Firms' Price Markups and Returns to Scale in Imperfect Markets: Bulgaria and Hungary

When markets are imperfect, the firm's pricing behavior is closely associated with another performance characteristic, the firm's returns to scale.

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N O N – T E C H N I C A L S U M M A R Y

Bulgaria and Hungary are two countries that have undergone (and are still undergoing) a fundamental economic transformation from centrally planed to market economies. Their transitional markets are immature and still marred by numerous imperfections that affect all aspects of firm performance, including the firms' price-setting mechanisms. The authors develop and test a methodology that allows to examine empirically, and on a comparative basis, the pricing behaviour of manufacturing firms in the two countries, in the environment of imperfect markets.

Under perfect competition and constant returns to scale, firms producing homogeneous products set their prices at their marginal costs which also equal their average costs. However, the departure from these standard assumptions has important implications with respects to the derived theoretical results and the validity of the related empirical analysis. In particular, firms endowed with market power will charge a markup over their marginal costs. The authors show that firms' markups tend to be directly associated with the employed production technology, more specifically with the returns to scale index, which measures the rate at which output changes as the quantities of all inputs vary. Theory usually assumes constant returns to scale which implies that output changes proportionally with inputs; however in practice this assumption does not necessarily hold. The authors develop a methodology for analyzing the implications for the markup ratios from the incidence of non-constant returns to scale in imperfect markets.

The paper addresses the following issues:

- How are the firms' price markups and returns to scale index interrelated when markets are imperfect and returns to scale are not constant?

- What are the implications of non-constant returns to scale for the measurement of firm's price markups in imperfect markets?
- How can one measure empirically price markups and non-constant returns to scale in the environment of imperfect markets?

The proposed methodology is applied on balance sheet data for Bulgarian and Hungarian manufacturing firms. On the basis of this empirical exercise, the paper presents quantitative results illustrating the effect of the returns to scale index on the firms' price markups, as well as the relationship between the two indicators. The main findings of the paper can be summarized as follows:

- The standard procedures for estimating price markups based on the assumptions of perfect markets and constant returns to scale may lead to erroneous results, especially for a group of firms which is heterogeneous with respect to their returns to scale.
- The proposed adjustment to the price markup (based on the returns to scale index) helps to restore the theoretically important relationship between the two parameters.
- The empirical analysis suggests that small manufacturing firms in the two countries tend to operate with decreasing returns to scale and this has serious implications for their price markups.
- One of the general practical conclusions is that empirical research should devote special attention to the relationship between returns to scale and price markups. Its neglect – as practiced in most empirical works – may lead to a serious estimation bias.

The authors apply identical methodology to firm level data for two countries and come up with qualitatively similar empirical results. They consider this as further evidence of the robustness of their findings and of the conclusions that they draw from them.