

Dear Editor in Chief,

We would like to thank the reviewers for their suggestions on how to improve the paper. It was very helpful to receive feedback from the two reviewers who carefully read the manuscript and provided constructive suggestions. We think that we can take the comments into account. In this letter we list the responses to all comments.

Export behaviour of SMEs in the Swedish computer service industry
Answer to the reviewers

Comments

The focus on microfirms and their difference to larger SMEs is of particular interest as the research gap with respect to the first category is particularly large. Therefore, I would concentrate on comparing model estimates for firms with 1-9 and 10-249 employees.

Answer: This is fine. We will change the text accordingly.

Discuss in some more detail (and not only in the introductory and the final section) the specific obstacles to internationalisation of (very) small firms. Assuming that these differ not too much from those of SMEs in general, I recommend to taking account more explicitly of the respective literature (e.g. Buckley, 1989; Hollenstein, 2005; or the survey of Castellani in Wolfmayr et al., 2013).

Answer: The relevant obstacles/barriers to internationalisation include lack of human resources, low productivity, size and external barriers. We will outline this in the motivation section.

Indicate that, given these obstacles, it may be optimal for an SME (in particular a microfirm) to internationalise in an indirect way by supplying their services to large (exporting) firms (as an independent contractor or through formal or informal co-operation). A specific element explaining the relatively low export propensity of small firms is the well-known fact that

some of them (this may hold for software companies in particular) are primarily performing tasks that are outsourced by large to other local firms (face-to-face contact often is a specific advantage of local firms although it is true that, in particular in software development, outsourcing over long distances is also quite common). In this case, there it is not really necessary to look for foreign markets. Discuss these aspects (indirect internationalisation, local outsourcing) in a paragraph following that dealing with the obstacles to internationalisation.

Answer: We agree with the referee. Indirect exporting might be the main reason for the low export participation rate of micro firms in the computer service industry. In addition, outsourcing of computer services of manufacturing firms might be one of reason for the strong growth of the computer service industry and the rise in export participation. However, we do not have information whether new computer service firms resulted from a spin off of larger manufacturing firms.

In model estimation, multicollinearity could be a problem. I presume that productivity is correlated with human capital as well as with firm size, which, in turn, may be correlated with firm age. Show the correlation matrix and investigate whether the explanatory pattern is robust if such correlations are accounted for.

Answer: Yes we can show the correlation matrix.

Indicate that in case of services the (general) variable “human capital” captures to a large extent innovation activity. Therefore, missing data for innovation is not a real deficit which requires an extension of the analysis (as is argued in the final paragraph of the conclusions.

Answer: Yes we agree to change the sentence.

Contrasting the results for the software industry with those of a high-tech industry or another service industry would allow, to some extent, to separate general patterns of explanation from those that are specific for the software industry. The reference industry should be similar in terms of relevance of microfirms, (change of) export propensity and knowledge intensity.

Answer: Yes we can include the results for business services (Nace rev. 11. 74). In this case we suggest a change in title: “Export behaviour of SMEs in Swedish computer and business services”

Finally, I suggest to discussing policy implications. Would it be sensible to promote export activity of microfirms in view of the larger export barriers of this category of firms?

Answer: Yes we can discuss whether we should directly target microfirms or we should improve the framework conditions.

Comments 1: The paper claims that: “In recent years there have been a number of studies investigating the export behaviour of small and medium---sized firms (SMEs). Size, labour productivity, innovation activities, skills and foreign ownership are found as key determinants of export participation and export intensity (see Leonidou et al. 2007 for a survey, Greenaway and Kneller 2007 or Wagner2007 for surveys on productivity and exporting). However, in contrast to Roper and Lover (2015), the references mentioned above do not consider SMEs. Please use the relevant references.

Answer: Yes we agree. The references are not appropriate. We will explicitly cite references that focus on SMEs.

C2: The paper argues that studying the export behaviour of SMEs including micro enterprises is particularly interesting because these firms are very dynamic and often young, with higher growth rates but also high exit rates. Therefore, there are good reasons to believe that the firm---specific determinants of exporting differ between SMEs and micro enterprises. However, neither the title of the paper (Export behaviour of SMEs in the Swedish computer service industry), the abstract or the stated research question corresponds to the argument above. The paper needs to be very precise whether it is about SMEs or micro firms. I would suggest the latter. But in this case, the paper must build upon an alternative strand of literature.

Answer: This is fine. We focus on micro firms and will change the text accordingly.

C3: The paper informs that the empirical model employed is a conditional logit model which makes it possible to control for unobservable firm effects (is this really correct?). Moreover, the paper claims that: For the sample of Swedish service SMEs, exporting is a rare event (...). Therefore, this analysis focuses on the extensive margin rather than the intensive margin. I see no problem with that paper focuses on the extensive margin. But I think that the rationale given in the paper is doubtful. By utilizing the appropriate econometric tools, the authors may very well be able to study extensive margins. (Heckman selection model, the Lewbel selection model etc.)

Answer: The fixed effects model controls for unobserved time invariant individual effects. We think that studying the determinants of the extensive margin is more interesting than that of the intensive margin. Increasing the number of export starters is often stated by policy makers. The reviewer is correct that both the intensive and the extensive margin can be analyzed by the Heckman selection model or two part models. However, in our case we do not have a sample selection problem because there are no missing data. The two-part model is appropriate. Also the Heckman selection model performs poorly without an exclusion restriction. For two part models identifying variables are not needed. Time means of the explanatory variables can be included in order to account for firm effects. I think analyzing the intensive margin should be left for future research. We will outline this in the conclusion section.

C4: The paper refers to Bernard and Jensen (2004) and claims that their finding is applicable also on SMEs. Please provide relevant references. It might be due to my ignorance, but I am not aware that B&J (2004) discusses SMEs

Answer: Yes, we agree to change this.

C5: The formulation of the empirical model. The paper applies a panel data approach. But the formulation of the model and the specification of the error term are confusing. In the model specification, the paper uses epsilon for the error term. And then (some rows below) the authors define epsilon as the idiosyncratic error term. Moreover, the papers claims that it controls for endogeneity by lagging some selected explanatory variables (while others are expressed in the instantaneously dimension). What are the arguments for lagging certain

variables, and how it is assumed that this strategy reduces potential endogeneity? (Typically the literature uses instrumental variable approaches to control for endogeneity, and it use to test whether the instruments are valid)

Answer: We agree that lagging explanatory variables can not solve the endogeneity problem. We do not have suitable instruments for human capital and labour productivity. Note that for micro firms few variables are collected by the national statistical office. There are initiatives to reduce the response burden for micro enterprises. We are happy for suggestions.

C6: "The error term can be decomposed into three parts: a time---invariant unobserved characteristic, time effects and a normally distributed random error with zero mean and unit variance." Perhaps this information is superfluous in a scientific journal? This remark also applies to the remaining text on the choice of estimator

Answer: We agree to deemphasize this part of the text.

C7: The paper discusses whether it should apply a random effect logit or a fixed effects model, then it suddenly concludes that it should use a model introduced by Chamberlain (1980). I did not see the logic step. Please provide a more elaborated discussion

Answer: The estimator used is the conditional fixed effects logit model. When there is variation in the dependent variable over time this estimator is appropriate. In case of the export propensity the fixed effect logit model only export starters and export stoppers are considered (compared to the previous year). When there is little variation in the dependent variable (export propensity) over time, then the random effect logit model is appropriate. In our sample of computer service SMEs the percentage of export starters range between 2.2 and 3.5 percent per year. We have used the xtlogit command with the fe option which runs Chamberlain's fixed effects logit model. We suggest to clarify the advantages and disadvantages of the fixed and random effects logit models in the text.

C8: The paper chooses to estimate micro firms (1---10) and SMEs other than micro firms separately. I cannot find any strong argument supporting this approach. I would recommend that the paper assess the determinants to both the smallest firms and other SMEs in the same regression, using an alternative model specification

Answer: Yes this is possible. One can include interaction terms of key variables with a dummy variable for micro firms. However, the findings will be the same.

C9: (Related to C8) The paper compares the estimates from both sample s (micro firms (1---10) and SMEs other than micro firms). But the estimates from two different samples are not statistically comparable

Answer: We suggest to provide results for micro firms, SMEs other than micro firms and SMEs including micro firms (in the appendix).

C10: No proper summary statistics (mean, standard deviation, min, max) is provided. I am somewhat surprised that the mean value for output per employee is higher among non---exporters than among exporters when the size group 10---249 employees are considered. Due to outliers/data problems?

Answer: We can only provide means because of confidentiality reasons. We have checked the data. There is a mistake in the summary statistics. The figures reported refer to export starters. For the export status we find that exporting firms have a 20 percent higher gross output per employee than non-exporting data (means SEK 1106,900 vs. SEK 907,300). We suggest to correct the figures and provide means of human capital and output per employee for both the export status and export starters.

C11: I wonder whether retailers of products produced by other (larger) companies are included in the group of micro sized services exporters. If so, does the paper account for?

Answer: This is a good point. We have no information on indirect exports. For micro enterprises indirect exports are usually the first step to go abroad. We suggest to mention this point in the conclusion. Few datasets available have information on indirect exports (example World Bank enterprise survey).

C12: No correlation matrix is provided

Answer: We can provide a correlation coefficient. The levels of the share of workers with tertiary degree and labour productivity are significantly positively related. However, when measured as annual changes the correlation decrease in magnitude and significance.

C13: Regarding the specification of the model, perhaps the paper should experiment with value and sales instead of value added per employee (labour productivity). Labour productivity is often a less appropriate measure for the very small firms. In addition, this approach would solve some of the log--transformations problems that the authors are struggling with this.

Answer: This is a good point. Labour productivity can be defined as value added per employee or gross output per employee. In principle, value added per employee should be preferred. However, for a significant part of microenterprises value added is negative. Therefore, we have decided to work with gross output per employee.

C14: When the authors choose to publish multiple tables with regression results, they must (i) make it clear to the reader what separates these tables, (ii) accurately report the key findings from each of the tables. The result section is poorly written. This assessment also applies to the concluding section, which should include a discussion how the paper has contributed to a deeper understanding of micro firms and SMEs propensity to export

Answer: We agree with the referee. The results and conclusion section should be extended by including a discussion section and highlighting the contribution of the paper.

Concluding remarks: I believe that this paper contains too many elementary mistakes to be publishable in its current status, and I believe that it requires a major revision to approach a scientific publishing status. I hope that my suggestions above can be helpful in this process. The authors have access to an interesting data sets, but they should be able to do much more of this rich and unique information.

Answer: We would the referee for the helpful and constructive comments and we are willing to take the comments into account.