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IMPACT OF FINANCIAL CONSTRAINTS ON INNOVATION: WHAT CAN BE LEARNED FROM A DIRECT MEASURE?

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Notes



²This question is addressed by the literature on credit rationing (see, for example, [Giannini and Generale \(2005\)](#), [Giannini et al. \(2006\)](#), [Giannini et al. \(2007\)](#), [Giannini et al. \(2008\)](#) and [Piga and Poppo \(2009\)](#)), and by the literature on credit rationing and credit rationing (see, for example, [Giannini and Generale \(2005\)](#), [Giannini et al. \(2006\)](#), [Giannini et al. \(2007\)](#), [Giannini et al. \(2008\)](#) and [Piga and Poppo \(2009\)](#)).

direct indicator of financing constraints taken from a survey. They consider that firms are financially constrained when they applied to bank credit but failed to obtain it.

³Our dataset is presented in the appendix.

⁴See the details of the identification of innovative, non-innovative firms in the appendix.

⁵Firms were allowed to provide multiple answers.

⁶More recently, Aghion et al. ([2005](#)) proposed a model with an inverted U-shape relationship between innovation and competition. In this model, competition may increase innovation profit margin but strong competition may also reduce incentives to innovate for laggards.

⁷The importance of technological opportunities is given by a qualitative measure issued from the FIT survey. The same indicator was used in previous works such as Crépon et al. ([1998](#)) or Barlet et al. ([1998](#)). In the survey, the firms are asked: “Do You consider that Your market is technologically: not innovative? weakly innovative? moderately innovative? or strongly innovative?”. We take the first level “not innovative” as reference and include in the regression three dummies TP2, TP3, and TP4 for the other levels.

⁸See the appendix for more details. We want to remind that in the literature, there is a possible inconsistency in the definition of financial constraints taken at their value measured at the firm level.

⁹In the FIT survey, the indicator as it was done by Crépon et al. (1998) we have introduced. However, we did not obtain a specific demand.

¹⁰There is a literature on (1983, p. 222). He argues that if there is no exclusion, the result is Wilde ([2000](#)). shows that this is only true in the simple example of laggards's book, where x_{2i}

and x_{1i} are both constants. Wilde shows that identification in the simultaneous probit case is achieved as soon as both equations of the model contain a varying exogenous regressor. However, as examined by Monfardini and Radice ([2004](#)), without instruments, the identification of the parameters of the first equation strongly relies on the functional form of the distribution of errors and in practice, availability of instruments help to obtain results which are more robust to distributional misspecification.

¹¹See the details of these definitions in the Appendix.

¹²The univariate probit regression on the subsample of ‘potentially innovative’ firms is given in the Appendix ([Table I](#)).

¹³Such a test have been made with cash flow or profit margins and the results can be obtained from the author.

¹⁴We have also checked for nonlinear effects by introducing the square of firm size but it does not change the results.

¹⁵The ‘Centrale de bilans’ dataset.

¹⁶The manufacture of coke, refined petroleum products and nuclear fuel has been deleted because only two firms were present in the merged dataset. In addition, the firms with missing data on the variable *innov* have been excluded.

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