A Control Function Approach to Estimate Markups*

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Abstract

This paper proposes a semi-parametric methodology to estimate (industry-level) markups linking the seminal paper by Hall (1986) to the Olley and Pakes (1996) model. The Hall approach is based on a production function framework and allows to identify a markup using the notion that under imperfect competition input growth leads to disproportional output growth, which is the relevant markup. The main concern with this estimation strategy is that other factors that are not observed can impact output growth as well. An obvious candidate is productivity (growth) and this clearly biases the estimate of the markup since productivity is potentially correlated with (growth of) the inputs. We introduce a control function approach inspired by Olley and Pakes (1996) to control for unobserved productivity shocks in the context of getting unbiased markup estimates. Furthermore, we control for the non random exit of firms which is inherent to the estimation procedure since output and input growth are needed to identify the relevant markup. This provides a flexible estimation strategy that can be extended in various ways. We apply our methodology to a firm-level dataset covering producers in the Belgian textile industry and we find significantly higher markups and we show the importance of controlling for the selection bias.

Keywords: Markups, Control Function, Productivity

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