

Report of the paper: Assessing e-commerce productivity for micro French firms using Propensity Score Matching

Summary The paper address the question whether the use of e-commerce has an effect on turnover, productivity, interest rate on bank loans and credit rationing.

The methodology employed is a propensity score technique with nearest neighbor matching, assuming that the firms that decide to use e-commerce receive a random treatment, while the others represent the random control group.

Pre-matching comparison between treated and control groups shows differences in computer using, amount of intangible assets, total liabilities, turnover, productivity, value added, interest rate on bank loans and financial cost.

The nearest neighbor matching supports the evidence of positive differences between e-commerce users and non-users for turnover, productivity and interest rate on loans.

Major concerns and suggestions

Methodology Authors carry on a neat PSM, performing pre-matching comparison and post-matching covariance imbalance test. My concern is about the use of PSM, which assumes the existence of some observations receiving a treatment compared to other not receiving. The matching among units with similar score is performed to simulate a random experiment.

The use of e-commerce requires investment in technology, skills, pre- and post- selling activities. The decision to use e-commerce is made by firm owner taking into account several aspects of the firm, such as the availability of skills, the cost of learning by doing, owner's attitude toward risk and his technological knowledge. These characteristics are mainly unobservable, but drive or are correlated with both the decision to carry on e-commerce and the performance of the firm. Moreover, the unobservables represent the firm private information, which is often the crucial element to explain competitiveness differences among similar firms.

Rather than considering e-commerce as a treatment it is advisable to model the decision to use it as a selling technology using a standard probit. From the probit it is possible to obtain the inverse Mill's ratio for the decision to use e-commerce, and that related to the decision not to use e-commerce. The inverse Mill's ratios can be plugged as additional regressors in a switching regression, where the performance equation is modeled (see Maddala, 1983. Limited dependent variables in econometrics, Cambridge University Press, chapter 8 and 9.)

This procedure has the advantage to postulate that switching from one status (not e-commerce users)

to the other (e-commerce users) is endogenous and depends on observable characteristics and private information (unobservable characteristics). The relevance of private information can be also tested from the significance of the parameters of the inverse Mill's ratios in the performance equations.

Minor points

- In the literature review the paper would benefit from a brief discussion of the most relevant issue on the impact of ICT on productivity. There is a significant strand of the literature dating back to the Yorukoglu's (1998) notion of vintage capital. The learning by doing associated with the investment in ICT affects productivity, depending on the organization improvements and the degree of replacement of past vintage of capital with new and more productive capital. This is the so called "replacement problem" which may potentially hinder the productivity gains especially for SME's and micro firms.
- I would suggest to discuss with more details the marketing practice with e-commerce. For a theoretical framework see for example Brodie et al, 2007, Journal of Interactive Marketing.
- Table 1: why in the last line of the table Average amount of e-buying is expressed in absolute values, at odd with the rest of the table where, more appropriately, all figures are expressed in percentage terms?
- Page 15: explanation of the results about interest rate and credit rationing are not supported by evidence. Why bank should be worried about the e-commerce firms repayment ability? There is no reason to conclude this from the results. This issue could be further investigated with a switching regression approach where interest rate equation is modeled.