Private Enterprise Development in Low-Income Countries

Understanding the Distribution of Market Power and the Scope for Industrial Policy in Emerging Economies

Simon Galle

A commonly held and highly intuitive view is that intensified competition will improve the allocation of resources in an economy, by shifting resources to more productive firms. When firms are financially constrained however, increased competition undermines firms' profitability, and thereby their capacity to accumulate capital through internally financed investment. This way, competition may not improve resource misallocation after all.

Motivation

Resource misallocation is a pervasive issue throughout the developing world. For the case of India in particular, Bils, Klenow and Ruane (2017) estimate that up to 40% of the difference with the United States in aggregate manufacturing output per capita is generated by misallocation. While the potential factors contributing to misallocation are varied, the predominant view in the economics literature is that competition is a beneficial force in reducing misallocation. After all, since firms with monopoly power are typically too small relative to the social optimum, it is highly intuitive that competition will help improve the allocation of resources.

While the beneficial impacts of competition are intuitive, they do not seem to cover the full story. This study focuses on India, and for that economy, multiple liberalization episodes appear not to have improved allocative efficiency in its manufacturing sector (Bollard, Klenow and Sharma, 2013). This raises the question of why the intensified competition associated with these reforms did not lead to a reduction in misallocation.

This analysis explores whether the presence of financial constraints can explain this finding. As is well known, limited access to finance is pervasive across developing countries, and in India even large firms tend to be credit constrained (Banerjee and Duflo, 2014). In such a context, many firms rely on retained earnings to finance their investment, which entails that profit levels determine how fast firms are able to save themselves out of their financially constrained position. Hence, by undermining firms' capacity to self-finance their investment in this setting, pro-competitive reforms may not have the expected effect of reducing misallocation.

To examine this intuition in more detail, I first develop a model to formalize the argument, and to derive precise theoretical predictions. Afterwards, I test these theoretical predictions in the context of the Indian manufacturing sector.

A model of mark-up and capital misallocation

The model features two sources of resource misallocation, namely oligopolistic competition and financial constraints. The oligopolistic competition leads to variation in mark-ups across firms, and therefore to variation in marginal products across firms, with the high-mark-up firms having higher marginal products. This variation in marginal products entails a misallocation of resources, since it implies that one can increase aggregate output by shifting resources to the firms with relatively high marginal productivity. In other words, the high-mark-up firms are too small compared to their socially optimal size. In the absence of financial constraints, increasing competition will then always be beneficial, since it lowers all mark-ups toward their lower bound, and thereby equalizes marginal products across firms.

Importantly, the introduction of financial constraints leads to a second, harmful impact of competition on misallocation. In the model, firms experience random shocks to their idiosyncratic productivity, and after a positive productivity shock, they optimally choose to grow their capital stock. Critically though, their limited access to finance hampers their ability to do so. Since financially constrained firms rely on retained earnings to finance their investment, their rate of self-financed capital growth becomes a function of their optimal mark-up. Increased competition, by reducing firms' mark-ups, negatively affects their speed of capital convergence in response to a positive productivity shock. This way, competition amplifies the difference between a constrained firm's optimal and actual level of capital, and worsens capital misallocation.

The pro-competitive impact of a natural experiment

I test and confirm the predictions of the model in the context of the Indian manufacturing sector. To this end, I use a natural experiment arising from the staggered implementation of an industrial policy reform, namely the 1997 dereservation episode. This reform removed the investment ceilings imposed for the production of certain product categories, which led to the entry of new, larger firms in the production of the now dereserved product categories. Hence, the reform exposed incumbent plants to stiffer competition. Empirically, I examine the impact of the reform on incumbents' markups and their capital convergence. First I demonstrate in an event study that the dereservation reform led to lower markups for incumbent plants, which confirms the pro-competitive impact of the reform. Moreover, as Figure 1 demonstrates, markups for plants with an initially higher markup fell much more than for plants with a lower initial markup. Hence, the reform reduced markup dispersion, in line with the theory's predictions.

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Next, I turn to testing the negative impact of competition on capital convergence. Since a plant's optimal level of capital is unobserved, I focus on convergence in marginal revenue product of capital (MRPK), and I proxy for a plant's optimal MRPK with a flexible function that allows for maximal cross-plant heterogeneity. I find that plants exhibit strong and robust convergence to this measure of optimal MRPK, and this enables me to use the speed at which a plant converges back to its optimal MRPK as an empirical counterpart for the model's speed of convergence to optimal capital levels. I then find that MRPK convergence is indeed slower after a plant's products have been dereserved. This finding not only holds for the dereservation reform, since I also present evidence that more competition is associated with slower MPRK convergence in the Indian manufacturing sector at large.

(a) Firms with high initial markup **(b) Firms with low initial markup**

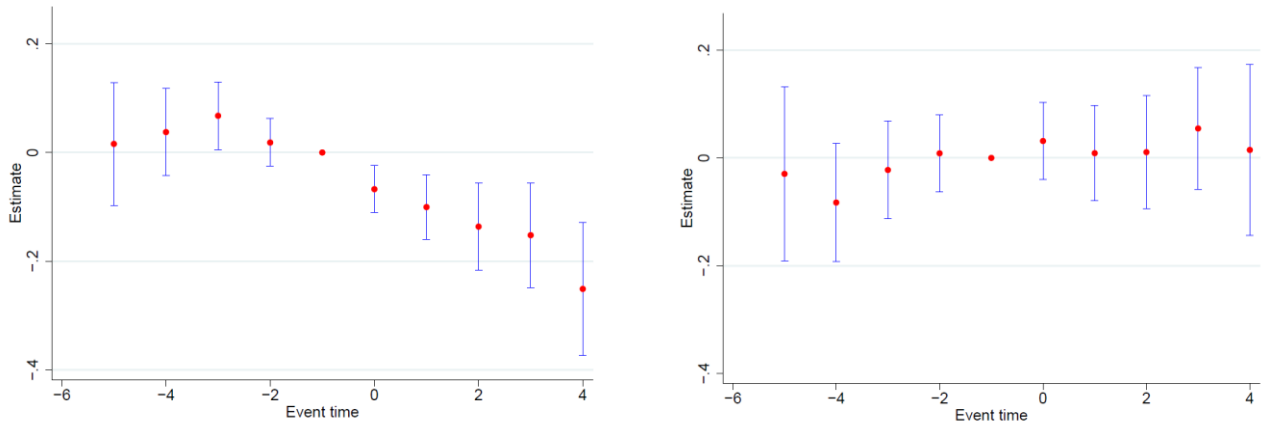

Figure 1: Impact of industrial policy reform on incumbent plants' markups

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Lessons for policy

This analysis develops a more nuanced understanding of the positive, as well as the underexamined negative impact of competition on misallocation. The take-away is certainly not that the benefits of competition should be discarded and liberalization should be abandoned. Instead, this paper suggests that in order to maximize the gains from liberalization, it is critical to first optimize access to credit throughout the economy. In practical terms, one could consider first liberalizing the financial sector before implementing pro-competitive reforms in the real economy.

Moving Forward…

The analysis developed a novel model to examine how interplay of financial constraints with oligopolistic competition shapes resource misallocation. I derived novel theoretical predictions and empirically, I presented evidence that qualitatively supports these predictions. In future work, I aim to more comprehensively quantify how India's multiple liberalization reforms shaped mark-up and capital misallocation in its manufacturing sector. In particular, I aim to focus on how alternative reform paths could have contributed to stronger output growth for India's economy.