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## Public Export Guarantees and Foreign Trade Structure

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 **WORKING PAPERS**

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and Foreign Trade Structure**

**Peter Egger, Thomas Url**

**215/2004**

# **Public Export Guarantees and Foreign Trade Structure**

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# PUBLIC EXPORT GUARANTEES AND FOREIGN TRADE STRUCTURE

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**Abstract:** Inter-industry trade and foreign trade are usually not based on cash transactions; rather sales on credit are the rule. The resulting monitoring costs for lenders and the risk of default on accounts receivable form an additional part of transaction costs in trade. Export credit certainly faces higher transaction costs due to differences in language, business practice, jurisdiction, and payment enforceability between trading partners. Export credit insurance has long been a domain of public export credit agencies, but since the beginning of the 1980's private insurance is gaining ground. Using disaggregated panel data for goods exports from Austria, we show that public export guarantees have a more than proportional positive impact on trade volumes. Export guarantees predominantly affect the country structure of foreign trade, but leave the industry specialization almost constant.

**Keywords:** trade credit, export credit insurance, foreign trade structure, panel regression.

**JEL-classification:** F13, H8, C23.

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## Introduction

Transaction costs form an interesting deviation from frictionless models of international trade. Primarily, transaction costs cause a lower volume of international trade and a more diversified production structure of economies, because they compensate comparative disadvantages. If transaction costs vary with the distance between trading partners, we expect also a trade diversion towards the nearest neighbors.

Usually, transaction costs are associated with costs of pure transport services like haulage and storage. Several types of financial transaction costs arise in domestic as well as international trade: financing trade credits, trade credit insurance, hedging exchange rate risks, and costs of transportation insurance represent a few important examples.

Together with foreign exchange dealings, international trade credit provides the root of the financial service business (*Kindleberger, 1993*), but sales on credit are also a common feature in modern domestic inter-firm trade. *Elliehausen - Wolken (1993)* show that 87 percent of US-firms participating in the National Survey of Small Business Finances offer trade credit, and that 91 to 100 percent of these firms' sales are on credit. With 10 percent of total assets in 2002, accounts receivable also represent an important item on the balance sheet of non-farm, non-financial corporate business (*Board of Governors, 2003*).

One motivation for trade credit is lower transaction costs relative to the immediate payment of bills, resulting from the possible reduction in costly money holdings by both firms (*Ferris, 1981*). Other incentives are a widening of goods characteristics that allow for more subtle price discrimination, or a financing advantage over regular financial intermediaries (*Petersen - Rajan, 1997*).

The terms of trade credits are fairly uniform across countries. In domestic trade, firms offer a cash discount to provide an incentive for early payment. For example, if the customer pays within 10 days, an amount of 2 percent can be deducted from the invoice total, while payment of the full amount is due in 30 days. The common duration of credit in inter-firm trade is between 60 to 80 days. In international trade, however, payment within three months already signals a customer with high creditworthiness. For machinery and equipment exports, credit lines are extended up to two or even five years.

The provision of trade credit only lowers transaction costs if the costs from monitoring and the losses from non-payment of sales on credit are small relative to the gain from reduced money holding. The policy to avoid losses from non-payment of accounts receivable varies across firms and countries. Lenders either tolerate late payments, or they impose monetary penalties, they may buy services of an external debt collecting firm, or require advance payments for future contracts. Preemptive credit risk management comprises permanent monitoring of borrowers including their credit ratings. Alternatively, factoring, letters of credit, or buying trade credit insurance can be used.

Trade credit insurance is very popular in Europe. It offers a means to limit in advance the potential losses from export sales on credit to the amount of the ex ante fixed insured sum. For reasons of asymmetric information the deductible for private trade credit insurance lies between 20 to 30 percent.

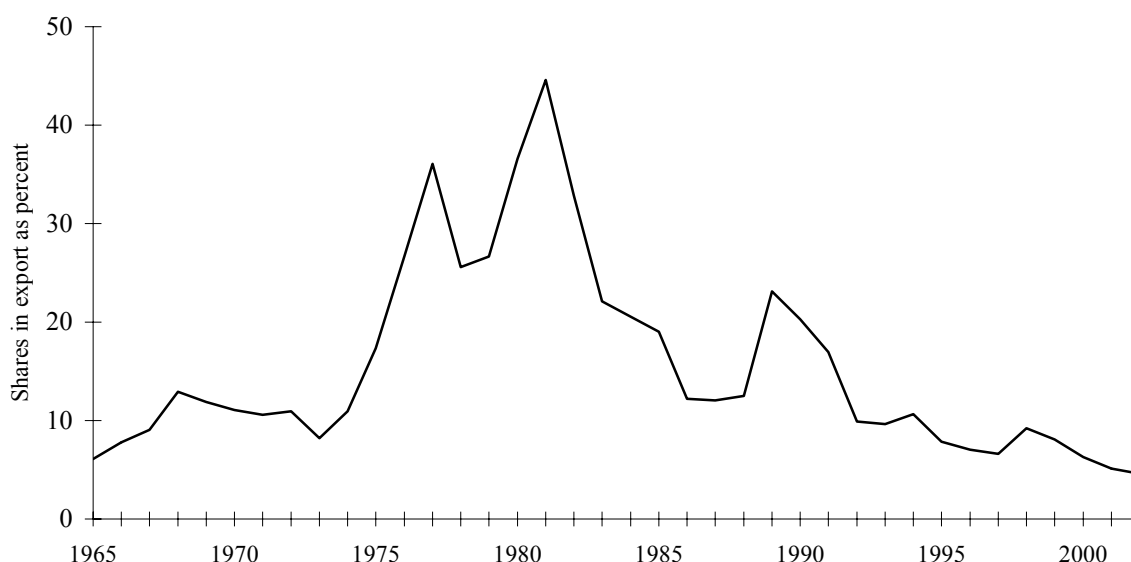
The world-wide amount of premiums written by private insurance companies for trade credit insurance is estimated at USD 4.2 bn, of which 84 percent are generated in Europe (*Swiss Re*, 2000).

Trade across national borders amplifies the costs to supply trade credit, because usually language and jurisdiction differ, and thus monitoring costs increase while the chances to successfully enforce payment are lower. Up to the beginning of the 1980's cross border trade credit insurance has been a domain of public export credit agencies (ECA's) because private insurance companies were unwilling to underwrite this risk. Progressive integration towards the European Single Market reduced the risk from cross border sales on credit in Europe and brought about an increase in private insurance capacity. In 2000 the amount of premiums received from export credit insurance by private insurance companies surpassed the total received by ECA's (USD 3.98 bn).

The falling market share of ECA's in export credit insurance since the beginning of the 1980's is not only a consequence of lower risk, it also follows from a rising share of intra-firm trade across borders. Additionally, the rise in claims payments during the debt crisis after 1982 exposed the risk of using public export guarantees as an instrument to promote and subsidize exports. Consequently, ECA's charged more risk-related, and thus higher premiums, after the debt crisis emerged.

Figure 1 shows the ratio of newly covered business over goods exports in the case of Austria. Starting with the first oil crisis and peaking in 1981, public export guarantees had been used to promote exports especially to Eastern European countries. The more prudent underwriting policy of the Austrian ECA was supported by intergovernmental coordination, which created a gentleman's agreement (OECD-Consensus) to limit and standardize the terms set out and their application across countries (*Ruberti*, 1992).

**Figure 1: Export guarantees (newly covered business) as a share of goods exports Austria, 1965 - 2002**



Source: OeKB.

By offering public export credit guarantees for non-marketable risks, the government has an instrument at hand to correct a market failure, which would otherwise reduce the trade volume with non-OECD members as well as the sale of large equipment usually associated with trade credit of long duration. Thereby, it may also provide the necessary market access for industries with significant scale effects.

We are interested in whether public export guarantees indeed create a significant amount of additional exports, and whether they change the country structure and/or the goods structure of foreign trade. We do this by estimating a gravity model which accounts for the impact of export guarantees on bilateral NACE 2-digit exports of Austria, and augment this model with the amount of public export guarantees provided by the Oesterreichische Kontrollbank (OeKB), the Austrian ECA. The case of Austria is of general interest because, as a small open economy with a well developed export guarantee system, it represents a typical small OECD member country with a market size too small to support industries with scale economies.

Usually lags occur between the provision of insurance and the actual shipment. Such lags create discrepancies between the book-keeping of OeKB and the foreign trade records, and we have to use a procedure proposed by *Mundlak* (1978) in order to distinguish between short-term and long-term effects of public export guarantees. The parameters of the gravity model allow for a simulation of the impact of export guarantees on the structure of Austrian exports in terms of both industries and partner countries.

The paper is organized as follows. The next section provides an overview of international restrictions on public export guarantee systems implemented by the OECD, and we will show the extent to which OECD members use public export guarantee schemes in order to promote goods exports. Section 3 provides an estimate of the gravity model and the impact of public export guarantees on the export structure of a small open economy. Our data set comprises the years 1996 through 2002. The final section summarizes and concludes.





## Extent and Restrictions on Public Export Guarantees

Public export guarantees provide national governments with an instrument to promote exports. The creation of a pool for export credit risk, which private insurance companies would not underwrite, certainly corrects for a market failure. Thereby, public export guarantees achieve a first best solution, as long as the premium fee fully covers claims payments and costs. The World Trade Organization Agreement on Subsidies and Countervailing Measures requires that premiums should not be inadequate to cover long-term operating cost and losses. But by designing subsidized premium schemes (c.f. flat rates), national governments are able to distort trade flows. Furthermore, in the late 1980s ECA's run up substantial losses mainly due to inadequate pricing of risk.

For this reason, the Organization for Economic Cooperation and Development (OECD), the European Union, and the Berne Union (International Union of Credit and Investment Insurers) took efforts in coordinating and harmonizing public export guarantee schemes. The aim of their activities is to create a level playing field among firms from OECD member countries. On top of that, the European Union tries to lessen distortions of competition by defining the range of marketable risks and restricting public export guarantees to non-marketable risks (EU Council Directive 98/29/EC).

The main restrictions for public export guarantees apply to the location of the trading partner and to the duration of the export credit. Since 1998, short-term public export credit guarantees to borrowers from OECD members, with the exception of the new member countries (Czech and Slovak Republics, Hungary, Mexico, Poland, South Korea) have been limited to commercial conditions, thus ruling out public subsidies to these businesses. Export credit with a duration of less than two years is classified as short-term. Export credit guarantees with duration of more than two years can still be underwritten by ECA's as they are regarded as non-marketable risk. The Knaepen-package of the OECD Arrangement on Guidelines for Officially Supported Export Credits establishes guiding principles for minimum risk-based premium fees for country and sovereign risks, which are effective from the beginning of 1999 onwards. Many countries adopted risk-based premium fees already before 1999 (*Knaepen*, 1998).

Export credit risk can be decomposed into two subcategories. Commercial risks include default in payment as well as insolvency of the contracting partner or of the bank that assumed a guarantee. Political risks refer to potential adverse political developments or events in the importing country, such as uprisings, revolution, war and warlike events, restrictions on currency conversion and transfer, as well as non-payment by public buyers.

Table 1 gives an impression of the volume of newly covered business from several ECA's and relates the amount to the volume of goods exports. The share of exports covered by guarantees still varies substantially across countries: between 1 and 33 percent. This variation is not due to additional risk from a higher exposure to trade with non-OECD members<sup>1)</sup>. As Figure 2 shows, there is no obvious relation between a high share of extra-OECD exports and the share of newly covered business in

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<sup>1)</sup> New members of the OECD are counted as non-OECD member, because the EU-Council Directive 98/29/EC defines risk associated with borrowers from the Czech Republic, Hungary, Mexico, Poland, Slovak Republic, and South Korea as non-marketable. Because some members of the Berne Union offer private and public export credit insurance, the numbers in Table 1 may comprise both activities, and thus exaggerate the extent of public intervention.

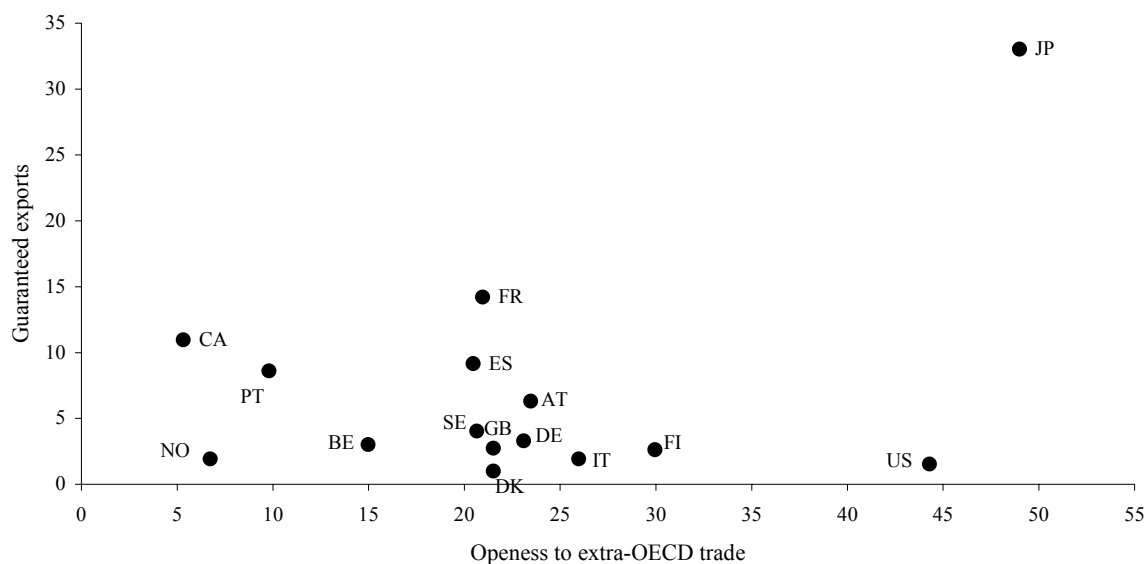
exports. The notable exception is Japan, with 49 percent of exports going to the extra-OECD area, while the share of covered exports amounts to 33 percent.

**Table 1: International comparison of public export guarantees, 2000**

	New business covered	Total commitment at year end	New business covered	Total commitment at year end
	USD bn		Shares in export as percent	
Austria	4.05	30.03	6.3	46.8
Belgium	5.57	8.46	3.0	4.6
Canada	30.38	13.21	11.0	4.8
Denmark	0.49	1.10	1.0	2.2
Finland	1.19	3.62	2.6	8.0
France	42.96	90.74	14.2	30.0
Germany	18.03	86.05	3.3	15.7
Great Britain	7.55	10.91	2.7	3.9
Italy	4.63	15.08	1.9	6.3
Japan	158.30	65.05	33.0	13.6
Norway	1.15	0.11	1.9	0.2
Portugal	2.09	1.29	8.6	5.3
Spain	10.37	9.69	9.1	8.5
Sweden	3.12	10.36	4.0	13.4
USA	10.85	47.36	1.5	6.6

Source: Berne Union, UNO.

**Figure 2: Public export guarantees and openness to extra-OECD trade**



Note: Openness to extra-OECD trade is measured by the ratio of exports going to non-OECD members to total exports. Exports to new OECD members are regarded as extra-OECD trade. Public export guarantees are measured as newly covered business by ECA in 2000 over goods exports of 2000.

Table 1 also presents total commitment at year end. The high turnover rate of short-term export credit guarantees brings about that newly covered business can be a multiple of the total commitment at year end. Norway, Japan, Canada, and Portugal are countries with a comparatively high volume of short-term guarantees. High ratios of total commitments relative to export volumes result either from a longer duration of export credits or from different institutional settings in the book keeping debt conversions.



## Theoretical Background and Specification

From a standard New Trade Theory model with transaction costs, the theoretical hypothesis about the impact of export credit insurance is evident. Suppose that (iceberg) transaction costs in a broad sense ( $t$ ) are not only a function of transport costs in a narrow sense ( $\tau^+$ ), but also of importer country risk ( $r^+$ ) and, consequently, risk reducing measures such as export guarantees ( $G^-$ ). Since transaction costs are known to negatively impact on exports (compare *Bergstrand*, 1989), we should expect a positive effect of export guarantees on export volumes.

According to the theoretical background, we can set up the following gravity model, which accounts for the impact of export guarantees on bilateral NACE 2-digit industry exports:

$$X_{ijt} = \beta_0 + \beta_1 G_{ijt} + \beta_2 Y_{jt} + \beta_3 (I/Y)_{jt} + \beta_4 (IT/T)_{jt} + \lambda_t + \pi_1 G_{ij.} + \pi_2 Y_{j.} + \pi_3 (I/Y)_{j.} + \pi_4 (IT/T)_{j.} + \pi_5 G_{ij,1993}^{stock} + \pi_6 D_{j.} + \pi_7 \lambda_{.} + u_{ijt}. \quad (1)$$

where  $X_{ijt}$  denotes the Austrian export in NACE 2-digit industry  $i$  to country  $j$  in year  $t$ ,  $G$  is the public export guarantee by the OeKB (newly covered business),  $Y$  is the partner country's GDP,  $(I/Y)$  its gross fixed capital formation to GDP ratio,  $(IT/T)$  the partner country's share of industry imports in overall imports - a reduced form measure of the importer countries' relative factor endowments. The latter are not observed for the large required range of countries, but a larger share of industry imports should be positively associated with both a country's physical capital to labor ratio and its human capital to labor ratio.  $D$  is the Austrian outer circle distance to each trading partner, and proxies transport costs in the narrow sense ( $\tau$ , see *Bergstrand*, 1989),  $\lambda_t$  denotes fixed time effects to account for unobserved time-specific influences on Austrian exports in general (such as Austrian GDP, Austrian government expenditures, the EU's structural investment expenditures in Austria, etc.). Following *Mundlak* (1978), each time-variant variable is included twice, once in its original form and once averaged over time (indicated by subscript "." instead of "t").  $u_{ijt}$  is a random error term, which consists of two parts,  $\mu_{ij}$  and  $\varepsilon_{ijt}$ , where the former indicates all additional industry×country specific effects (such as relatively time-invariant risk factors,  $r$ ) and  $\varepsilon_{ijt}$  is the classical remainder error term.

OLS on the appropriately GLS-transformed model (1) obtains both the within effects ( $\beta$ ) and the additional between (between - within) effects ( $\pi$ , compare *Mundlak*, 1978). Note the former approximate short run effects and the latter their additional long run (long run - short run) counterparts.

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<sup>2)</sup> Note that the additional between estimates of the time effects are included as well  $\pi_{\lambda}$  and their coefficients are different from zero in our application. This is always the case with unbalanced data at hand.



## Data Sources and Estimation Results

The sample period runs from 1996 through 2002, and comprises only those years for which the Austrian export guarantee system was based on up-front risk-related premium fees. Before 1991, a flat-rate system was applied, which has since been substituted by a premium proportionally related to the insurance sum. Since 1996, the premium calculation has been based on OECD guidelines, and has to be paid up-front. Out of foreign trade and export guarantee data for 142 partner countries, 35 NACE 2-digit goods categories, and 7 years, this would allow for a total of 34,790 observations. We use various sources to construct the macroeconomic variables needed for equation (1). Still, a sizeable amount of information is lost, due to missing observations for macroeconomic indicators. After eliminating missing observations, we end up with 17,570 usable data points, for which sources and summary statistics are provided in Table 2.

**Table 2: Descriptive statistics and data sources, 1996 - 2002**

Variable	Units of measurement	Source	Number of observations	Mean	Standard deviation	Minimum	Maximum
Goods exports	1,000 Euro	Statistik Austria	17,570	14,239.8	98,319.6	0.0	3,880,555.0
Public export guarantees (newly covered business)	1,000 Euro	Oesterreichische Kontrollbank	17,570	473.4	3,587.8	0.0	181,420.5
Partner country's per capita income	USD	IMF International Financial Statistics, Vienna Institute for International Comparisons Database, UN World Development Indicators	17,570	7.4	9.4	0.1	46.4
Partner country's gross fixed capital formation to GDP ratio	As percent	IMF International Financial Statistics, OECD National Accounts 1, Vienna Institute for International Comparisons Database, UN World Development Indicators	17,570	0.2	7.0	0.0	65.1
Partner countrys' share of manufacturing imports in total imports	As percent	UN World Development Indicators	17,570	72.2	10.4	37.8	91.6
Public export guarantees 1993 (total commitments at year end)	1,000 Euro	Oesterreichische Kontrollbank	17,570	1,224.0	15,422.0	0.0	626,503.6

Note: Number of countries 142, number of goods 35 (2-digit NACE classification), number of years 7. Due to missing observations for macroeconomic variables the samplesize collapses to 17,570.



**Table 3: The impact of public export guarantees on trade at the industry level (1996 - 2002)**

Dependent variable <sup>1)</sup>	Model (A)	Model (B) <sup>2)</sup>	Model (C)	Model (D) <sup>2)</sup>
	Full Sample	No outliers	AR(1)	AR(1); no outliers
	Short run effects (within estimates)			
Guarantees (newly covered business)	0.399 *** (0.072)	0.343 *** (0.020)	0.283 *** (0.065)	0.253 *** (0.021)
	Additional long run effects (between - within estimates)			
Guarantees (newly covered business)	1.802 *** (0.483)	1.967 *** (0.332)	1.967 *** (0.488)	2.202 *** (0.308)
Observations	17,570	17,412	17,570	17,412
Cross sections	4,060	4,051	4,060	4,051
R <sup>2</sup>	0.978	0.994	0.971	0.995
Time effects: $\chi^2(4)$	166.75 ***	368.50 ***	158.73 ***	317.68 ***
Estimated autocorrelation coefficient: r	-	-	0.63	0.49
Bhargava et al. (1984) modified Durbin Watson	-	-	0.76	1.05

<sup>1)</sup> Other controls not reported: (i) importer GDP, (ii) Austrian industry specific investment intensity, (iii) importer share of manufacturing goods imports in total imports, (iv) stock of bilateral guarantees in 1993, (v) distance to importer's capital, and (vi) fixed time effects. -<sup>2)</sup> Observations with errors larger than 2.5 standard errors are excluded. Standard errors in parentheses. \*\*\* significant at 1%; \*\* significant at 5%.

We estimate (1) by GLS on all non-missing Austrian industry export relations for the period 1996 through 2002. To check the robustness of the results, we additionally perform GLS AR(1) regressions in the spirit of *Baltagi - Wu* (1999), accounting for unequally spaced data. Table 3 presents the estimation results. Two of the four regressions exclude all outliers, i.e. observations with an absolute remainder error outside 2.5 standard errors of  $\epsilon_{ijt}$ .

In sum, the model fit is good and the results for the interesting export guarantee coefficients are fairly robust with respect to the correction for both outliers and AR(1) residuals. In all models the overall estimated long run effect (i.e., the sum of the short run plus the additional long run parameters) of export guarantees on trade lies in the range 2.2 - 2.5. Hence, each unit of guaranteed export credit causes more than twice as much exports as its value. In general, the short run impact is relatively small and the long run effect needs some time to take place. Regarding the large autocorrelation of the residuals, the within coefficients ( $\beta$ ) are likely to represent only lower bound estimates of the short run impact, and this is even more true of the AR(1)-corrected estimates (compare *Egger - Pfaffermayr*, 2004). There is small scope for omitted variables in Models (A)-(D). This can be inferred in a nested 3-way ANCOVA analysis including all possible interaction effects ( $\mu_{ij}$ , capturing the industry-by-importer-country dimension;  $\nu_{it}$ , reflecting industry-by-time effects;  $\xi_{jt}$ , accounting for all importer-by-time effects). Note (only)  $G$  exhibits variation in all dimensions ( $i, j, t$ ), and  $\beta_l$  can still be significantly estimated, and amounts to 0.10 (also without outliers).

With these sound regression results at hand, we can investigate the impact of the observed change in Austrian export insurances since 1996 on both the growth and the structure (in terms of industries and

partner countries) of Austrian exports in the same period. Therefore, we use the (lower bound) estimates in Model (D).

We can easily assess the observed impact of export guarantees on exports from a growth accounting-like exercise. According to Model (D), public export guarantees account for about 3.2% of the overall predicted growth of Austrian exports between 1996 and 2002. Of this, 0.2 percentage points are due to the short run and 2.9 percentage points are due to the long run.

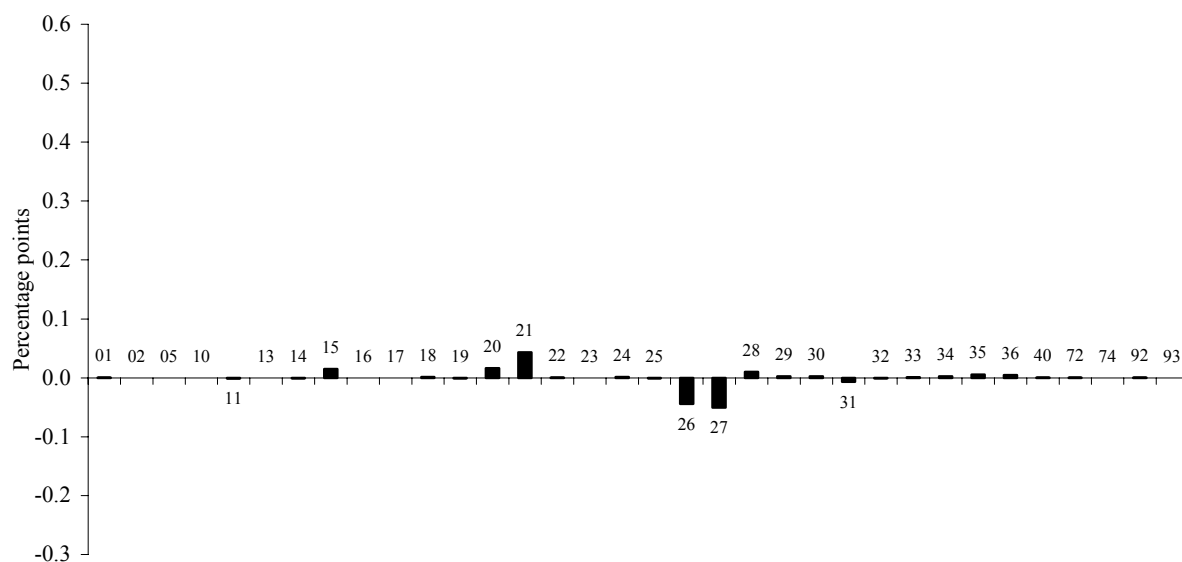
The impact on the change in the structure of Austrian exports in terms of both industries and partner countries can be analyzed on the basis of the difference in predicted actual and counterfactual exports. The latter assumes that guarantees had not changed since 1996, all other determinants as observed. This difference can be viewed as the guarantee-only impact on Austrian exports. The counterfactual no-change assumption in export guarantees since 1996 affects both the growth difference (within variation),  $(G_{ijt}^{observed} - G_{ij.}^{observed}) - (G_{ijt}^{counterfactual} - G_{ij.}^{counterfactual})$  and the mean difference (between variation),  $(G_{ij.}^{observed} - G_{ij.}^{counterfactual})$ . Accordingly, we are able to identify a short run and long run impact on the change in export structure separately.

An analysis of variance of this observed-minus-counterfactual short run plus additional long run difference reveals that the structural change, in terms of industry specialization caused by export guarantees, is much smaller (8.2 percent) than that of the distribution across partner countries is dominant (91.8 percent).

Figures 3 and 4 summarize the difference (i. e. the guarantee-only effect) on the industry structure (shares in total exports). In both the short run and the long run, the change in guarantees slightly favors exports of chemicals and chemical products (NACE 24) and pulp and paper (NACE 21). It discourages to a minor extent exports in machinery and equipment (NACE 29) and motor vehicles (NACE: 34). The more or less negligible effect of guarantees on the industrial structure of Austrian exports in both the short and long run is also evident from the change in the entropy index  $(\sum_i^n - s_i \log s_i)$ , where  $s_i$  denotes the share of an industry (importer country) in Austrian exports in a certain year. This amounts to  $1.1 \cdot 10^{-9}$  in the short run and to  $-1.7 \cdot 10^{-7}$  in the long run. This indicates in the short run slightly more equally distributed industry exports due to public export guarantees, i. e. less specialization, whereas in the long run, exports are less equally distributed, i.e. more specialization emerges.

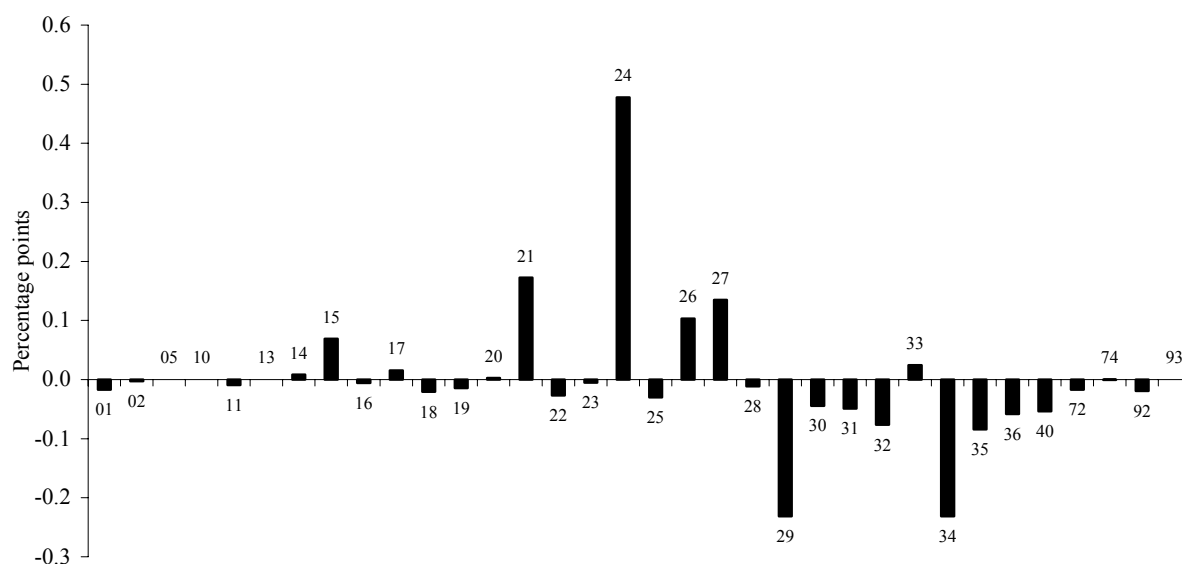
As mentioned above, public export guarantees mainly affect the distribution of Austrian exports across partner countries. In terms of export shares, exports to both Central and Eastern Europe and the Southern European countries are favored mostly at the expense of exports to the OECD countries (Figures 5 and 6). Again, the short run impact on the structure of exports is negligible, and due to an observed-minus-counterfactual scenario difference, associated with an entropy index of  $-0.0005$  (a small equalization effect). However, in the long run the change is  $0.05$  and suggests a pronounced equalization in the structure of exports across country blocs. Hence, more risky (and also distant) destinations became attractive for Austrian exporting firms.

**Figure 3: Short run effect of public export guarantees on Austrian export shares by industry (NACE 2-digit classification)**



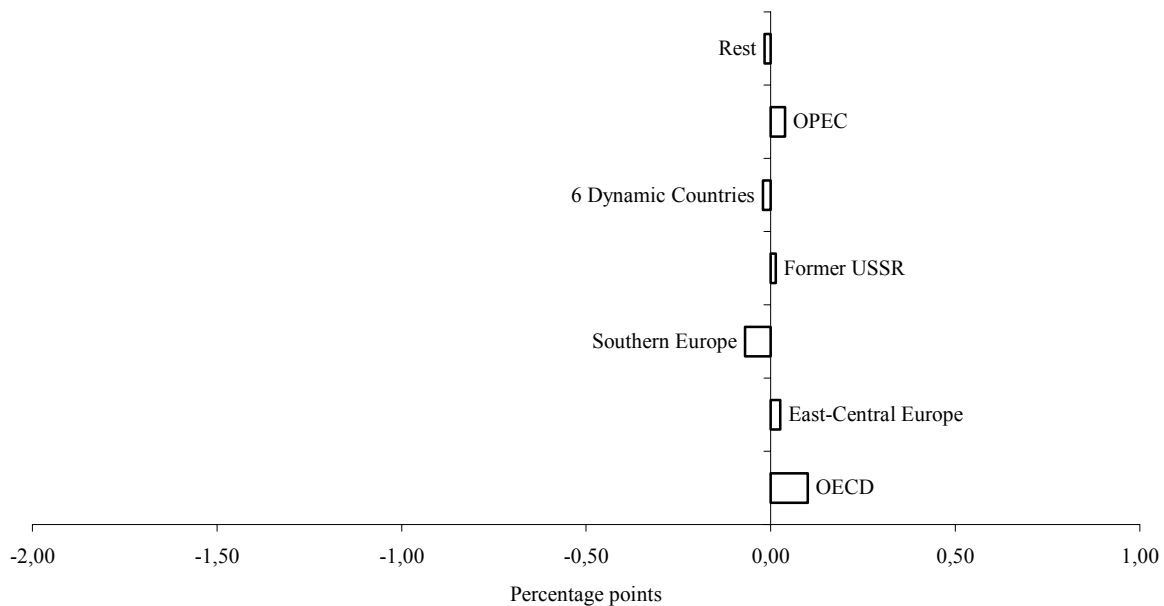
Note: Simulation from 1996 through 2002.

**Figure 4: Long run effect of public export guarantees on Austrian export shares by industry (NACE 2-digit classification)**



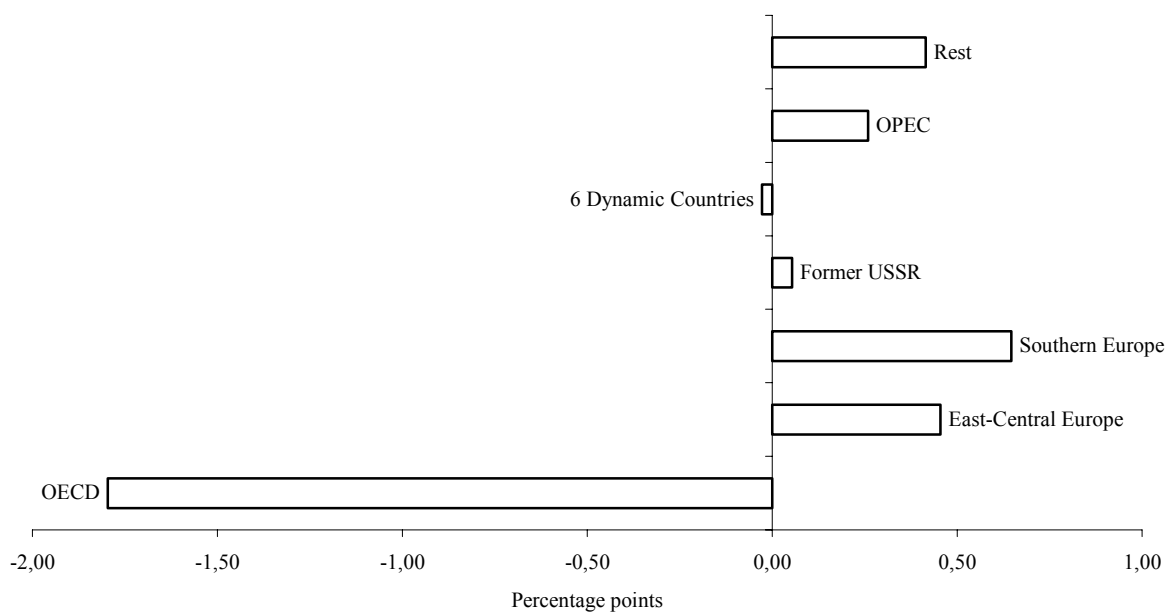
Note: Simulation from 1996 through 2002.

**Figure 5: Short run effect of public export guarantees on Austrian export shares by country block**



Note: Simulation from 1996 through 2002.

**Figure 6: Long run effect of public export guarantees on Austrian export shares by country block**



Note: Simulation from 1996 through 2002.



## Conclusions

Public export guarantees provide governments with an instrument to correct market failures resulting from financial transaction costs and asymmetric information on the quality of a foreign borrower. Throughout Europe private trade credit insurance is an important instrument for minimizing the costs from monitoring trade partners and collecting accounts receivable. Up to the beginning of the 1980s export credits had been insured largely by public Export Credit Agencies (ECA), often at prices that did not reflect the underwritten risk. Since then public insurance has been restricted to extra-OECD trade or export credits of long duration.

Nevertheless, the extra-OECD area is an important destination for exports. Throughout OECD countries between 5 to 50 percent of goods exports go to this area and may suffer from an insufficient capacity of private insurance markets to underwrite the risk emanating from export credit. Consequently, we expect a significant impact of export guarantees on export volumes. We show that export guarantees have a significant short-term effect on export activity. Regardless of whether an outlier correction is applied or not, the short-term effect gives the impression of being a minor impact. We estimate a multiplier of 0.25 to 0.40, which suggests that every newly covered export credit to the amount of € 100,000 creates additional short-term exports of € 25,000 to € 40,000. If long-term effects are correctly calculated, we will find a robust and sizeable long-term effect of export guarantees in the range between 2.2 and 2.5. Translated into money terms, this implies that new guarantees for export credits of € 100,000 generate some € 220,000 to € 250,000 in additional long-term exports.

The explanation for the large difference between the short and long-term effects of public export guarantees on export flows is the time lag between the day when an export guarantee is provided and the actual shipment of the article, which have an effect on foreign trade statistics. This creates a time shift between the ECA book-keeping and official foreign trade figures. Another reason may be deviations in the allocation of exports to NACE 2-digit categories between the ECA and the central statistics bureau.

An analysis of variance of goods exports shows that the variation in exports associated with export guarantees results almost exclusively from an extension of trading partners towards higher risk regions. Export guarantees push exports mainly into Central, Eastern and Southern European countries and thus provide for a wider base in the export country structure. Interestingly, export guarantees do not change the goods structure in foreign trade. Since premium fees for export guarantees are risk based throughout our sample period, we would expect that low risk exports will not be insured, while high risk exports with export credits (long duration) tend to be highly covered. This reasoning suggests that export guarantees should promote those NACE 2-digit classes that can be associated with the export of plants and large equipment. In general, we would expect that industries with substantial increasing returns to scale benefit strongly from export guarantees. But our results suggest that export guarantees change the industry specialization by a negligible 1.6 percent of the overall variation.

An explanation for the small impact of export guarantees on industry specialization can be derived from the location bias created by export guarantees. Austria's close neighborhood to Central, Eastern and Southern Europe makes export structures more likely that are similar to the regular intra-industry

trade or the usual trade in consumer goods emerging in trade with OECD members. Because up to now Central, Eastern and Southern Europe are still perceived as too risky for both, full self insurance or the provision of sufficient underwriting capacity by private trade credit insurers, regular trade patterns emerge from the provision of export guarantees.

Full membership of many Central and Eastern European countries to the European Union as of May 1st 2004 will put some strain on public export guarantee systems. As long as the terms of export guarantees are not unified across the ECAs of European Union members there will be a conflict of interest between equal market access and the mitigation of market failure from transaction costs and asymmetric information.

## References

- Baltagi, B., Wu, P. X., (1999), Unequally Spaced Panel Data Regressions with AR(1) Disturbances, *Econometric Theory*, 15, 814-823.
- Bergstrand, J. H., (1989), The Generalized Gravity Equation, Monopolistic Competition, and the Factor-Proportions Theory in International Trade, *Review of Economics and Statistics*, 71, 143-153.
- Bhargava, F., Narendranathan, (1984), Serial Correlation and Fixed Effects Models, *Review of Economic Studies*, 49(3), pp. 533-549.
- Board of Governors of the Federal Reserve System, (2003), *Flow of Funds Accounts of the United States, 1995-2002*, Federal Reserve Board, Washington D.C.
- Egger, P., Pfaffermayr, M., (2004), Estimating Long Run and Short Run Effects in Static Panel Models, *Econometric Reviews*, forthcoming.
- Elliehausen, G. E., Wolken, J. D., (1993), *The Demand for Trade Credit: An Investigation of Motives for Trade Credit Use by Small Businesses*, Staff Studies No. 165, Federal Reserve Board, Washington D.C.
- Ferris, J. S., "A Transactions Theory of Trade Credit Use" *Quarterly Journal of Economics*, 96, 1981, 243-270.
- Kindleberger, C. P., (1993), "A Financial History of Western Europe", 2nd Ed., Oxford University Press, Oxford.
- Knaepen, P., (1998), The Knaepen Package: Towards Convergence in Pricing Risk, in OECD "The Export Credit Arrangement – Achievement and Challenges 1978-1998", OECD, Paris, 75-80.
- Mundlak, Y., (1978) On the Pooling of Time Series Data and Cross-Section Data, *Econometrica*, 46, S. 69-85.
- Petersen, M. A., Rajan, R. G., (1997), Trade credit: Theories and Evidence, *Review of Financial Studies*, 10(3), 661-691.
- Ruberti, R., (1992) Export Credit Insurance under Present World Conditions with Special Reference to the Countries of East Europe, *Review of Economic Conditions in Italy*, No. 1, 53-74.
- Swiss Re (2000), *Trade credit insurance: globalisation and e-business are the key opportunities*, Sigma, 7/2000, Zurich.



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