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

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

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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 looks empirically at the impact of simultaneously importing and exporting on the probably of exit from exporting. The findings indicate that – after controlling for firm characteristics – there is not an additional effect of two-way trading on exit. However, it is also found that two-way trading reduces the probability of exit from exporting in smaller firms and foreign firms.*

*I do see a limited contribution from this paper and I think it has several shortcomings. I detail my comments below.*

*1. This is obviously an empirical paper, but it should have a minimal theoretical foundation. I do not see good reasons why we should find that simultaneously importing and exporting would reduce the probability of exit from exporting. This hypothesis needs to be explained better and founded or based in some theoretical model.*

The connection between being a two-way trader and probability of export failure finds support in theoretical studies like Kasahara and Lapman's (2013). These authors develop a model as an extension of the one by Melitz (2003) about monopolistic competition with exporters which differ in their productivity, where they also introduce differences between firms in the use of imported intermediate inputs and sunk costs for participation in international markets. In their activity abroad, firms confront fixed costs and sunk costs (associated with having to establish a network of clients/suppliers abroad, learning other countries' regulations, etc.), which will be higher when the strategy of exporting is combined with the strategy of importing intermediate inputs, although some of these costs are complementary. This way, only firms that are more productive will be able to face these costs and engaged in vertical specialization. The higher productivity of two-way traders and the complementarity of sunk costs would explain their higher persistence in the exporter status.

Moreover, as Onkelinx and Sleuwaegen (2010) note, from the point of view of learning economies, firms that import intermediate inputs have contacts with foreign partners that would generate privileged knowledge, thus helping these firms to reduce the risk and the costs of exporting to these same foreign markets. And vice versa: the export of a certain country could provide valuable information about possible suppliers located in that country.

In a revised version of the paper, we will try to explain better the theoretical foundation of the hypothesis.

2. *The same consideration applies for the introduction of interaction terms for small and foreign firms. Which theoretical model implies that smaller and foreign firms may take advantage of two-way trading?*

Our finding is that smaller and foreign firms take advantage of being a two-way trader in order to reduce the probability of export exit. In the case of small firms that have more difficulties to enter and stay in foreign markets, being also an importer of intermediate inputs could help them to avoid export interruption. Two-way firms, i.e. vertically specialized firms à la Hummels et al. (2001), would face less uncertainty in their activity abroad, which translates to lower export market exit rates. Impullitti et al. (2013) developed a model showing the connection between uncertainty and the success or failure of exporting. There is less uncertainty because vertical specialization requires close collaboration among trade partners, creating ties that foster the stability of trade relationships. Moreover, the uncertainty is lower because two-way traders can use the contacts that their trade partners already have to obtain information about foreign markets or new additional contacts (Chaney, 2014). The argument is similar for foreign firms.

This result is in accordance with empirical and theoretical that emphasized the vast firm heterogeneity in international trade in terms of size, productivity, wages, etc. (Bernard *et al.*, 2012).

Specifically, recent empirical literature has generated evidence of the superiority of firms that enter and stay in international markets relative to those that exit from exporting. Firms that are larger, more productive and have more foreign ownership are less vulnerable to export failure. These superior characteristics have been also found for firms that simultaneously export and import in the few studies that have addressed this issue and also in our paper.

In order to take account that those firm characteristics can influence export exit rates as well as being a two-way trader, interaction terms need to be introduced into the model. But only interaction terms for small and foreign firms are statically significant.

In a revised version of the paper, we will try to justify better the introduction of these interaction terms.

3. *Regarding the econometric methodology, it is not clear that a random effect probit model is the right one in this context. See, for example, Bernard and Jensen (2004) on this regard and the discussion relative to unobserved heterogeneity in dynamic models.*

A probit model with random effects is used because 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, as proposed by Bernard and Jensen (2004), computing linear models controlling for fixed effects (as OLS model) in dichotomous dependent variables could be problematic 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.

4. *The empirical specification has some problems. First, I think that a dummy for exporting and importing should be included separately. Then, the effect of simultaneously exporting and importing can be isolated. Second, interactions terms may be capturing the impact of other firm characteristics. For example, small (and foreign) firms are also less productive. Do both interactions survive to the inclusion of an interaction term with labour productivity?.*

Our paper investigates whether the probability of ceasing to export is lower for firms that simultaneously import intermediate inputs and export. Only those firms that already export can interrupt their export activity. So, a dummy for exporting and importing cannot be included separately. That is, in our model to study the factors that influence export exit, all firms are exporters and we investigate whether those firms sourcing inputs from abroad have a higher the probability of remaining as exporters once other firm characteristics are controlled for.

We thank the referee's suggestion that interactions terms may be capturing the impact of other firm characteristics. We will consider it in a revised version of the paper.

5. *Finally, the paper should try to use some more sophisticated technique for dealing with endogeneity issues about exports and productivity (see, for example, De Loecker, 2007)2.*

As Loecker (2007) notes, the likely dual causality between labour productivity and exports may cause endogeneity bias. To avoid this problem in our model, all explanatory variables (including labour productivity) are introduced lagged in one period. Thus, the productivity of previous year (explanatory variable) could affect the current probability of exiting export markets (dependent variable), but past productivity (in t-1 year) cannot be influenced by the current probability of existing exports (in t year). We will add a higher explanation (in the section 4 and in the results table) in order to make clearer this point.

#### **References:**

- Bernard, A. B., and J. B. Jensen (2004). "Why Some Firms Export", *Review of Economics and Statistics*, 86(2), 561-569.
- Bernard, A.B., Jensen, J.B., Redding, S.J. and Schott, P.K. (2012). "The Empirics of Firm Heterogeneity and International Trade", *Annual Review of Economics*, 4, 283-313.
- 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.
- De Loecker, J. (2007): "Do Exports Generate Higher Productivity? Evidence from Slovenia", *Journal of International Economics*, 73(1), 69-98.
- Fernández-Val, I. (2009): "Fixed effects estimation of structural parameters and marginal effects in panel probit models", *Journal of Econometrics*, 150 (1), 71-85.
- 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.

- 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.
- Impullitti, G., Irarrazabal, A. and Opromolla, L., (2013). "A theory of entry into and exit from export markets", *Journal of International Economics*, 90(1), 75–90.
- Nickell, S. (1981): "Biases in Dynamic Models with Fixed Effects", *Econometrica*, 49 (6), 1417-1426.
- Kasahara, H. and B. Lapham (2013). "Productivity and the Decision to Import and Export: Theory and Evidence", *Journal of International Economics*, 89 (2), 297–316.
- Melitz, M. (2003). "The Impact of Trade on Intra-industry Reallocations and Aggregate Industry Productivity", *Econometrica*, 71(6), 1695-1725.
- Onkelinx, J. and Sleuwaegen, L. (2010). "Internationalization strategy and performance of small and medium sized enterprises", Working paper research 197, National Bank of Belgium.