Chapter 5

Conclusions

Unobservable prices at the micro-level constitute a major problem in the firm-level productivity analysis. Economists often deflate firm-level nominal data using aggregate-level price indices, which introduces the implicit assumption of homogenous prices or perfect competition into the underlying structural model. Calculated productivity based on revenues and expenditures, therefore, involve price effects that may highly distort the indicative quality of the index. This dissertation develops micro-oriented empirical models to analyze firm dynamics, productivity and competition while, in most cases, attempting to control for the possible bias due to unobserved firm-level price variation.

The second chapter explores entry-exit, factor allocation and productivity dynamics in the manufacturing and business services sectors of Ukraine for the period 2001 to 2007. The period under study was one of the rapid growth at the level of the total economy, while the main sectors have undergone considerable churn and reallocation among firms and workers. The findings imply that the large-sized establishments in the manufacturing and state-owned enterprises in the business services sectors substantially dominate the firm dynamics in Ukraine. However, the analysis of productivity displays dramatically different pictures for the two main sectors, so that large firms in the manufacturing are as productive as firms in the other size groups, while the large and mostly state-owned firms in the business services perform rather poorly in comparison to small-sized private establishments. The prevalent state ownership in the business services considerably distorts the functioning of the creative destruction process and the efficiency in factor allocation, which holds back the productivity performance and deteriorates the quality of the microeconomic restructuring of the economy.

The third chapter analyses the relationship between the selected measures of competition and the actual intensity of the interaction in the product market under the presence of frictions. The chapter is separated into two parts where the first part consists of a
theoretical study that compares the industry-level price-cost margin and profit elasticity within a model of monopolistic competition where the degree of substitutability among the product varieties is the determinant of the level of firm-to-firm interaction. The second part studies the empirical performances of the indices through a panel of manufacturing firms operating in Ukraine during 2004-2007. Particular attention is devoted to the method of profit elasticity that is a theoretically robust measure of competition. However, this chapter advances the literature by developing an alternative approach to measure the elasticity of profits to productivity that relies on the structural estimation of the industry production functions. The estimation methodology is based on Levinsohn and Melitz (2004) and takes into account unobservable prices by introducing demand side into the structural model. Moreover, the methodology retrieves elasticity of substitution estimates at the industry-level jointly with the firm-level total factor productivity index. The findings imply that while the proposed method to measure profit elasticity provides a robust indicator of competition, the price-cost margin and the standard profit elasticity fail to indicate the true level of competition especially when the intensity of interaction among firms is relatively low.

The fourth chapter of this study derives a production function estimation methodology that retrieves the markup estimates separately for the entrants and incumbents, and provides a productivity index that is adjusted to the markup variation of entrant plants. The methodology takes into account the endogeneity of inputs to unobserved productivity by extending the control function approach of Levinsohn and Petrin (2003). In the first step, the proposed control function specification is introduced into Hall’s (1988) structural model which also accounts for the variation in production factor elasticities. The estimation routine applied in this section does not require observing prices at the micro-level, and the implications can be tested for widely available firm- or plant-level datasets. The predictions are examined using a plant-level data from the manufacturing industries in Japan and South Korea, and the findings show that entrants set lower markups than incumbents in both countries. Moreover, the contribution of the entrant plants to aggregate productivity growth is calculated to be significantly higher with the adjusted productivity measure than those based on standard labor and total factor productivity indices.

This thesis highlights the importance of micro-oriented empirical methods in the analysis of macroeconomic topics such as productivity growth and economic restructuring. As it is shown in this study, different industries or firm groups within the same industry may exhibit different economic performances which, in most cases, would not be identified through an aggregated economic indicator.
Throughout this study, as we attempt to control for firm-level price variation in the estimation of productivity, our findings tend to be contrary to some widely accepted results of the existing empirical literature, while some of the debated theories have found empirical support. Therefore, accounting for unobserved micro-level price variation seems to be crucial in the analysis of firm dynamics and productivity.