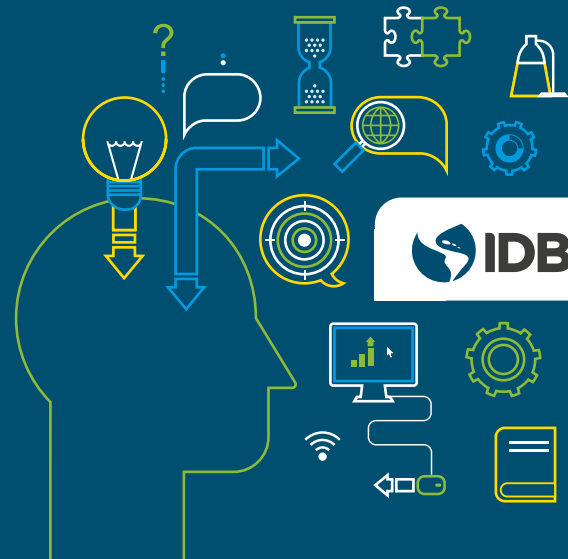


How Does Firm-Embedded Productivity Affect Cross-Country Income Differences?

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- ➔ The gap in productivity among countries is a fundamental factor contributing to income disparities across countries.
- ➔ Firm-embedded productivity, encompassing knowledge, expertise, patents, brands, and business models, contributes to approximately one-third of the variation in output per worker across countries. Country-specific factors, such as institutions and natural resources, account for the remaining variation.
- ➔ Policies that enhance firm-embedded productivity, such as tax incentives for R&D and research grants, can help reduce global income inequality.



CONTEXT

Productivity is a key determinant in income disparities among countries, accounting for roughly half of the differences in income per capita. To understand a country's productivity, we must consider two main components. The first is firm-embedded productivity, including knowledge, expertise, patents, and unique business models. The second consists of country-specific factors such as institutions, natural resources, infrastructure, and workforce quality. However, discerning the exact contribution of these components in income disparities among countries has proven challenging, as different combinations can result in the same level of output per worker.



PROJECT

The study presents an innovative approach to distinguish firm-embedded productivity from country-specific factors by leveraging data on multinational enterprises (MNEs). The central idea revolves around comparing the market share of the same MNE in different countries, with variations attributed to differences in the firm-embedded productivity of local firms. While MNEs have the ability to replicate their business models globally, they must adjust to country-specific conditions. As a result, in countries where local firms exhibit lower firm-embedded productivity, MNEs are likely to capture a larger market share. Conversely, in countries where local firms have higher firm-embedded productivity, MNEs are expected to have a smaller market share.

RESULTS

The main result of this study is a strong positive correlation between firm-embedded productivity and output per-worker. Notably, differences in firm-embedded productivity account for about one-third of the income gap between countries. This results in MNEs enjoying a market share in developing nations approximately four times larger than that in high-income countries. This disparity arises from reduced competition in poorer nations, indicative of lower overall firm-embedded productivity. Importantly, this result holds even after controlling for country size, suggesting that the substantial contribution of firm-embedded productivity to income differences is not explained by market size.

Key Concept

COUNTRY-EMBEDDED FACTORS



Components that are internationally immobile and affect all firms operating in a country such as institutions, natural amenities, infrastructure, and workforce quality.

Within these overall results, there is significant variation among countries in the impact of firm-embedded productivity on output per worker, as illustrated in [Figure 1](#). For example, Italy's output per worker exceeds Greece's by an average of 36% (approximately \$30,000 higher). Our analysis reveals that about three-quarters of this observed disparity (roughly \$22,500) can be attributed to higher firm-embedded productivity in Italy, with the remainder attributable to disparities in country-specific factors. In contrast, Spain's output per worker is twice that of Mexico. However, we find that Spain and Mexico have similar levels of firm-embedded productivity, indicating that the disparity in income per capita is primarily due to higher country-specific factors in Spain.

No particular sector drives these results. We find that firm-embedded productivity for the average country (relative to France) is similar for

Manufacturing and Services (-0.18 vs -0.20 log-points), as well as its contribution to cross-country income differences, which is roughly one third for both sectors.



POLICY IMPLICATIONS

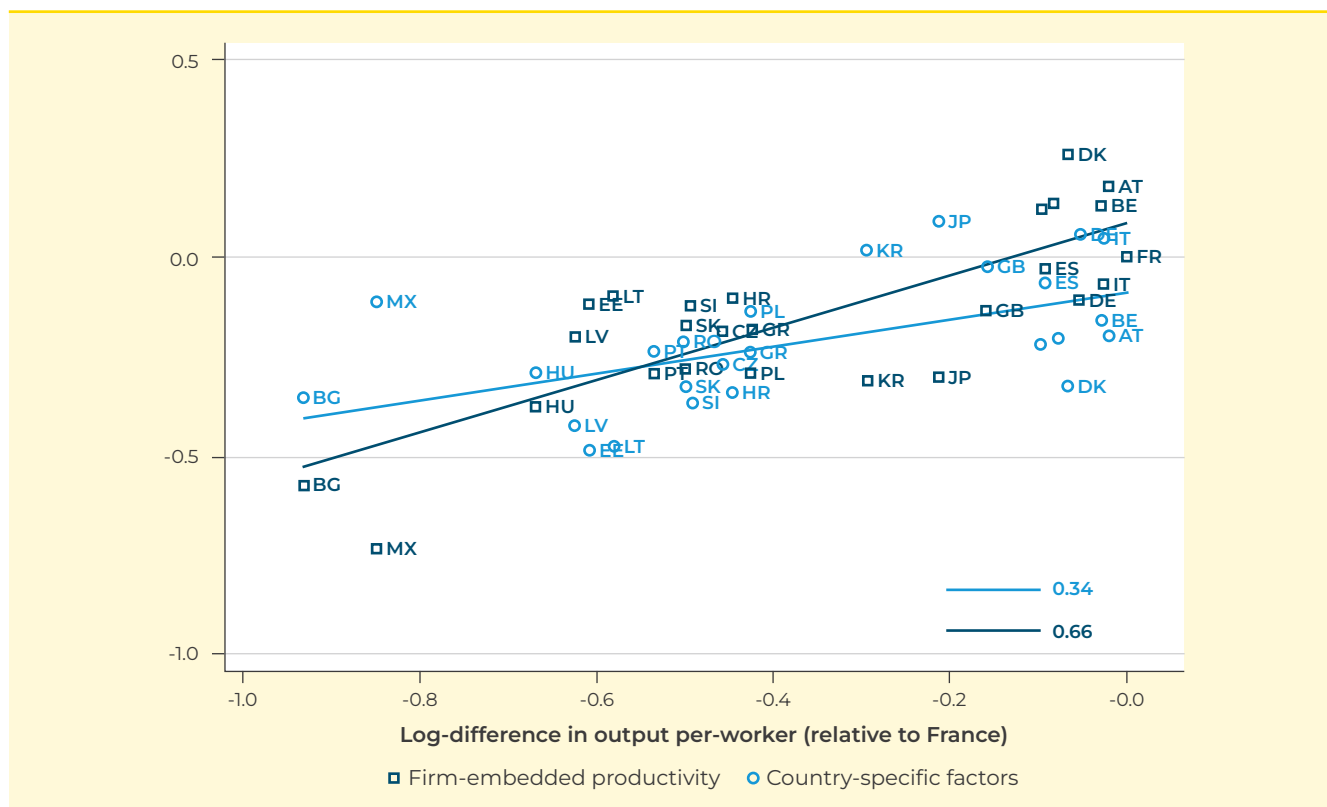
Policies that help to close the gap in firm-embedded productivity across countries can go a long way towards reducing cross-country income differences. Importantly, these insights are applicable regardless of a nation's market size, making them relevant worldwide.

In addition, a country's income per capita is closely linked with firm-level productivity. This suggests that policymakers should create an environment conducive to fostering firm-embedded productivity. Recommended measures include offering tax incentives for research and development, implementing intellectual property tax regimes, providing grants to stimulate firm innovation, establishing incubator programs for startups, facilitating technology adoption at the firm level, enhancing management practices, and providing intangible capital in the form of business networks and market access. By investing in these areas, countries can cultivate a more competitive and productive business landscape, leading to higher output per worker.

Additionally, the study highlights the need to reduce barriers to entry for multinational enterprises (MNEs), as competition plays a pivotal role in stimulating productivity growth. The largest gains are observed in countries with the lowest levels of firm-embedded productivity and in poorer countries that integrate with more productive nations. Enabling MNEs to operate more freely across borders allows countries to leverage the expertise and technology these firms bring, which can drive productivity growth.

In conclusion, policies that help poor countries catch up in terms of firm-embedded productivity and eliminating barriers to firm mobility across countries, can play an important role in eliminating cross-country income differences.

FIGURE 1. Contribution of Productivity Components to Variations in Output per Worker

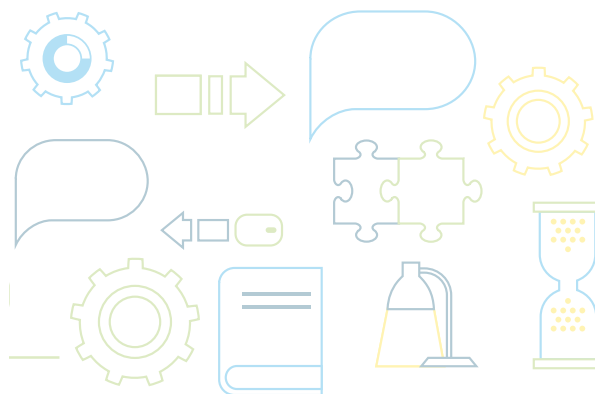


Note: The figure reports the slopes of a two-variable regression of firm-embedded productivity (country-specific factors) on the log-difference in output per-worker. The red circles show the difference in firm-embedded productivity in each country relative to France. The blue squares show the differences in country-embedded factors relative to France.

Key Concept

FIRM-EMBEDDED PRODUCTIVITY

Characteristics that are unique to a given business, including its management practices, “blueprints” of replicable business formats (like franchises), intellectual capital, and intangible capital such as brands, patents, and R&D.

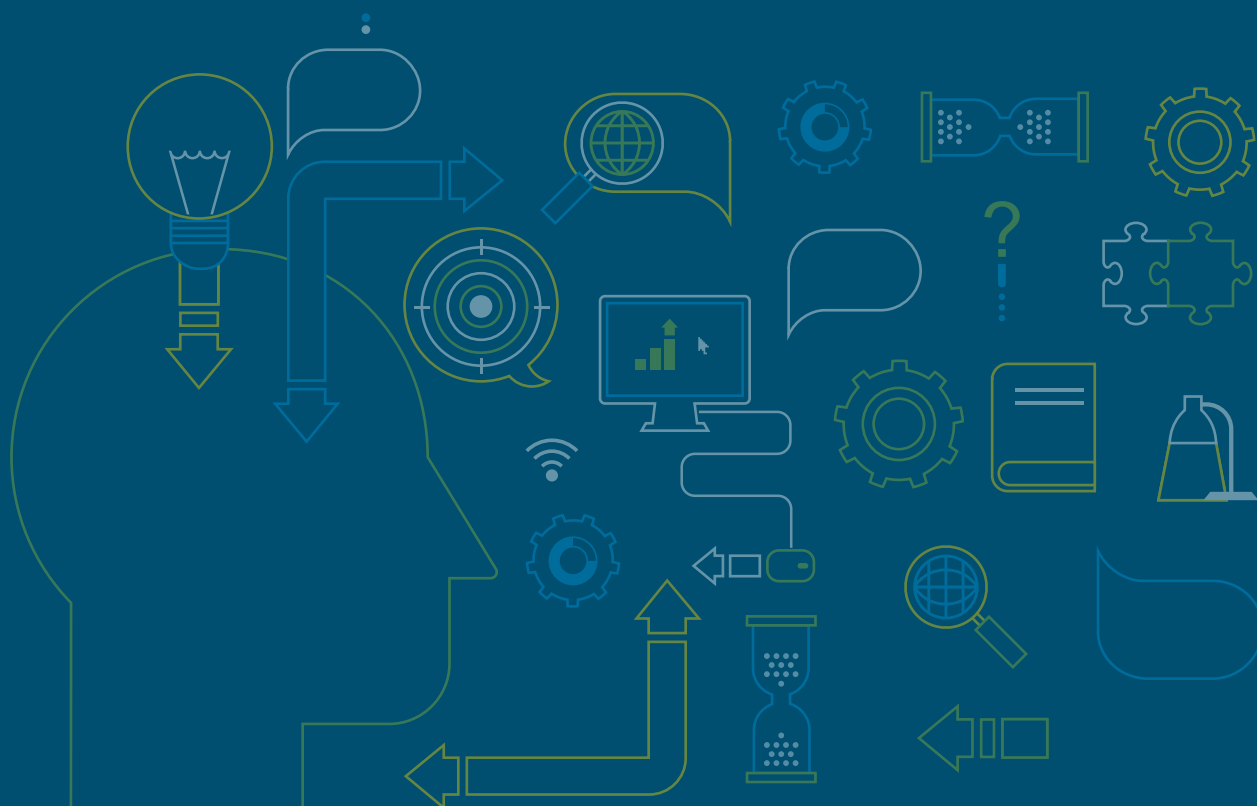


FULL STUDY

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