

Reply to the anonymous referees' comments

Paper titled "Evolution of competition in Vietnam industries over the recent economic transition"

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We are grateful for comments and suggestions on paper "*Evolution of competition in Vietnam industries over the recent economic transition*" by the two anonymous referees. We have carefully gone through the comments and found them very constructive and helpful and, where possible, we have incorporated the suggestions in the revision of our paper. To provide all we have revised with respect to comments and suggestions from the referees, we cover below the changes we have made in response to the comments and suggestions, first repeating the comments and then our responses. The second referee's comments and suggestions are quite general but are very much consistent with the first referee's ones, thus we combine both in our responses.

1.

Figures 1 and 2 suggest that (roughly speaking) both measures fall over time and hence the Vietnamese economy has become more competitive over time presumably because of the reforms). This point should be made more clear. E.g. when regressing PCM and PE on a time trend (using industry fixed effects), are indeed PE and PCM falling over time?

To consolidate the conclusion on increasing competition intensity, we regressed PCM (and PE) on a time trend (year) controlled for industry fixed effect. We tried two approaches: first we used year as a continuous variable taking value from 2000 to 2009. If the coefficient of year variable is negative and significant it may imply that every unit (one year) increase will lead to a decrease in PE and PCM measures (or competition intensity increases). The regression results show that the coefficient of time trend is statistically significant at one percent level for both models of PE and PCM (Table 1 in revised paper). Second, we generated a series of year dummies then set year 2000 as a base year to compare, and again almost all of the coefficients of other years are negative and statistically significant. The coefficient magnitude apparently becomes more negative and significant for later years

especially PCM (Table 1 in revised paper). This confirms the increasing trend of competition. We incorporated this analysis in the revised version of the paper.

2.

Then the paper moves to comparing PE and PCM. Figures 3 and 4 are not very informative and should be deleted. Although the shapes look similar, the ordering of industries on the horizontal axes may be completely different. To understand the correlation between PE and PCM, a scatter plot is more informative. Figure 5 gives such a scatter plot, but only for the years 2000 and 2001. Why? I would prefer a scatter plot for all data points.

We agreed on this point, these two Figures may provide misleading information because the order of industries in the figures may not be consistent. For example one industry that is on the left hand side on the horizontal axis of Figure 3 may be on the right hand side on the horizontal axis of Figure 4 and vice versa. Following the suggestion by the first referee, we deleted Figures 3 and 4.

Instead we provided a scatter plot PE versus PCM for all data point in a new Figure 1.

Figure 1 in revised paper shows an ambiguous relationship between PCM and PE measures. In addition, having argued that PCM is not robust to reallocation effect, it may be nonsense to compare PCM with PE. Otherwise one may argue that PE and PCM are complementary to one another. Therefore we drop most discussion on comparing the two measure results.

If the two measures are complementary they should be positively associated one another, that is, when PCM increases PE also increases (becoming less negative or less competitive). However, if that is not the case, either of the measures incorrectly reflects competition intensity. As discussed in the literature review of the paper PCM is not a robust measure of competition in the case of reallocation effect as more productive firms may gain more market share in fiercer competitive markets. The relationship in that case may turn out to be negative or insignificant rather than positive.

On the other hand, unlike PCM measure, PE uses logarithm of profit on the left hand side of the model then observations with negative or zero profit or without profit data are dropped. This is another disadvantage of PE measure as the least efficient firms are eliminated from the sample. As a result, the estimates are biased and not compatible with PCM results.¹

This is the part of the paper where most work is needed. The relation between PE and PCM is clearly interesting, but should be documented carefully. In first instance, I would like to see a panel regression (of PE on PCM) with industry fixed effects and industry specific slope variables. Such correlations give a better idea of what is going on in the data than Figure 5.

As discussed above, comparing PE and PCM may be nonsense in case of reallocation effect and using different samples. In order to focus only on testing the trend of increasing competition we are stuck with measuring competition intensity and examining whether the level of competition increases over the economic transition by regressing competition measures on a time trend as suggested by the first referee. In addition, many important industry specific variables such as legal capital requirement and other entry barriers, competition regulations and other related policies, import penetration, export ratio, FDI ratio, R&D, advertisement expenditure intensity etc. which are commonly used to examine determinants of competition intensity are not available in our dataset.² We preserve the investigation on what affects competition evolution for future research which can provide insight into factors affecting the competition intensity.

3.

¹ One may estimate PCM using a subsample of positive profit firms to provide compatible results but again PCM will be selectivity biased.

² Some industry specific variables such as market concentration are easily calculated but they are also measures of competition then regression say PCM on market concentration does not help much to tell what determine competition intensity.

Further, as PE in the specification here ought to be negative (profits fall with costs per unit of output), observations with positive PE should be considered carefully. Are these values significant? One option is to do the panel regression only for significant values of PE. Hence this part of the analysis needs to be supplemented with robustness analyses.

- The positive PE, that is higher unit cost leads to higher profit, sounds unreasonable, but for firms doing R&D for example they may have some monopolistic power to increase their new product's price more than increase in unit cost so their total profits increase in alignment with unit cost increase.
- Moreover, unexpected or ambiguous correlation between the PE and the price-cost margin points to the existence of reallocation effects, i.e. when changes in competition also induce shifts in market shares (see Creusen et al., 2006b). These reallocation effects, however, typically emerge if competition is altered by changes in strategic interaction. This is an appropriate argument; we incorporated in revised version of the paper.
- One may suspect that positive PE may be due to insignificant coefficients of PE that are not much to say. To check robustness of the trend of increasing competition we removed observations with insignificant PE coefficients and regressed PE (also PCM) on a time trend to test whether the improvement in competition still holds. We do still observe the trend of the increasing competition. Results are presented in Table 2 of the revised version.

4.

The data appendix needs to be expanded. For instance, were there observations with missing data? Was the data cleaned from observations that seem unlikely (say, revenue being multiplied by 5 from one year to the next)?

How was PE estimated for firms with negative profits? Now the appendix talks about capital costs and depreciation. Why is this relevant?

The data appendix was extended to provide more detail of the dataset and how data was cleaned (Section 4 and Appendix).

All key variables used in the paper were checked and cleaned by eliminating extreme outliers. Firms with unlikely tax codes e.g. too short or too long are also removed or missing.

Note that unlike PCM measure, PE using natural logarithm of profit on the left hand side of the model then observations with negative or zero profit or without profit data are dropped. This is another disadvantage of PE measure as the least efficient firms are likely to be eliminated from the sample.

Discussion on depreciation and capital costs are not directly relevant but depreciation was needed to estimate intermediate consumption (IC) as the dataset does not offer IC information following this equation:

$$IC = \text{sales} - \text{wage} - (\text{Depreciation} + \text{interest rate} * \text{fixed assets}) - \text{profit}$$

5.

The paper can be streamlined considerably (also adding page numbers would help). I would delete section 3.2 as it repeats previous research. Section 3.2.2 on relative profits starts with a discussion on PCM that should be moved to 3.2.1. Figure 1 (2) and Table 1 (2) contain the same information.

- All section 3.2 was restructured by deleting the repetition of previous research and combining discussion PCM (3.2.1) and PE (3.2.2). A substantial revision has been done to new version including restructuring.

Either give the Figures or the tables, but not both. Below Figure 1 you explain again what PE measures. This can be deleted.

- We deleted the Tables 1 and 2 and the redundant discussion, only kept the Figures 1 and 2 of the old version.

Other points:

Section 2: the increase in the number of firms from 42,000 to 240,000.

Is this in the data or in reality? If it is in the data, it may be partly caused by a decision to sample more firms. Similarly, at the start of section 4: does the VEC sample all firms? What is the response rate?

- The data come from the enterprise census, not survey. All registered firms have to fill out the questionnaire as legally required. We provided more detailed description of the data in section 4.

Section 3.2.1 equation (1): delete the sum over i: done

Section 3.2.2 claims that “an increase in competition can lead to a fall in output of firms.” Although this is possible it is a bit unusual (more competition is usually associated with higher output levels). Also it is not necessary for the argument here. The only thing that is needed is that market shares of inefficient firms can fall. Hence their output may actually increase but less so than the output of competitors.

- This misleading and wrong statement was corrected

Equation (3) presents a relative profits (RP) measure (not relative profits differences)

- This mistake was corrected

At the end of section 3.2.2: usually one defines the "relevant market", not the irrelevant market"

- The mistake/misspelling was corrected

Section 4: why repeat the equation for PCM?

- The recall of the equation is not necessary, we deleted the equation

At the end of section 4: why use the approximate-sign (\approx); do you have a non-linear cost function in mind?

- The typo was corrected

A substantial revision has been thoroughly done to the paper including, analysing, restructuring, and editing. We do hope these responses do justice to the very helpful comments of the referees. However, we stand ready to make further changes if our current data allows us to do so.