PROJECT POLICY BRIEF
PhD 1503 | April 2025

Economic Development and the Right Tail of the Firm Size Distribution

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Rich and poor countries differ in the size distribution of business firms. In this project, I document that the right tail of the firm size distribution systematically grows thicker with economic development, both within countries over time and across countries. I develop a simple idea flow growth model to rationalise this fact. In the model, the firm size distribution has a thickening right tail along the growth path and converges to Zipf's distribution, consistent with the well-known Zipf's law. The model also implies that policies favouring large firms can improve welfare due to the externality associated with idea search.

Introduction

Rich and poor countries differ in various ways, including the size distribution of business firms. While giant corporations are sometimes seen as symbols of economic success, a prominent feature of developing economies is the prevalence of small firms. Among developed countries, large firms have also become increasingly dominant over the years. It then seems that a critical question for economic growth is how the distribution of firm size varies with the level of economic development.

In addition to its positive nature, this question holds significant policy implications. As market shares become more concentrated in a few firms, concerns about market power naturally arise. The apprehension of monopolies often leads to assigning blame to existing policies and advocating for stricter regulation or taxation of large firms. However, this line of reasoning may overlook the possibility that an increasing market concentration is a consequence of economic growth itself rather than an institutional flaw.

In this project, I present a simple theory that economic growth contributes to the rise of large firms. Instead of suppressing these large firms, the theory suggests that policymakers should actively support them to harness the dynamic gains in growth.

Policy context

As discussed above, this project places emphasis on economic forces rather than institutional factors as the driving factors behind the rise of large firms. I refrain from targeting specific policies implemented in individual countries. Both the empirical and theoretical exercises are designed to be broad and foundational, encompassing cross-country comparisons and within-country time series.

In line with this approach, the results on optimal policies are intended to provide insight rather than prescribing specific actions, aiming to facilitate the understanding of the subject matter.

Data and methodology

As hinted in the introduction, this project begins with an empirical investigation on whether firm concentration is positively correlated with the level of economic development. This requires data on firm size distribution over many countries and years. Since micro data on firms are usually confidential and available only in developed economies, I leverage on a specific firm concentration measure—the thickness of the right tail of firm size distribution. Broadly speaking, it measures the relative size of large firms to not-so-small firms in the economy. Therefore, it requires only information on employment by firm size bins.

Three datasets are suitable for this objective and complimentary to each other. The OECD structural business statistics is a panel dataset covering all the OECD countries from 2005 to 2018. It clusters firms into five size bins by employment and provides information on the number of firms and total employment by firm size. The World Bank Enterprise Survey has surveyed firms in more than 130 countries, most of which are developing countries, since 2006. Even if most countries have only been surveyed once or twice, it presents useful cross-sectional evidence for developing countries. The Business Dynamics Statistics of the US Census Bureau covers the universe of US firms from 1978 to 2019. It offers high quality time series data of a representative developed economy. Using these data, I construct firm concentration measures at the country-year level and find a positive correlation with GDP per capita.

Results

This project makes both empirical and theoretical contributions to the research question. Empirically, the main finding is that the right tail of the firm size distribution systematically thickens with economic development, both within countries over time and across countries. Theoretically, I write down a model in which the thickening right tail is a natural feature of the growth process. In the model, the diffusion of ideas among heterogeneous firms generates sustained growth. Both growth and the firm size distribution are endogenous in the model, and the right tail of the firm size distribution thickens along the equilibrium transition path.

This project also offers new policy implications. Idea search by each firm has externalities on other firms, affecting the productivity distribution that determines future search efficiency. While search

by large firms thickens the right tail and has positive externalities on all firms in the economy, search by small firms has few externalities on large firms. Therefore, large firms under-invest in idea search relative to the first-best outcomes. I show that policies favouring large firms' idea search can improve social welfare.

Policy Impact

Policy makers can improve social welfare by utilising the diffusion externality. Idea search by each firm has externality on other firms since it affects the productivity distribution, which determines future search efficiency. While search by large firms thickens the right tail and has positive externality on all firms in the economy, search by small firms has few externalities on large firms. Thus, relative to first-best outcomes, large firms under-invest in idea search, and policy should encourage more search by large firms.

I consider two policy exercises. In the first exercise, the social planner chooses a productivity threshold and imposes an additional tax on firms below the threshold. As a result, search is conducted only by firms above the threshold. I show that the equilibrium long-run growth rate increases with the level of productivity threshold, and so does welfare. The second exercise solves the social planner's problem. The optimal individual search intensity grows with the level of productivity at an approximate power rate. In this respect, the socially optimal search intensity differs from the equilibrium intensity, which is uniform across all firms. Both exercises indicate that policies favouring large firms better capture the diffusion externality and improve welfare.

Moving Forward

As mentioned earlier, the primary contribution of this project lies in its theoretical framework. The results, particularly those related to policy implications, are contingent on various assumptions that abstract from real-world complexities. Despite this, the project highlights the potential potency of idea diffusion as a growth mechanism and suggests room for industrial policy to utilise diffusion externalities.

A crucial next step involves quantifying this mechanism alongside other important welfare margins such as market power. This comprehensive analysis is essential for understanding the relative importance of the diffusion mechanism and developing precise policy recommendations. I conjecture that the diffusion mechanism holds greater significance for low-income developing countries, given their substantial growth potential through catching up. Designing the optimal path for catch-up becomes paramount for policymakers in these regions.

This policy brief no. 18 is based on research conducted as a part of STEG PhD Grant 1503. STEG Policy briefs are short accessible research notes summarising STEG-funded projects written with policymakers in mind.