trade patterns may be reinforced or reversed, depending on circumstances. Still, it is interesting to note that in these models patterns of specialization change, at best, only gradually. Shifts in the pattern of specialization may be associated with, for instance, the life cycle of a product, the diffusion of technology or differences in factor accumulation (see, for instance, Vernon [1966], Grossman and Helpman [1991]). However, none of these reasons helps explain the very short episodes (that are observed in the data) when a product is exported for just a few years.

It is even more striking that (the few) models that explicitly consider the duration of trade especially emphasize the stability of international trade patterns. Examples include models of hysteresis in trade, such as Baldwin and Krugman (1989). In these models, based on the existence of sunk market-entry costs, an exchange rate overvaluation leads to (additional) entry by foreign firms which then do not exit after the exchange rate shock has passed. In similar fashion, search-cost models of trade view the connection between buyers and sellers as a costly search process that, because of its costliness, is terminated at some ‘reservation match’. As Rauch (2001, p. 1179) notes, networks help to reduce such search costs because network members have thorough knowledge of each others’ characteristics and, more importantly, “their members are engaged in repeated exchange that helps sustain cooperation/collusion”. To further illustrate this point, Rauch (2001, p. 1179) quotes Egan and Mody (1992) who state that “Most U.S. buyers interviewed for this study preferred long-term, stable and direct relationships with both developed and developing country suppliers”.

Empirical studies on trade dynamics have mainly focused on changes in the pattern and composition of international trade. Feenstra and Rose (2000), for instance, examine the ordering when countries begin to export a particular product to the United States. Redding (2002) documents the evolution in the pattern of specialization across OECD countries. While these studies often emphasize the mobility in trade patterns, the duration of trade has previously only been analyzed by Besedeš and Prusa (2006a, 2006b). There is also a recent related literature that studies the duration of prices. Gopinath and Rigobon (2006), for instance, examine the stickiness of U.S. import prices.

3. Data

Any estimate of the duration of trade is highly sensitive to the analyzed level of product classification. Not surprisingly, periods of continued trade tend to be shorter for more highly disaggregated products since, at a very detailed level of product description, even a minor change of product specifications may lead to a reclassification of an (otherwise identical) product. Also, (regular) modifications of product codes may affect the results for individual products more strongly than for broad product groups or industries.

In this paper, I make use of a new and previously unexplored data set of product-level trade for Germany. Trade values and quantities are reported at the 8-digit Combined Nomenclature (CN) level, which is the most detailed product classification in European Union trade statistics. The data are provided by Eurostat and are available online at <http://ec.europa.eu/eurostat>. According to the European Commission, the CN is comprised of

the (widely used and often better known) Harmonized System (HS) nomenclature, which is run by the World Customs Organization, with further Community subdivisions. With about 13,000 product codes, however, the CN-8 classification covers a smaller number of products than the 10-digit HS scheme which is used to classify U.S. trade. To illustrate the level of product detail, Table 1 lists the five product codes with the smallest and largest import values for Germany in 2004. As shown, there is enormous variation in the importance of individual products. The smallest import value that is recorded is 500 euro, which is actually below the smallest statistical threshold level for reporting trade (to reduce the burden from statistical formalities on businesses).¹ The product categories with the largest import values are, as expected, natural resources, passenger cars, and airplanes.

The trade data are available for the eleven-year period from 1995 to 2005. For each year, I observe, at the product level, the value of German imports from a given country. That is, import values are recorded for all possible combinations of products, countries and years, making a total of more than 30 million observations (many of them zero).

Based on this data, I compute some additional statistics that help to characterize a pair-wise trade relationship. For instance, as noted before, it is possible to observe the total size of the German import market. Also, the number of countries from which Germany has imported a product in a given year as well as the degree of geographic concentration in the German import market are identified. Summing the number of products (with positive imports) by country gives an indication of product diversity in a country-pair relationship. Similarly, a Herfindahl index of product specialization is computed. Table 2 describes, based on these statistics, the German import market in 2004 (aggregate figures for other years are identical).

In addition, it is possible to derive, similar to Besedeš and Prusa (2006a), the length of time that a country has continuously shipped a product to Germany. Episodes of servicing the German market are commonly referred to as ‘spells’ (that is, the maximum length of a spell in my sample is 11 years); an event when a country stops exporting to Germany is labeled as ‘failure’ (at the extreme, a country exports a product to Germany every other year so that there are, for a given product-country pair, a maximum number of six spells and five failures in my sample).

¹ Eurostat notes a transaction threshold of 1,000 EUR or 1,000 kg in extra-EU trade statistics; see http://europa.eu.int/estatref/info/sdds/en/text/ext_sm.htm. The OECD reports thresholds for intra-EU trade ranging from 30,000 EUR to as much as over 600,000 EUR while the recommended threshold for extra-EU trade is 800 EUR; see <http://www.oecd.org/dataoecd/55/11/2539563.pdf>.

Calculating duration then appears to be straightforward: it is simply the time (measured in years) that a trade relationship has been in existence (without interruption). Alternatively, duration can be modeled as a sequence of conditional probabilities that a trade relationship continues after t periods given that it has already survived for t periods.² Specifically, let T be a random variable that denotes the length of a spell. Then, in discrete time, the survivor function is defined as

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

In similar fashion, the hazard function is the probability that the trade relationship dies after t periods given that it has survived up to that point; that is,

$$\lambda(t)=\Pr(T=t|T\geq t).$$

In practice, the survivor and hazard functions are estimated (in a non-parametric way) by computing the number of spells that survive (end) as a fraction of the total number of spells that are at risk after t periods. More specifically, the Kaplan-Meier estimator of the hazard function is the fraction of spells that fail after t periods of all spells that have survived t periods. If the fraction of failures gets smaller for longer periods of time, trade relationships become more likely to be continued the longer they have been in existence, and the hazard function is downward sloping. Correspondingly, the estimator of the survivor function is the share of spells that survives at time t , but this time cumulative about all preceding time intervals. That is, if all spells survive and the ratio is one, the survivor function is flat at this interval; otherwise the function is stepwise declining.³

An important issue for the analysis of duration data is censoring. Spells may begin before or end after the period under observation so that the observed spell length is shorter than the true length of the spell. For illustration, consider a trade relationship that is dissolved in 1995, the first year in my sample. Such a trade relationship is effectively observed as a (short) one-year spell, although it might have been in existence for decades. Another type of censoring is introduced by the frequent revision of product descriptions. In each year, some product definitions are modified, often accompanied by the introduction of new product codes and the deletion of other product codes, so that a product may be reclassified from one code to another. As a result, for a reclassified product, the observed duration of a trade relationship is shorter than the true length of the partnership. Although Eurostat allows, in principle, to track changes in product codes, it is not possible to identify, based on this data, a continuous,

² Kiefer (1988) provides a more detailed description of duration analysis.

³ Formally, $\hat{\lambda}(t) = d_t / N_t$ and $\hat{S}(t) = \prod_{t(i) \leq t} (n_i - d_i) / n_i$, where d_t denotes the number of spells that die after t periods and N_t is the total number of spells that have survived up to that point.

uninterrupted trade relationship.⁴ Therefore, using a conservative approach to correct for reclassifications, spells that begin when a new product code is created or that end when an existing product code is deleted are classified as being censored.

Changes in product classification affect about 10 percent of the sample. As shown in the upper panel of Figure 1, about 500 new products are added to the statistics each year, while about the same number of product codes becomes obsolete, with large differences across years. Overall, the number of deleted product codes marginally exceeds the number of newly created codes so that the total number of product codes at the 8-digit CN level slightly decreases over time from about 10,500 in 1995 to about 10,000 codes at the end of the sample period.

Table 3 describes the duration of German import trade in more detail. Uncorrected for censoring, the average trade relationship lasts about 3 years; the median duration of the more than 660,000 spells (with positive trade) in the sample is 2 years. That is, the vast majority of the trade relationships in German import trade are very short-lived, confirming similar findings for the United States by Besedeš and Prusa (2006a). About one-third of the spells in the sample exist until the end of the reporting period (either because the product code is deleted or the sample period ends) so that the true length of the trade relationship is unknown. If these spells are ignored, the average trade duration of German imports is less than 2 years, with a median duration of just 1 year. Other sub-samples show basically identical results. For instance, I have additionally dropped all left-truncated spells for which the start date is effectively unknown (modified censoring). Also, to deal with possible measurement errors in the statistics (where a trade relationship may be interrupted or end due to misreporting), I have considered, for each country-product pair, only the first reported spell in my sample (first spell), and I have also examined separately country-product pairs without multiple spells (one spell only). In all these cases, more than one-half of the examined spells last only 1 year. Figure 2 provides a histogram for the observed duration of German imports. The figure illustrates the rapidly decreasing frequency of trade spells for longer periods so that most German import trade is highly dynamic. Still, a sizable share of about 10 percent of the spells survives the full sample period of 11 years and thus is remarkably long-lived.⁵

For the empirical analysis, I complement the import values data with two other sorts of data. First, I obtain some additional trade information from Eurostat. For instance, Eurostat

⁴ For a description of changes in product codes, see Eurostat's [Update of CN codes](#).

⁵ It should be noted that these (left- and right-truncated) spells are taken into account in the computation of survival and hazard functions. To correct for censoring means that they are not counted as failures.

also reports, at the product-country level, import quantities (which allows computing unit values) and the value of German exports (allowing to identify the extent of two-way trade in a similar product, i.e., ‘intra-product’ trade).

Second, I match this product-level trade data set with other recent classifications of products in the trade literature. Rauch (1999), for instances, groups products into three categories: homogeneous products that are traded at organized exchanges, products that have a reference price, and differentiated products, and shows that patterns of international trade differ across product groups. Broda and Weinstein (2006) provide product-level estimates of elasticities of substitution between varieties of foreign imports. Finally, Nunn (2007) identifies the degree to which the production of goods requires advanced intermediate inputs. Since the production of customized inputs may require more relationship-specific investment, Nunn (2007) argues that trade patterns are affected by a country’s institutional (that is, contract enforcement) environment. In the following, I examine whether these product features help explain the observed differences in the duration of trade.

4. Methodology and Empirical Results

A first attempt to explain the large amount of heterogeneity in the stability of German import patterns focuses on the plain duration of trade spells. More specifically, I observe for each spell in my sample the length of the trade relationship (in years). This variable is regressed on a set of country and product specific characteristics. That is, I run regressions of the form:

$$\text{Length}_i = \alpha + \beta X^c + \gamma Z^p + \varepsilon_i$$

where Length_i is the duration of spell i , X^c is a set of country-specific covariates, Z^p is a set of product-specific covariates, and ε is a well-behaved residual. For each specification, I report three sets of estimates. In a first regression, I use conventional OLS. A second regression includes, besides the variables of interest, a set of either country-specific or product-specific fixed effects. Finally, since the number of years that a trade relationship has been in existence is a limited dependent variable, I report coefficient estimates derived from an ordered probit model. At a later stage, I will also examine hazard rates, using a Cox proportional hazard model.

I begin with a discussion of possible country-specific determinants of trade duration. In choosing variables that might affect the duration of trade, it seems reasonable to include, as a starting point, the standard determinants of the volume of trade as typically used in the

gravity model. In addition, I have compiled a variable that captures the number of products Germany has imported from a particular country.

Table 4 presents the results. As shown, the standard gravity variables do not only affect the magnitude of trade but also trade duration. For instance, larger economic size, common language and a common border are positively associated with the length of a trade relationship; trade with more distant partners is often more short-lived. These findings are robust to the inclusion of product-specific fixed effects. Moreover, product diversity appears to matter: there is a strong and significant positive association between the duration of trade and the number of imported products. Interestingly, membership in the European Union (EU-15) has only a moderate positive effect on trade duration; EMU membership (EMU-12) is uncorrelated with trade duration.

Table 5 explores the effect of various product-specific and relation-specific characteristics. These variables include the (log) import value, the (log) unit value, and the elasticity of substitution. Confirming intuition, the positive coefficient on the import value indicates that major trade links often remain in existence for longer periods of time. Also, products with a low elasticity of substitution are imported from a particular partner for several years. Estimation results for the unit value of a product, in contrast, are less convincing. In the remaining three columns, I add two other variables that capture product features but are only available for a much smaller sample. Trade in differentiated products, as defined by Rauch's classification, turns out to be relatively durable, while products with higher contract intensity are imported, somewhat surprisingly, for only short periods of time.

Table 6 presents estimates for a set of variables that aim to describe the structure of the import market. For instance, a large market share, measured as the fraction of bilateral trade in total imports for a given product, is strongly and consistently associated with longer trade spells. Similarly, a large initial transaction size benefits trade duration. Also, two-way trade as identified by the value of German exports of a particular product to a country lengthens trade. Concerning the effects of changes in market structure (thereby effectively dropping all one-year spells from the sample), only the coefficient on the change in the number of exporters turns out to be significant; a fall in the number of supplier countries tends to increase trade duration.

5. Conclusion

International trade patterns at the product level are surprisingly dynamic. The majority of trade relationships exist for just a few, often only two to four, years. In this paper, I

examine empirically the duration in German import trade at the 8-digit product level from 1995 to 2005. I find that survival probabilities are affected by product type, exporter characteristics and market structure. Specifically, I show that the duration of exporting a product to Germany is longer for differentiated products, for products with a low elasticity of substitution, for products obtained from a large exporter that is geographically close to the German market, and for products in markets with increasing import demand.

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Table 1: German imports at the product level by import value, 2004

Product code	Product description	Import value, €
27090090	PETROLEUM OILS AND OILS OBTAINED FROM BITUMINOUS MINERALS, CRUDE (EXCL. NATURAL GAS CONDENSATES)	24,991,366,847
27112100	NATURAL GAS, GASEOUS	13,134,110,032
87032319	MOTOR CARS/STATION WAGONS/RACING CARS FOR TRANSPORT OF PERSONS, OTTO CYCLE, CYLINDER CAPACITY > 1.500-3.000 CC, NEW (EXCL. CARAVANS/FOR >= 10 PERSONS)	9,599,081,747
88024010	AEROPLANES AND OTHER POWERED AIRCRAFT OF AN OF AN UNLADEN WEIGHT > 15.000 KG, FOR CIVIL USE (EXCL. HELICOPTERS AND DIRIGIBLES)	8,822,268,329
87033219	MOTOR CARS/STATION WAGONS/RACING CARS FOR TRANSPORT OF PERSONS, DIESEL/SEMI-DIESEL, CAPACITY > 1.500-2.500 CC, NEW (EXCL. CARAVANS/FOR >= 10 PERSONS)	8,352,035,423
	Mean	58,979,216
	Median	7,518,391
43018030	RAW FURSKINS OF MARMOTS, WHOLE, WITH OR WITHOUT HEADS, TAILS OR PAWS	511
29251930	N,N'-ETHYLENEBIS"4,5-DIBROMOHEXAHYDRO-3,6-METHANOPHTHALIMIDE"	509
29242400	ETHINAMATE (INN)	508
02109959	EDIBLE OFFAL OF BOVINE ANIMALS, SALTED, IN BRINE, DRIED OR SMOKED (EXCL. THICK SKIRT AND THIN SKIRT)	503
01019030	LIVE ASSES	500

Notes: Total number of products with positive imports is 9,756.

Table 2: Description of German imports, 2004

Number of countries from which a product is imported

Product code	Product description	Number of countries
84733010	ELECTRONIC ASSEMBLIES OF AUTOMATIC DATA-PROCESSING MACHINES OR FOR OTHER MACHINES OF 8471, NES.	115
61091000	T-SHIRTS, SINGLETS, TANK TOPS AND SIMILAR GARMENTS OF COTTON, KNITTED OR CROCHETED	112
97040000	POSTAGE OR REVENUE STAMPS, STAMP-POSTMARKS, FIRST-DAY COVERS, POSTAL STATIONARY (STAMPED) ETC., USED, OR IF UNUSED NOT OF CURRENT OR NEW ISSUE	108
49019900	PRINTED BOOKS, BROCHURES, LEAFLETS AND SIMILAR PRINTED MATTER, NES.	107
85179082	ELECTRONIC ASSEMBLIES FOR ELECTRICAL APPARATUS FOR LINE TELEPHONY/TELEGRAPHY AND VIDEOPHONES (EXCL. TELEPH./TELEGRAPHIC CARRIER-CURRENT LINE SYSTEMS)	105
	Mean	21.19
	Median	17
	308 products	1

Number of products imported from a country

Exporter	Number of products
Netherlands	8,008
France	7,830
Italy	7,364
Switzerland	7,013
Belgium	6,911
Mean	875.96
Median	88
4 countries	1

Supplier concentration in the German import market (excl. products imported from less than 4 countries)

Product code	Product description	Number of countries
29215910	M-PHENYLENEBIS" METHYLAMINE"	1.000
75012000	NICKEL OXIDE SINTERS AND OTHER INTERMEDIATE PRODUCTS OF NICKEL METALLURGY	0.998
22042126	QUALITY WHITE WINES PRODUCED IN TOSCANA [TUSCANY], CONTAINERS <= 2 L, ACTUAL ALCOHOLIC STRENGTH <= 13% VOL (EXCL. SPARKLING/SEMI-SPARKLING WINE)	0.997
22042128	QUALITY WHITE WINES PRODUCED IN VENETO, CONTAINERS <= 2 L, ACTUAL ALCOHOLIC STRENGTH <= 13% VOL (EXCL. SPARKLING/SEMI-SPARKLING WINE)	0.996
22042167	QUALITY WINES PRODUCED TRENTINO/ALTO ADIGE, CONTAINERS <= 2 L, ALCOHOLIC STRENGTH <= 13% VOL (EXCL. SPARKLING/SEMI-SPARKLING WINE/GENERAL WHITE WINE)	0.996
	Mean	0.369
	Median	0.295
61044300	WOMEN'S OR GIRLS' DRESSES OF SYNTHETIC FIBERS, KNITTED OR CROCHETED	0.057
62052000	MEN'S OR BOYS' SHIRTS OF COTTON, NOT KNITTED OR CROCHETED	0.056
62046318	WOMEN'S/GIRLS' TROUSERS AND BREECHES, OF SYNTHETIC FIBRES, NOT KNITTED/CROCHETED (EXCL. NOT OF CUT CORDUROY, DENIM, INDUSTRIAL/OCCUPATIONAL CLOTHING	0.053
71129200	WASTE AND SCRAP OF PLATINUM, INCL. METAL CLAD WITH PLATINUM BUT EXCL. SWEEPINGS CONTAINING OTHER PRECIOUS METALS	0.053
12119097	PLANTS AND PARTS FOR PERFUMERY, PHARMACY OR INSECTICIDAL OR SIM. PURPOSES, FRESH OR DRIED (EXCL. LIQUORICE, GINSENG, COCA LEAF, POPPY STRAW, TONQUIN)	0.049

Product specialization by exporter (excl. countries from which Germany imported less than 4 products)

Exporter	Number of products
Antigua & Barbuda	0.995
Bermuda	0.993
Kiribati	0.990
Marshall Islands	0.985
Liberia	0.983
Mean	0.339
Median	0.228
India	0.007
Czech Republic	0.006
Netherlands	0.006
Italy	0.006
Switzerland	0.003

Table 3: Description of German imports, 1995-2004

	Number of spells	Number of observat's	Number of product-country pairs	Spells per pair		Observations per spell (observed spell length in years)		Estimated KM survival rate	
				Mean	Median	Mean	Median	1 year	4 years
Full sample	661,447	2,199,552	465,922	1.42	1	3.33	2	–	–
Benchmark	402,038	754,428	280,921	1.42	1	1.88	1	0.56	0.34
Modified censoring	303,276	480,561	226,710	1.50	1	1.58	1	0.43	0.16
First spell	280,921	555,569	280,921	1	1	1.98	1	0.58	0.38
One spell only	139,096	259,743	139,096	1	1	1.87	1	0.65	0.54

Note: Data refer to non-zero trade.

Table 4: Duration and country characteristics

Log GDP	0.385# (0.174)	0.550* (0.188)	0.089* (0.038)
Log per capita income	-0.100# (0.049)	-0.121* (0.046)	-0.031** (0.012)
Log distance	-0.352* (0.143)	-0.526** (0.166)	-0.081* (0.032)
Common border	0.642** (0.138)	0.836** (0.099)	0.150** (0.019)
German language dummy	0.369* (0.162)	0.499** (0.159)	0.085* (0.037)
EU-15 dummy	0.075 (0.049)	0.138** (0.043)	0.013 (0.013)
EMU-12 dummy	0.016 (0.045)	-0.029 (0.038)	0.010 (0.012)
Log number of products	0.215# (0.106)	0.486* (0.155)	0.192** (0.025)
Product-specific fixed effects	No	Yes	No
Estimation	OLS	OLS	Probit
Number observations	622,875	622,875	622,875
Adj. R²	0.11	0.30	
Pseudo R²			0.04

Notes: Dependent variable is observed spell length. Standard errors robust to clustering by year recorded in parentheses. **, *, and # denote significant at the 1, 5, and 10 percent level, respectively.

Table 5: Duration and product characteristics

Log import value	0.835** (0.121)	0.725** (0.089)	0.276** (0.016)	0.785** (0.122)	0.670** (0.084)	0.262** (0.018)
Log unit value	0.105 (0.066)	0.116# (0.055)	0.038** (0.014)	-0.030 (0.031)	-0.051 (0.042)	-0.001 (0.014)
Elasticity of substitution	-0.029** (0.006)	-0.030** (0.005)	-0.010** (0.001)	-0.024** (0.002)	-0.026** (0.002)	-0.010** (0.001)
Differentiated product dummy				0.652* (0.226)	0.837** (0.219)	0.201** (0.056)
Contract intensity				-1.333* (0.496)	-0.831* (0.356)	-0.431** (0.129)
Country-specific fixed effects	No	Yes	No	No	Yes	No
Estimation	OLS	OLS	Probit	OLS	OLS	Probit
Number observations	349,068	349,068	349,068	54,200	54,200	54,200
Adj. R²	0.31	0.37		0.31	0.37	
Pseudo R²			0.09			0.09

Notes: Dependent variable is observed spell length. Standard errors robust to clustering by year recorded in parentheses. **, *, and # denote significant at the 1, 5, and 10 percent level, respectively.

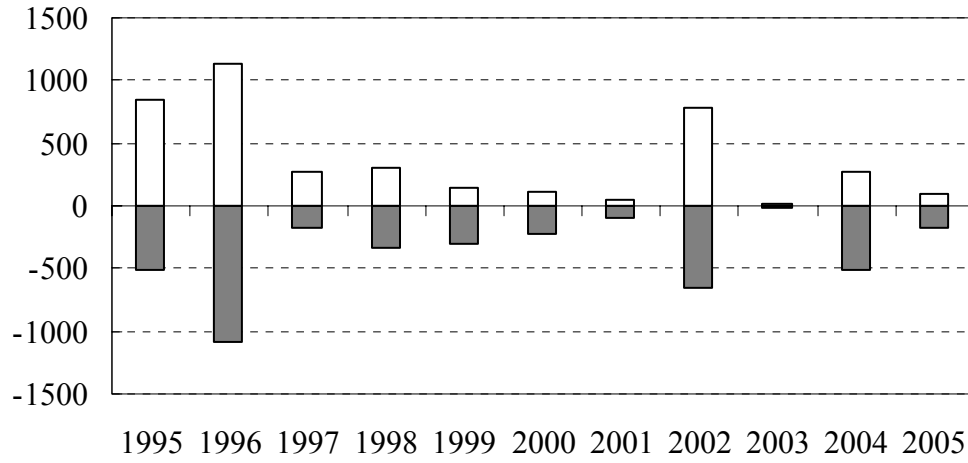
Table 6: Duration and market characteristics

Log initial import value	0.566** (0.114)	0.532** (0.056)	0.185 (0.020)	0.485** (0.042)	0.446** (0.012)	0.157** (0.011)
Change in import value				-0.091 (0.089)	-0.132 (0.108)	-0.346# (0.186)
Change in total imports				0.173** (0.039)	-0.005 (0.019)	-0.018 (0.013)
Supplier share of product imports	3.472** (0.601)	2.532** (0.318)	1.014** (0.220)	2.940** (0.432)	2.257** (0.513)	1.032** (0.082)
Change in supplier share				-0.405 (0.434)	-0.098 (0.309)	0.118 (0.152)
Log number of exporters	0.675** (0.171)	0.211 (0.738)	0.215** (0.039)	0.630** (0.114)	0.392 (1.296)	0.214** (0.039)
Change in num'r of exporters				-1.945** (0.335)	-1.629# (0.771)	-0.644** (0.094)
Log export value	0.178** (0.046)	0.148** (0.014)	0.062** (0.008)	0.160** (0.019)	0.130** (0.026)	0.051** (0.004)
Change in export value				-0.452 (0.250)	-0.139 (0.111)	-0.116 (0.075)
Product-specific fixed effects	No	Yes	No	No	Yes	No
Country-specific fixed effects	No	Yes	No	No	Yes	No
Estimation				OLS	OLS	Probit
Number observations	467,645	467,645	467,645	245,398	245,398	245,398
Adj. R²	0.27	0.51		0.23	0.52	
Pseudo R²						0.06

Notes: Dependent variable is observed spell length. Standard errors robust to clustering by year recorded in parentheses. **, *, and # denote significant at the 1, 5, and 10 percent level, respectively.

Figure 1: Product codes at the CN-8 level

Entries and exits



Total number of codes

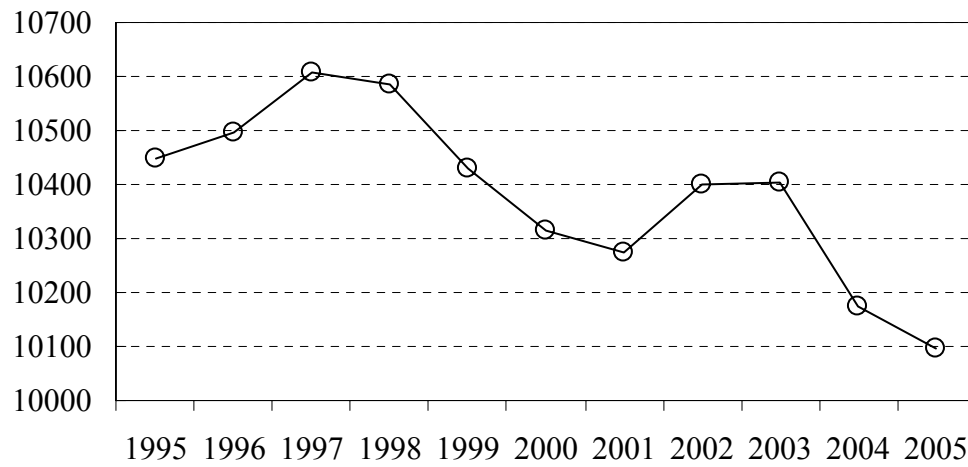
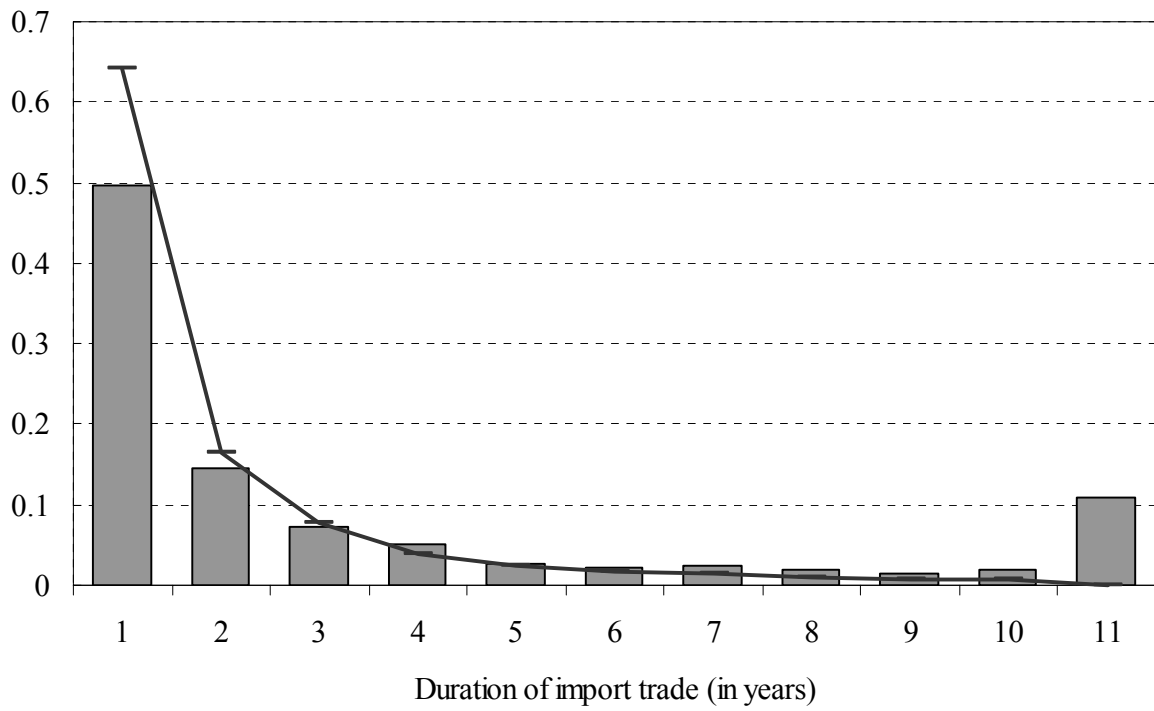


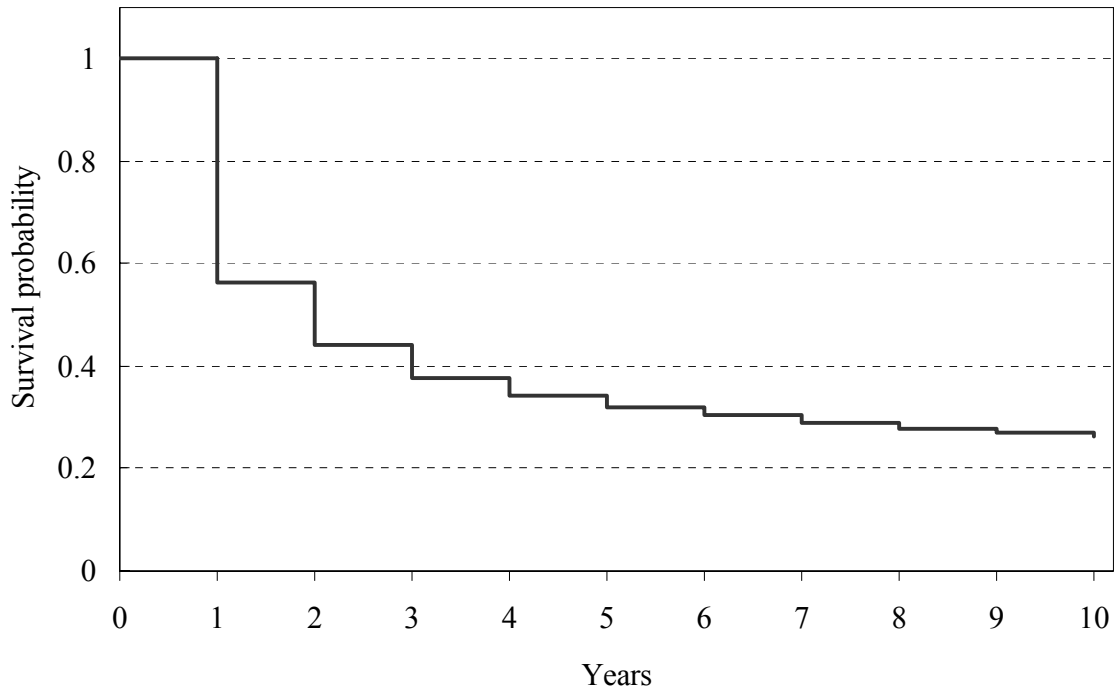
Figure 2: Trade duration



Notes: Columns (line) show the distribution of durations for the full (benchmark) sample.

Figure 3: Survival and hazard functions

Kaplan-Meier survival function



Hazard function

