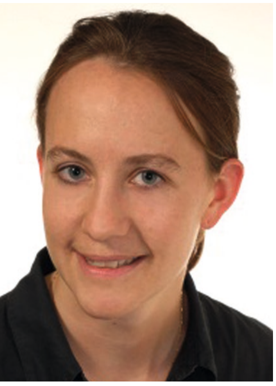

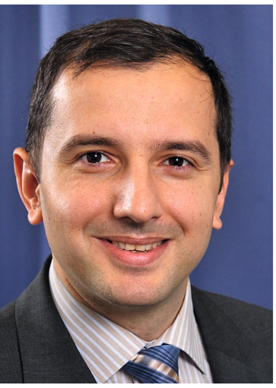

The Role of State Export Credit Guarantees for German Firms

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German state export credit guarantees, also known as Hermes coverage, are made available to German exporters if the private financial markets fail to provide the required instruments to firms wishing to insure their claims on foreign customers. In particular, this is the case when production and payment events are separated by long time spans, when project volumes are very large, or when the customers are located in countries with high levels of specific risk. The Ifo Institute has examined the employment effects of export credit guarantees issued by the Federal Republic of Germany. Major findings with respect to the induced employment effects and a causality analysis are summarised in this article.[2]

German exports have displayed steady growth over the past 10 years. In 2010, exports as a share of the total GDP of the Federal Republic amounted to about 40 percent. Export growth is increasingly driven by large emerging countries such as Brazil or China. These countries are characterised by substantial risks for exporting firms.

From 2000 to 2007, the share of exports covered by German state export credit guarantees fell from 3.3 percent to about 1.8 percent. However, the share more than doubled to about 3.4 percent by 2010, despite the fact that exports in 2010 were only equal to those measured in 2007. This fact illustrates that, in the financial crisis, exports fell dramatically while the volume of export credit guarantees actually expanded. From 2000 to 2010 the relative importance of single-project coverage increased from about 52 percent to 62 percent of the total underwritten coverage.

Eastern Germany as a share of total German exports has steadily increased in recent years to reach a level of 8.4 percent. This positive development has been accompanied by an increase in state credit guarantees for exports from Eastern Germany. However, the coverage ratio (guarantees relative to exports) has remained at a low level since exports have exhibited particularly dynamic growth.

While the latter descriptive statistics are derived from aggregate industry data, similar patterns are extracted from survey data, which is available at the Ifo institute. Accordingly, in the last five years, exports as a share of total revenues have increased substantially amongst surveyed firms. Export-dependent employment has evolved in a very similar fashion in most industries. Large emerging countries have become increasingly important for a growing number of firms. Relative to OECD countries, those emerging markets feature higher economic risks.

An increasing number of German firms have used Hermes guarantees in the past few years. They cite the coverage of export credit default risk – caused by political and economic risks – as the main reason for seeking coverage. The share of exports covered (coverage rate) is above average in small and medium-sized companies. A larger share of small firms say they use Hermes guarantees to create new jobs. Medium-sized and large firms using federal guarantees state that they use the guarantees primarily in order to secure existing jobs; a smaller share indicates that they use them to create jobs.

The firms surveyed indicate that export credit guarantees do not only have a one-off effect, for instance when the firm enters a new market. Guarantees also have a sustained effect on exports as they help firms to create a beach-head in the foreign market. The firms state that a share of exports would also have been covered without federal guarantee. On average,

[1] ifo Institute.

[2] Felbermayr, G., E. Yalcin and I. Heiland (2013), *Beschäftigungseffekte der Exportkreditgarantien der Bundesrepublik Deutschland (Hermesdeckungen)*, ifo Forschungsberichte 63, Munich.

61 percent of all covered exports occur due to the availability of coverage. 37 percent of small firms claim that covered export transactions would not take place without the coverage. That share is smaller for the group of medium-sized and large enterprises (about 27.5 percent). Across size classes, the share of firms that use federal guarantees, but would not actually need them to carry through the covered exports, amounts to about 11 percent.

During the financial crisis of 2008/09, federal export credit guarantees played a more important role for about 38 percent of all surveyed firms. Firms say they primarily used guarantees to secure existing jobs or to mitigate crisis-induced job losses. Those employment effects appear stronger in the group of small and medium-sized firms as compared to large enterprises.

The role of Hermes for employment in Germany

In the period 2000 to 2009, on average 141,000 workers were directly or indirectly affected by Hermes guarantees. In 2010 that number increased significantly to 240,000 as coverage volume also expanded very strongly. On average, the creation of one job at a directly related firm (the contracting party of Hermes) is accompanied by the creation of 1.44 jobs in supplier firms based in Germany; and the creation of about 1 job in supplier firms based in foreign countries. This latter finding reflects the strong degree of vertical international integration of the German value chain, particularly in near European countries.

Around 45 percent of all affected jobs are situated in the machinery sector, which is the largest affected industry. The second most important sector is chemistry (23 percent), followed by the ships and airplanes sector (10 percent), metallurgical products (10 percent) and land-born vehicles (6 percent). Hermes guarantees play a particularly important role for exports to Asia, as about 48 percent of all affected employees work for firms exporting to Asia. As a general fact, emerging countries are of particular importance. On average, about 61,000 workers are affected by guarantees extended for exports into those countries.

Differentiating according to firm size, the results suggest that the majority of affected workers (70 percent of total) work in large firms. 22 percent work in medium-size firms while 8 percent are workers in small firms. This reflects the distribution of coverage across size classes.

Employment effects: assessment by surveyed firms

According to survey respondents, about 61 percent of all exports can be attributed to Hermes guarantees. Taking into account the heterogeneity of responses across industries, it follows that about 56 percent of all affected workers occupy jobs that have been created by Hermes guarantees. In the years 2000 to 2009 this amounts to about 79,000 jobs, while in 2010 the number of created (or sustained) jobs amounts to 137,000. The effectiveness ratio (coverage in euros per newly created job) lies between 230,000 and 250,000 and displays a slightly negative trend over time. This trend signals an improvement in effectiveness over time.

Looking at the distribution of newly created jobs across industries, the majority of jobs created are located in the machinery industry. In 2007, for instance, 31,000 jobs were created or sustained in this sector. The chemical industry created about 17,000 jobs (23 percent of the total), the ships and airplanes industry created around 9,000 (12 percent of the total), and the metallurgical industry created about 7,000 (9 percent).

Asia stands out as the destination country with the largest share in newly created employment. Covered exports into this region amounted to about 38,000 new jobs per year. In general, emerging markets play an eminent role; covered exports into those markets amounted to about 29,000 jobs per year.

Causality analysis

The key scientific challenge in the completed Ifo study is to draw a careful distinction between correlation and causality. The simultaneous incidence of high coverage ratios and high exports does not necessarily signal that federal coverage has actually caused the exports, or that the latter would not have occurred in the absence of the guarantees. It is very possible that other characteristics such as destination markets or exporters led to such a positive correlation. For the economic policy evaluation of export credit insurance, it is of paramount importance to control for those band-wagon effects. To achieve this, as many determinants of export success as possible on the firm or on the sector level need to be taken into account.

For the first time, Ifo's study uses modern econometric methods to show that Hermes export credit guarantees lead to additional exports and to extra jobs in Germany. This result is robust across three different data sets that differ substantially with respect to the level of aggregation (sector *versus* firm level). It is confirmed using very different econometric procedures (linear parametric methods *versus* non-parametric matching models). However, on the sector level, there are important differences between the econometric results and the descriptive analysis based on the survey.

Findings based on official industry export data

Hermes coverage increases German exports. As expected, accounting for as many other determinants of exports as possible reduces the estimated effect of export credit guarantees on employment. In 2007, aggregate German exports were higher than in the counterfactual of no Hermes coverage by about 0.39 to 0.45 percent. In the preferred scenario, we find a causal effect on employment of about 62,000 to 72,000 jobs for 2007. In 2000, that effect was substantially lower (almost 40,000 jobs).

Hermes coverage has a particularly strong export-enhancing effect if country risk in the destination markets is particularly high or the enforceability of property rights is particularly low. On average, the effect of Hermes on employment remains positive across all risk categories. The external financial demand of firms (yearly industry averages) interacts with the extent of foreign sales in a statistically and economically significant manner. This suggests that financial market imperfections matter for the financing of exports. Hermes helps to reduce those frictions. This effect is particularly clear-cut in the event of the financial crisis of 2008/09.

About 70 percent of all Hermes-induced employment effects are achieved by exports to OECD member states; about 30 percent fall on the rest. The BRIC countries (Brazil, Russia, India, China) account for about a quarter of the total effect; taking into account other emerging markets such as Indonesia, Mexico, South Africa, or Turkey, the share increases to about 40 percent. The employment effects are concentrated in markets with medium or above-medium per capita income levels. Geographically, Europe (including Russia) and Asia dominate the picture.

By far the largest employment effect is achieved in the machinery sector, where up to 26,000 jobs (48 percent of the total) are created. The sector with the second largest job creation is the aviation sector, where about 12,000 jobs (22 percent of the total effect) are created. The absence of a statistically measurable employment effect in the automotive industry, where single-project finance is rare, is due to the incomplete allocation of coverage to destination countries and sectors.

Findings based on firm-level data: Ifo survey data

Hermes export credit guarantees have an export-enhancing effect. This result turns out robust and statistically significant when all firms in the data are considered, as well as when the sample is split to accommodate East-West or firm-size related differences. Moreover, the analysis makes the relevance for exports of financial market frictions very visible. Hermes guarantees tend to have a stronger export-enhancing effect with small and medium-sized companies as compared to large firms. Interestingly, and in contrast to the above finding, the sensitivity of small and medium-size companies to a credit market squeeze is smaller than with large firms. The decline in exports during the financial crisis is less pronounced in the sample of small and medium-sized firms as compared to large firms.

Using modern econometric methods on the basis of Amadeus firm-level data, the study directly estimates the employment effects of Hermes without dealing with the exact channel through which Hermes affects employment (presumably exports). Although the firm-level approach differs in methods and data quite dramatically from the sectoral approach, the obtained results are comparable: the number of jobs created by Hermes is estimated at about 71,000. About 50 percent of all newly created jobs are located in small and medium-sized companies. By contrast, small and medium-sized companies amount to about 30 percent of total coverage. This shows that the effectiveness of Hermes coverage is particularly pronounced within this segment of firms. Regarding the sectoral distribution of employment effects, the applied micro-econometric approach confirms the results obtained above. The largest share of total job creation falls on the machinery and the metallurgy industries. For the sectors 'chemical products' and 'automotive', no statistically significant employment effect of Hermes can be found. This is despite the fact that the firm-level analysis incorporates all different Hermes instruments (in contrast to the sectoral analysis that focuses on single-project guarantees).

Concluding remarks

The existing data in Germany does not allow us to investigate whether the incidence of Hermes coverage has a positive causal effect on the probability of firms' successfully entering foreign markets, so that exports remain higher even when the coverage is no longer available. If this is the case, then the employment effects reported in this study are to be interpreted as lower boundaries of the true effect. This study also focuses on the aspect of employment. It does not account for the effects of Hermes coverage on the level of wages, hours worked by employee, the profitability of firms, or the government's tax revenues. Economic theory suggests that, if Hermes is indeed successful in reducing the negative impact of financial frictions, it should also positively affect those other variables. In turn, this suggests that the employment effects computed in this report constitute only one – albeit an important – part of the overall welfare-increasing effect of export credit guarantees.