Comments

Comments by Prema-chandra Athukorala, on Location Proximity and Productivity Spillovers: The Case of Korean Manufacturing Plants

Prema-chandra Athukorala: This paper examines the impact of locational proximity on productivity of firms in Korean manufacturing using a plant-level panel dataset covering the period 1991–99. Locational proximity can affect the productivity of a given firm (plant, in this case) through access to specialized labor, specialized intermediate goods, and knowledge (technical and managerial know-how) from the other firms in the given locality. The sole focus of this paper is on the impact operating through the third (knowledge) channel. The dependent variable of the analysis is plant level total factor productivity (TFP). The locality effect is represented in the estimation equation by the medium TFP level of the firms in the given industry within each locality. For the purpose of estimating the proximity impact on productivity, plants are grouped into 16 localities: seven major cities and nine provinces.

The discussion on the database in the paper is rather sketchy. In an empirical paper of this nature, I would have expected to see a fuller discussion on the nature, scope, and limitations of the database and the method of variable construction without which it is difficult to assess/interpret the findings. In particular, what is the sample frame (list of plants) used in conducting this annual survey of manufacturing? If the sample frame is not all-encompassing and not systematically updated annually, the identification of survival/death of firms for the purpose of implementing the Heckman selection methodology is rather problematic. The survival/death dummy variable used here could well be a statistical artifact arising from the very nature of the data set rather than one capturing its reality. The time coverage of the data set includes the 1997–98 Asian financial crisis, which was a major shock on the operations of Korean manufacturing. There is no mention of this shock in the paper, let alone appropriately allaying the effect of this possible structural break in the estimation equation. The time coverage of the data set is also much outdated: It predates the rapid expansion of Korean manufacturing driving the ongoing process of global production sharing in the new millennium. I also have serious misgivings about the identification of plants at the two-digit level of the International Standard Industry (ISIC) classification. Is it appropriate, for example, to treat electric motors and transformers (ISIC 3110), electricity distribution and control apparatus (ISIC 3120), isolated wires...
and cables (ISIC 33130), and batteries (ISIC 3140) as a unified industry (ISIC 31) in analyzing intra-industry knowledge spillover? Finally, I also cannot see the logic behind using the producer price index (PPI) for deflating current price output series and the consumer price index (CPI) (which has a larger coverage of non-traded goods prices) for deflating the current price intermediate inputs. In my view the appropriate deflator for the latter would have been the intermediate goods sub-index of the PPI, which is readily available from the Bank of Korea database.

Relating to the model specification, the case for jointly estimating a firm’s ‘stay’ decision and the impact of the productivity of the other firms in the same locality on its productivity has not been clearly spelled out. It seems that the stay decision has been artificially incorporated into the analytical framework to justly the author’s prior decision to use the Hackman choice model for the empirical analysis. Also, I cannot see the logic behind including $\ln(K)$ and $\ln(K)^2$ as additional variables (external instruments) in the stay decision equation. Is it reasonable to assume a non-linear (quadratic) relationship between a firm’s stay decision and its capital stock? Among the other explanatory variable, the output (or employment) share of the top three or five firms would have been a better indicator of firm concentration within a given industry than the number of firms used here as the concentration variable. In specifying the estimation equation the author has assumed a uniform relationship between plant-level productivity and the medium-plant productivity in a given locality across all 16 locations. One can, however, postulate a much closer relationship between the two variables in the major cities (in particular in the capital city) than in the provinces, given firms’ well-known tendency to locate in major industrial centers because of agglomeration benefits and other related reasons. This possibility could have been easily tested for by incorporating a locality dummy interaction term (1 for major cities and zero otherwise) for the median TFP variable in a model.

Estimates of five alternative specifications of the model are reported in the paper, but the interpretation of the results (Section 5) is entirely based on the base specification (Tables 2 and 3). There is no adequate discussion here of the reasons for the use of alternative specifications and on the sensitivity of the results to using one specification over another. A rather puzzling key finding of the paper is that firms that are relatively more productive in a given year tend to exit in the following year!