Discussion of "The Dynamic Effects of Antitrust Policy on Growth and Welfare"

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Cavenaile et al. [2021] study the long-run implications of anti-trust policy for innovation, output and welfare using a general equilibrium model. Their approach differs from the much of the existing literature that focuses on short-run, partial equilibrium effects. Their model combines three key elements: (i) endogenous growth with vertical innovations; (ii) oligopolistic competition in the product market; (iii) endogenous M&As. I will briefly discuss their paper and then compare it to Mermelstein et al. [2020] who also study optimal merger policy in a dynamic model.

1 Overview

The theoretical impact of stricter antitrust policy on innovation is ambiguous for the usual reason. On the one hand, stricter enforcement increases competition in the market, leading to lower profits which can reduce the incentives to invest. On the other hand, the threat of future competition can provide incentives to escape competition.

Cavenaile et al. [2021] start from a standard endogenous growth model with log preferences. When labor supply is fixed the general equilibrium effects only work through the interest

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rate, which is not important for the analysis, so we can also think of their model as that of an industry equilibrium. The key simplification – and a nice feature of their model – is the coexistence in industry j of $N_{j,t}$ large firms with a competitive fringe of size $F_{j,t}$ so that industry output is given by

$$y_{j,t} = \left(\sum_{i \in N_{j,t}} y_{i,t}^{\frac{\eta-1}{\eta}} + \left(\int_{k \in F_{j,t}} y_{k,t} \right)^{\frac{\eta-1}{\eta}} \right)^{\frac{\eta}{\eta-1}}.$$

The large firms produce $y_{i,t} = q_{i,t} l_{i,t}$ and $q_{i,t}$ evolves according to the usual stochastic innovation model of R&D as in Aghion and Howitt [1998] with a cutoff n for the maximum gap in the quality ladder. Merger opportunities arrive at rate σ where two large firms can merge. Denoting by A the acquirer and T the target, the merged entity would reach the productivity level

$$q_M = \gamma q_A^{\alpha} q_T^{1-\alpha},$$

unless it is blocked by the regulator who follows a policy based on HHI. Optimal R&D choices depend on future merger opportunities and small firms also engage in R&D in the hope of joining the club of large firms.

In the calibration, the average merger probability is 3.8%, the average obstruction rate is 0.9%, and the average combined return is 3.3%. The model features relatively strong escape competition incentives: the policy function for innovation has the inverted-U shape of Aghion et al. [2005] and reaches its maximum when competition is close to neck-and-neck. Innovation incentives decrease when firms are more than 2 steps away from the industry leader. Mergers are most common in less concentrated industries because of anti-trust policy and because of the higher surplus available for mergers in those industries.

The main result of the paper is that the growth rate of the economy decreases when enforcement decreases. In the baseline model, when the obstruction rate decreases from 0.9% to 0, growth decreases from 2.2 to 2.18% per annum. The distribution of markups, on the

other hand, barely changes and the static welfare losses are very small (2 basis point). Since markups do not move, this also implies that the results do not change when labor supply is endogenous (section 5.2) and that, in this model, the enforcement channel is unlikely to explain the observed changes in the labor share and the profits documented in Gutiérrez and Philippon [2017]. To summarize, Cavenaile et al. [2021] find that the gains from enforcement come from increased innovation by large firms and the main role of the regulator is to maintain a relatively high fraction of neck-and-neck industries. Interestingly, strong anti-trust enforcement leads to lower innovation from small-firms as the option-value of future mergers decreases.

2 Comparison with Mermelstein et al. [2020]

Mermelstein et al. [2020] assume economies of scale that lower the marginal costs of large firms. Firms can grow internally by accumulating capital, or externally through mergers. Firms choose the most profitable growth strategy while a regulator has a (costly) technology to block mergers.

A theme that is common to both papers is that the optimal policy in the dynamic economy differs substantially from the optimal policy in a static model. The main reason is that mergers affect the values and investment policies of all firms. In Cavenaile et al. [2021] these are R&D investment while in Mermelstein et al. [2020] these are capital expenditures, but the intuition is quite similar. We saw that Cavenaile et al. [2021] use a differentiated model with free entry. By contrast, Mermelstein et al. [2020] study an industry with one homogenous good and linear demand. Nonetheless they also find that merge control increases investment. When all mergers are allowed the stock of capital is lower and consumer surplus is lower. Prices, on the other hand, barely change, as markups and marginal costs move in opposite directions. An interesting point is that, when mergers are allowed, entrants with low capital invest in the hope of being acquired, which is reminiscent of the results in Cavenaile et al.

[2021].

3 Conclusion

Cavenaile et al. [2021] argue that the long-run implications of anti-trust enforcement on innovation and growth are quantitatively larger than the more standard short-run implications. By doing so, they make the argument that anti-trust policy makers should put more weight on dynamic efficiency than on static efficiency.

While we need further research to refine these results, we can already see that the analysis of mergers in dynamic equilibrium model yields important insights. It is clear that we should think of a merger *policy* as opposed to a sequence of one-off decisions because the merger *policy* influences the investment decisions of firms not currently involved in any merger. The merger policy interacts with entry and investment decisions in subtle ways that can lead to higher or lower entry and investment by small firms. Finally, dynamic decisions also raise the issue of time consistency, as emphasized by Mermelstein et al. [2020].

References

P. Aghion and P. Howitt. *Endogenous Growth Theory*. MIT Press, Cambridge, Massachusetts, 1998.

P. Aghion, N. Bloom, R. Blundell, R. Griffith, and P. Howitt. Competition and innovation: an inverted-u relationship. *The Quarterly Journal of Economics*, 120(2):701–728, may 2005. doi: 10.1093/qje/120.2.701.

L. Cavenaile, M. Celik, and X. Tian. The dynamic effects of antitrust policy on growth and welfare. Mimeo, Available at SSRN: http://ssrn.com/abstract=3712573, 2021.

G. Gutiérrez and T. Philippon. Investment-less growth: An empirical investigation. *Brookings Papers on Economic Activity*, Fall, 2017.

B. Mermelstein, V. Nocke, M. A. Satterthwaite, and M. D. Whinston. Internal versus external growth in industries with scale economies: A computational model of optimal merger policy. *Journal of Political Economy*, 2020.