

Carmen Díaz-Mora, David Córcoles, and Rosario Gandoy / May 8, 2015

**Comments on the referee report on our paper:**

Exit from Exporting: Does Being a Two-way Trader Matter?

<http://www.economics-ejournal.org/economics/discussionpapers/2015-15>

Firstly, we would like to thank the referee for carefully reading our paper and for pointing out some important points that we will take into consideration in preparing a revised version. Below, the remarks of the referee are reproduced in italics and our comments are added in blue.

*This paper uses firm-level data from the manufacturing sector of Spain to investigate the impact of importing intermediate inputs on the probability of exiting export markets for the period 2006-2010. The authors use a probit model with random effects to estimate the effect of several firm characteristics on the probability of stopping to export from one year to the following. The results show that being an importer of intermediate inputs does not reduce the probability of exiting export markets but it does seem to reduce it for the case of small firms (firms that employ between 10 and 49 workers).*

*Even though this seems to be the first paper to study the effect of being an importer of intermediate inputs on the probability of exiting export markets, the contribution of the paper appears to be quite minor. There is already a large amount of evidence showing that firms that import intermediate inputs are large, highly productive, and more likely to export, so it is not surprising that firms importing intermediate inputs would be less likely to exit international markets.*

As the referee noted, previous literature shows that two-way trading firms outperform both firms engaged only in one mode of international activity and non-trading firms. They are larger and more productive. Moreover, there is evidence that importing intermediate inputs has a positive effect on export entry (Aristei, 2013). Thus, we may expect a lower probability of export interruption from firms importing intermediate inputs, but this suggestion needs to be tested. We would like to note that, as far as we know, this is the first paper that tries to prove this hypothesis. We address two related questions: a) Does being a two-trader reduce the likelihood of export failure? b) Does firm size matter? Our data show that firms that simultaneously import intermediate inputs and export exhibit a greater resistance of ceasing to export. Our empirical model results confirm that this higher export survival is explained by superior characteristics of two-way traders. However, even when these distinctive features are controlled for, the impact of being a two trading firm on export exit is significantly different for small firms than for large and medium firms. Specifically, being a vertical specialized firm plays an important role in continuing to export for small firms. Our findings provide information for guiding industrial policy particularly for countries where industrial structure relies heavily on small firms and the small average size limits export performance, such as Spain and Italy (Barba Navaretti et al., 2011).

*In addition to the existing evidence, the paper does not say anything about the policy implications of this particular research question. For example, if importers of intermediate inputs are less likely to exit international markets, does that mean that the government should help firms to start importing intermediate inputs? Why or why not?*

We agree with the referee: some policy implications should be incorporated into the paper and we will do that in a revised version. In this regard, the relevance of firm-specific characteristics for export survival allow us to say that policies focused on improving competitiveness are essential for export performance, not only for entering foreign markets -as recent literature suggests-, but also for the persistence in export status.

Being a two-trader influences export exit only for small firms. Does public policy enhance that small firms import intermediate inputs? Firms that simultaneously import intermediate inputs and export are more involved in international activities than those engaged only in one of those modes of internationalization. Moreover, following Veugelers et al. (2013), we can identify firms that use a double mode of internationalization as firms involved in global value chains (GVC) -here, as a vertically specialized firm *à la* Hummels et al. (2001)-. While involvement in GVC creates opportunities to increase competitiveness by sharing technological knowledge, skills and resources, small and medium firms (SME) face serious difficulties in participating. That is why international organizations claim for a new trade policy that take account an efficient sourcing of inputs and promote SME participation in GVC by removing trade barriers and inefficiencies in key sectors (OECD, 2013a). We would like to note that our findings support this idea and add a new important aspect: this trade policy is also useful for longer-lived export relationships.

*The results show that being an importer only matters for export survival if the firm is small. A small firm is defined using the thresholds of employment mentioned above. This is quite arbitrary and may have influenced the results. It would be better to use a continuous measure of size (for example, employment, or sales) and interact it with the import dummy. One could also include a square of the size variable to see if there is a non-monotonic effect.*

A small firm is defined using the 50 employees' threshold, following the Commission European's definition<sup>1</sup> which is the most common criterion used. In this paper, we are really interested in studying whether there is a differentiated impact of being two-way trader on export exit according to firm size. This is one important contribution of our paper. We focus on small firms because they dominate Europe's corporate landscape (Vettel and Kholer, 2014) and because a common finding in prior empirical research is that entry and survival in foreign markets for these firms is limited by higher entry costs faced as a consequence of their smaller size (OECD, 2013b). We expect that impact to be even greater for small firms and our results corroborate this. For small firms, being a two-way trader seems to confer an added advantage that allows them to face the uncertainty of foreign markets in better conditions, which translates to more successful export activity in terms of the probability of quitting foreign markets compared to those companies which only export.

We could have used employment as a continuous measure of size, as it is suggested by the referee, but then we couldn't capture the specific behavior of the small firms group. Moreover, using the threshold criterion is in line with more recent academic literature that has documented

---

<sup>1</sup> See [http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index\\_en.htm](http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm).

that firms have a lot of extra responsibilities heaped on them once they reach 50 employees, that is, there are regulatory obstacles to growth (Vettel and Kholer, 2014). It can be detected “deliberate efforts by employers to stay below the 50-employee threshold where several employment and accounting regulations take effect” (Garicano, Lelarge and Van Reenen, 2013).

Anyway, we can use a continuous measure of size in a revised version in order to know if our results are robust. And, as the referee suggests, we can include a square of the size variable to see if there is a non-monotonic effect.

*The authors use a probit model with random effects, but the assumption that the unobserved effects are random is very unlikely to hold in this case. It would be helpful to have the results using alternative estimation methods, including the ones that may allow controlling for unobserved firm heterogeneity using fixed effects (for example, a linear probability model with firm fixed effects).*

As the referee notes, using a probit model with random effects, we are assuming that the unobserved firms effects are random and he/she suggests using alternative estimation methods to control for firm fixed effects. Previous econometric literature provides evidence about estimation problems in discrete-choice models with fixed effects. Firstly, a fixed effects probit model is theoretically not possible (Cameron and Trivedi, 2005). Additional discrete-choice models (logit or tobit) allow us to adjust firm specific effects but the coefficients could be severely biased with small T-periods and a high number of individuals (Nickell, 1981; Green, 2002; and Fernández-Val, 2009) or, as in our case, could not be possible to estimate the model due to excessive number of firm dummies. Additionally, computing linear models controlling for fixed effects (as OLS model) in dichotomous dependent variables is also problematic as well, especially when the dependent variable are rarely changeable (Creusen and Lejour, 2011). Given the small number of export exits in our sample, the fixed-effects OLS model provides negative (and therefore inconsistent) probabilities of exiting exports.

Average estimated probabilities.

Differences between random effect probit models and Fixed effect OLS model

	1(a)		1(b)		1(c)		1(d)	
	RE. Probit	OLS. FE	RE. Probit	OLS. FE	RE. Probit	OLS. FE	RE. Probit	OLS. FE
Exit of exporting	0,147	-0,031	0,150	-0,028	0,153	-0,020	0,156	-0,017

*The percentage of exporters and importers and two-way traders is very high in the data (at least compared to the numbers for other countries). This suggests that the data used in the paper are not representative (large and medium firms are over-represented in the data set). This should be discussed.*

I thank the referee for this suggestion. Data obtained using the ESEE database are difficult to compare across countries because of the differences in data collection. In order to check our data validity, we compare them with those resulting from the EFIGE dataset. This survey provides homogeneous firm-level data of manufacturing from seven European countries and excluding firms with fewer than 10 employees such as ESEE database does.

% Exporting firms (2008)	
Austria	82%
France	71%
Germany	65%
Hungary	74%
Italy	77%
Spain	68%
UK	73%

Source: Rubini et al. (2012)

According to the EFIGE database, the percentage of manufacturing firms that export in Spain is 68%, very similar to numbers included in our Table 1 (66% in 2008) but less than others countries. Fernández et al. (2012), using data from the EFIGE database, show that the percentage of firms that import intermediate goods and service in Spain is slightly above 40% (46% using data from the EESE database). Therefore, the percentage of exporters and importers calculated from EESE does not differ radically from those provide from a comparable database focus on firm's international activities.

*According to the Melitz model, firms face a probability of death that would take them not only out of the export market but also out of the domestic market. Does the analysis consider firms that exit the data set as well? How is a firm that exported at time t-1 but then disappeared at time t treated? Does this count as an export exit?*

We only consider firms with non-missing value for the export question in the sample. We exclude those firms that exported at time t-1 but disappear at time t. So, those firms are not counted as an export exit. We focus on factors influencing export exit. We do not study here firm survival.

*Please explain how the exit rates in Figure 1 are calculated.*

Exit rates in Figure 1 are calculated as the number of export stoppers during the period 2006-2010 over the average number of exporters for that period (expressed in percentage) For example, during the whole period 2006-2010, 76 two-way trading firms have ceased to export, being 755 the average number of two-way traders for that period, that is, the exit rate is 10%.

*When calculating the premium for two-way traders, it would be better to interact this dummy with the measure of size so that the estimated coefficients can be compared (instead of having to estimate regressions for each group of firms).*

We thank the referee for pointing out this and we will do that in a revised version.

*Do the results hold if a longer period for exit is considered? For example, from t-3 to t? Or from t-5 to t?*

We thank the referee for pointing out this and we could present these results in an Appendix in the revised version of the paper. Although it is important to note that we have information on importing intermediate inputs only for the 2006-2010 and so our study consider only that short period.

*The authors should calculate the overall effect of importing inputs when firms are small. Saying that the interaction term is negative is not enough.*

We agree that this is an interesting point. We have opted for introducing interaction terms by two reasons. First, the interaction of the two-way trader variable with the Small Firm variable allows to isolate the impact of firm size and the impact of being a two-way trader, controlling for the relationship between both variables (because it has been observed that small firms are involved less in vertical specialization). Second, that interaction term help to identify whether the effect of being a vertically specialized firm is different between the group of large and medium-sized firms and the group of small firms or viewed from another perspective, whether the impact of being a small firm on export exit differs according to whether or not the firm is engaged in importing intermediates. This is precisely one of the aims of our paper.

*It is possible that effect of importing intermediate inputs is actually reflecting the impact of foreign technology acquisition. There is some evidence suggesting that owners of technologies sell (or license) their technologies to firms in other countries as a package, i.e., including the intermediate inputs needed to use the technology. If this is the case, one cannot be sure that it is the import status what matters. If there is information on foreign technology acquisition (for example, royalties and fees paid on foreign technology licenses) it should be included as an additional control variable.*

We agree that this is an interesting point. Unfortunately at this moment we do not have data on foreign technology acquisition. Moreover, to investigate the channels through which imports of intermediate inputs influence export behavior, although really interesting, would require a further research that is beyond the scope of this paper.

## References:

- Aristei, D., Castellani, D. and Franco, Ch. (2013). "Firm's exporting and importing activities: Is there a two-way relationship?", *Review of World Economics*, 149, 55-84.
- Barba Navaretti, G., Bugamelli, M., Schivardi, F., Altomonte, C., Horgos, D. and Maggioni, D. (2011): *The global operations of European firms. The second EFIGE policy report*. Bruegel, Brussels.
- Cameron, A.C. and Trivedi, P.K (2005): "*Microeconometrics, Methods and Applications*", Cambridge University Press.
- Creusen, H. and Lejour, A (2011): "Uncertainty and the export decisions in Dutch firms". CPB, Discussion Paper, 183. CPB Netherlands Bureau for Economic Policy Analysis.
- Fernández-Val, I. (2009): "Fixed effects estimation of structural parameters and marginal effects in panel probit models", *Journal of Econometrics*, 150 (1), 71–85.
- Fernández, C. García, C. Rodríguez, A. and Tello, P. (2012): "Un análisis de la actividad importadora de las empresas europeas", *Boletín del Banco de España*, nº 95, octubre.
- Garicano, L., Lelarge, C. and Van Reenen, J. (2013): "Firm Size Distortions and the Productivity Distribution: Evidence from France". CEPR Discussion Paper No. DP9495. Available at SSRN: <http://ssrn.com/abstract=2275148>
- Hummels, D., Ishii, J. y Yi, K. (2001): "The Nature and Growth of Vertical Specialization in World Trade", *Journal of International Economics*, 54, 75-96.
- Greene, W. (2004): "The behaviour of the maximum likelihood estimator of limited dependent variable models in the presence of fixed effects", *Econometrics Journal*, 7 (1), 98–119.
- Nickell, S. (1981): "Biases in Dynamic Models with Fixed Effects", *Econometrica*, 49 (6), 1417-1426.
- OECD (2013a): "*Interconnected Economies: Benefiting from Global Value Chains*", Paris: OECD Publishing.
- OECD (2013b): "*Fostering SME's participation in Global Markets: final Report*", Centre for entrepreneurship, SMEs and Local Development, Paris.
- Rubini, L. Desmet, K. Piguillem, F. and Crespo, A. (2012): "Breaking down the barriers to firm growth in Europe" The fourth EFIGE policy report. Bruegel Blueprint Series.
- Vetter, S. and Kholer, J. (2014): "Business demographics and dynamics in Europe", Research Briefing European Integration, Deutchbank Research. Available at: [https://www.dbresearch.de/PROD/DBR\\_INTERNET\\_DE-PROD/PROD0000000000333112/Business+demographics+and+dynamics+in+Europe%3A+Tren.pdf](https://www.dbresearch.de/PROD/DBR_INTERNET_DE-PROD/PROD0000000000333112/Business+demographics+and+dynamics+in+Europe%3A+Tren.pdf)
- Veugelers, R., Barbiero, F. and Blanga-Gubbay, M. (2013): "Meeting the manufacturing firms involved in GVCs", in Veugelers, R. (2013) (Ed.) *Manufacturing Europe's Future*, Blueprint no. 21, Bruegel, Brussels.