ANSWER TO REVIEWER 2

Dear reviewer,

Many thanks for offering us the opportunity to revise our manuscript and for your insightful comments and suggestions. Following them we have incorporated several changes, so please, find below the answer to your comments.

- I find the Introduction needs to be more focused and narrowed (covers 9/24 pages). It must be rewritten to justify what makes the paper different from previous papers in the literature. It is not clear whether the paper contributes to understanding the role of SMEs or the interest is restricted to the study of the Spanish economy. For a general journal, I will give more weight to the SMEs and introduce the general literature first, and then fit the literature on Spain.

ANSWER: We have split the former introduction into two parts. The first one deals with the motivation of the study, introducing the general literature and emphasising the role of SMEs as suggested. Likewise, we remark our contribution (page 4, last paragraph). This first part is called "Introduction" and it can be found on pages 2-5. The second part explains why we choose Spain as a case study for our research questions. This part is titled "The Spanish case" and it can be found on pages 5-10.

- Avoid putting Figures in the introduction: it is well known that the GR affected GDP/unemployment differently across Euro countries. I don't find them especially appealing to motivate the paper. Describing in the introduction the database used in the empirical analysis is neither a good idea. Perhaps, connecting better the domestic slump with the export growth could be enough. Since the paper is about SMEs, why not put the focus on them: why they might be of interest? Are SMEs quite important for exports in Spain compared with other countries?

ANSWER: We have moved the figures to the second section where we focus on explaining why we choose Spain as our case study. Nevertheless, after reading the insightful comments of both reviewers in this regard, we find suitable to leave all the figures that we had that did not come from the database of our subsequent empirical analysis. It is remarkable to see that Spain suffered a huge drop in the GDP and an incredible rise in unemployment, especially in comparison with other European countries.

Moreover, we have moved the description of the database to section 3 (pages 10-13), where we explain the database and the variables used.

In the same way, in the new introduction we have focused on the role of SMEs to highlight why they are important for our study. Besides, we have highlighted the importance of exports from Spanish SMEs in comparison with other countries. The latter has been explained in section 3 (more concretely, it can be found on page 12, last paragraph).

- I miss a deeper theory/literature review. For example, discuss theoretical underpinnings of the claims that during downturns some firms adjust differently. What do economic fundamentals change during recessions that make some firms more resilient? Are market frictions playing any role? I miss the literature on the cleansing effect.

ANSWER: We have done a deeper theory/literature review in section 1 (introduction, pages 2-5). We have introduced literature regarding the cleansing effect (Caballero and Hammour, 1994;

Osotimehin and Pappadà, 2018) and the effect of it on SMEs (page 2 paragraph 3). Likewise, we have introduced the phenomena that change with recessions that makes firms adjust differently, i.e. the allocation of capital, unemployment or financial restrictions. This can be found on page 2 paragraphs 3 and 4. Finally, we explain in paragraph 5 of page 2 what characteristics can make a firm more resilient. In fact, the entire new introduction has been rewritten taking into account these specific comments from the reviewer.

- Most cited papers refer to the relationship between exports and employment /unemployment at a macro-level, ignoring the richer literature that uses firm-level data. But, more importantly, as already emphasized, little is said about this relationship during recessions.

ANSWER: We have introduced more papers referring to the relationship between exports and employment/unemployment at the firm level (Bernard and Jensen, 1999; Munch and Schaur, 2018; Capuano and Schmerer, 2014). This is in paragraphs 2 and 3 of page 3. The effect of trade during recessions is highlighted at the end of page 2 and the beginning of page 3.

- Database section must contain the descriptive statistics, including sampling, and Tables 1, 2, and 3 from the Introduction. It is not clear what percentage of the sample is neglected due to the lack of information and what percentage is due to selecting SMEs. Selecting SMEs needs to be better justified when compared with large firms. Having a greater variance in the comparison could shed light on more general results.

ANSWER: Section 3 is now devoted to the database. In here we include more explanation on the sampling (page 10 and the beginning of page 11) and some descriptive statistics (including as well the former tables 1, 2 and 3 as suggested). We have added also a comparison of the main variables used distinguishing between large and small firms (see Table 1 on page 11), so we can emphasize the difference between both types of firms.

- The econometric model uses the lagged dependent variable on the right-hand side combined with firm-level fixed effects. This generates an endogeneity problem that is dealt with by a non-standard methodology (e.g., GMM-SYSTEM estimator). This choice must be better justified.

ANSWER: We fully agree with the reviewer that our choice needed further justification. This justification has been now included on page 22 (section 4), second paragraph, where we write the following:

"From a methodological point of view, we initially tackle two econometric issues. The first is related to firms' unobserved heterogeneity (unobserved individual effects α_i), which may be correlated with regressors in (2) as simply by model construction they are correlated with the included lagged dependent variable among regressors. Although our regressions for total employment and permanent employment are linear, this is not the case for the temporary employment regression. In this case, we find in our data that 42% of SMEs declare to have zero temporary workers. Given the considerable amount of zeros, we will use a *Tobit* model for estimation of the temporary workers equation. Given that in this case the model would not be linear, and also to give a homogeneous econometric treatment to individual firms' effects in all employment equations (which will facilitate the interpretation of comparative results between permanent or temporary employment), we chose to control them again using the correlated individual effects methodology developed by Blundell *et al.* (1999, 2002), which is applicable to both linear and non-linear models."

Hence, in all the paper, since we have both linear and non-linear models, we use always a homogeneous treatment of firms' unobserved individual effects. Notice that also the export decision equations are non-linear models.

- I can see another endogeneity issue in the model. The index for Recessive demand, even lagged one period, might be affected by an omitted variable (i.e., the productivity) that simultaneously determines employment and, coincidentally, exporting. I don't want to be very strict on this issue, but claiming causality in this framework is incorrect. Moreover, when different endogenous regressors coincide, the analysis becomes even more obscure. Sometimes to isolate the problem, it is better to avoid using a dynamic model and, instead, estimate the model in differences with the export dummy and focus on instrumenting for the variables of interest. Notice that in a Melitz type of model exporting is a function of productivity and when productivity improves both, the likelihood of exporting and the size of the firm (i.e., sales or employment) rise.

ANSWER: As the full section 4 with estimation results has been rewritten and re-estimated following carefully all the interesting comments of the reviewer, now our benchmark employment equations in Table 6 (in columns 4-6 of this table) have been extended with further columns which purpose is to perform a robustness check of our benchmark results. Hence, in the final paragraph in page 23 and the two first paragraphs in page 24, were these extensions and their results are explained, it is written the following:

"Finally, in columns 7 to 12, we extend the specifications in columns 4 to 6 to control for some confounding factors that may both affect firms' export decisions and firms' employment. The confounding factors considered are variables that were not originally included in our employment equations but that are significant to explain the firms' export decision. A clear candidate for this robustness check of our benchmark results in columns 4 to 6 is undoubtedly productivity. Notice that in a Melitz (2003) type of model, export is a function of productivity and when productivity improves, both the probability of exporting and the size of the firm grow. The results of this extension are in columns 7 to 9 in Table 6. Labor productivity is statistically significant and with a positive sign in the employment equations (although with a more significant and higher coefficient for permanent employment than for temporary employment). Nevertheless, the inclusion of productivity in the employment equations does not alter the previous results or the previous conclusions that we derived from columns 4 to 6.

In a second robustness check, the results of which we present in columns 10 to 12 in Table 6, we control for potential additional confounders that affect the decision to export. These are related to firms' innovation activities, such as the introduction of new products and processes, and the presence of foreign capital. Productivity continues to be statistically significant and with a positive sign, process innovation is positively related to both types of employment, permanent and temporary, and product innovation and the participation of foreign capital only present effects on permanent employment. Most importantly, our previous benchmark results and the conclusions in columns 4-6 still hold."

- The paper focused instead on a minor problem under my view: the firm selection problem. It is assumed that firms that survive tend to be those exporting and are larger and this might make annual samples not comparable due to endogenous entry and exit. To this extent, it would be good to provide evidence that indicates that the sample carefully tracks market entry and exit each year during the sample period. On the survey webpage, there are years where there is no entry in the sample. This is in my view a

major problem. To avoid that noise joining different periods (three or four) would solve the problem.

- Moreover, the Probit model used to implement the Heckman correction is also tricky. Since the model is estimated in the second step using firm-level fixed effects, the Probit first stage cannot be estimated with the same type of fixed effects due to the so-called incidental parameter problem. Some justification needs to be provided.

ANSWER (jointly to the two previous questions): In this version of the paper, we did not supress the firm's survival equation, but we have considered all the comments of the reviewer about this equation. We have considered this equation just as an auxiliary equation as regards the central questions in our paper. For this reason, the results of this equation have been moved to Table A2 in the Appendix (as suggested by the other reviewer).

Furthermore, in the final paragraph in page 16 we have justified why in this equation we could not use the same type of fixed effects than in other equations and why this may not be a problem (we reproduce this just below):

"Due to the nature of the dependent variable in the survival equation, with a value of 1 if the firm survives in period *t* and 0 otherwise, we cannot treat unobserved correlated individual heterogeneity with the inclusion of pre-sample means of the dependent variable in the equation to estimate. These means for pre-sample years would be, by definition, 1 for all firms. Note that if firms are still alive in future periods, they were necessarily previously alive. For this reason, and also due to the so-called incidental parameter problem in fixed effect estimators for nonlinear models, this particular equation is first estimated with a random effects *Probit*. However, since the estimated proportion of the total variance contributed by the variance component at the panel level is not statistically significantly different from zero (see end of Table A2 in the Appendix), the panel *Probit* estimator is not different from the pooled *Probit* estimator. Due both to this and to the fact that this equation is merely an auxiliary equation in our work, the final estimates that we present for this equation correspond to those of the more efficient pooled *Probit*."

Finally, about the years in which there is no entry in the survey and the convenience of joining periods of the sample to estimate the survival equation, we have written in this new version of the paper the following (third paragraph in page 17) and re-estimated this equation following the reviewer advice:

"Although ESEE providers declare that new firms are incorporated in the panel in order to avoid reductions in population coverage across industries and size-segments, on the survey website there are some years in which there is no entry in the sample.[1] To check whether our results in column 1 of Table A2 in the Appendix are robust to this potential noise in the estimation of the survival equation, we add column 2 estimates. Unlike column 1, in which each observation in the time dimension corresponds to one year, column 2 presents estimates where each observation in the time dimension corresponds to a three-year rolling average of each variable for each firm.[2] Since with this approach the results are remarkably similar, we trust our results in column 1 as plausible and stick to them in order to take advantage of the full-time variation in our annual data."

[1] https://www.fundacionsepi.es/investigacion/esee/en/spresentacion.asp.

[2] Since the dependent variable is a binary variable 0/1 and we are estimating a *Probit* model, the rolling average of the dependent variable is set to 0 when in a particular interval the firm dies.

- As I said previously, selection into exporting seems to be the key problem to solve. And to solve this issue, more theory is needed. For example, the Almunia et al (2021) paper indicates that firms with lower capacity unused will be those more flexible to reduce prices by adjusting labor and to gain competitiveness in the export market. Why not test this simple hypothesis with firm-level data?

ANSWER: We have to say that although this is the final point of the reviewer report, this is the point that most inspired us on how to rewrite and refocus not only the paper in general but especially section 4, that now is called *Theoretical framework and estimation results*, when before was only about estimation results without properly mentioning a theoretical framework behind. We really think that facing the challenge of thinking of a theoretical framework for the paper, following the reviewer's suggestions on the prediction in Almunia et al (2021) paper on the role of capacity utilization in shaping the relationship between domestic demand and export incentives, was a crucial thing to do. Because of this, we now have in the paper a theoretical framework at the beginning of section 4 that we think is very relevant to the paper. This theoretical framework has also affected the way we tell the Introduction, our results and our conclusions in the new version of the paper. Beyond the Introduction and Conclusions sections, the bulk of the theoretical framework is in the first three paragraphs of section 4 (page 14 and beginning of 15). We appreciate all the comments, but especially this one, since it has forced us to read very carefully again the great paper by Almunia et al. (2020) and discovering things that we had probably previously overlooked.

Once again, thank you for your very helpful comments. We hope that with the changes made according to your suggestions, the paper has improved.

Yours sincerely,

The authors.