

**EXECUTIVE SUMMARY**

# New Insights for Innovation Policy

by Ufuk Akcigit and Sina T. Ates

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## THE CHALLENGE

In recent decades the US economy has been suffering from low productivity growth, slower business dynamism, and weaker competition. The technological gap between leading firms and other firms within industries has been widening. Evidence suggests industry leaders hoard innovative resources and output in an effort to maintain their dominance, while laggard firms face higher barriers to competition. In their chapter titled “New Insights for Innovation Policy,” authors Ufuk Akcigit (University of Chicago) and Sina T. Ates (Federal Reserve Board) argue that policies to alleviate these concerns and enhance competition are key to boosting overall innovation and productivity in the economy.

Akcigit and Ates underscore that appropriate policy responses would remove barriers to competition and take advantage of complementarities between competition, innovation, and dynamism. They suggest five policy recommendations:

1. **Lower barriers to competition from foreign firms:** Enhanced competition reduces the need for government intervention via R&D subsidies. Increasing foreign competition and investment through trade liberalization can benefit the economy by funding start-ups and reinvigorating dynamism in more concentrated sectors.
2. **Develop human capital while attracting global inventors:** Policies designed to attract global inventors, such as changes in income tax policy, can provide a complementary solution to domestic educational policies and offer a more immediate option for expanding the talent pool.
3. **Support the secondary market for patents:** Patent concentration has increased significantly since the 1980s, and a thriving secondary market would encourage knowledge diffusion and promote patent ownership by the most productive users.
4. **Target R&D investments to smaller and younger firms:** R&D subsidies are useful options to boost innovation investment, but are also prone to increasing top income inequality and are likely to benefit larger firms. Targeted measures could reinforce laggard firms and increase competition.
5. **Increase spending on basic research:** Increasing public expenditure on basic research would likely have outsized effects on the innovation landscape by allowing the government to undertake more high-risk, high-reward research from which major breakthroughs often come.

## SLOWING US BUSINESS DYNAMISM

Akcigit and Ates summarize a number of empirical trends documented in the literature that demonstrate various symptoms of declining dynamism and increased concentration in the US business environment. Over the past several decades, the US business landscape has been characterized by: (1) fewer firm entries and exits; (2) less representation of young firms as a proportion of economic activity; (3) lower

levels of labor reallocation; (4) greater dispersion in productivity and growth among firms within industries; and (5) greater concentration of patents and inventors.

The authors also highlight a sharp decline in knowledge diffusion in the US economy, which is important for follower firms that depend on learning from the best practices and technologies of the market leaders to remain competitive and to grow. They note that this is likely both a consequence of and a contributor to the trends listed above.

## **INTERNATIONAL COMPETITION AND INDUSTRIAL POLICY**

Openness to trade and foreign competition—especially in the absence of robust domestic competition—create incentives for domestic firms to improve their products and increase efficiency.

In previous work, the authors find that increased foreign competition reduces the need for R&D subsidies. In particular, as bilateral trade costs decline—that is, as trade becomes more open—the optimal R&D subsidy rates decrease as well. Lower trade costs produce stronger competition for domestic firms, inducing them to innovate more intensively. The need for R&D subsidies to correct for deficient domestic innovative activity is reduced, as firms are naturally pushed toward optimal innovation effort.

As such, Akcigit and Ates recommend that policymakers slash trade barriers to zero, at all policy time horizons and even unilaterally.

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## **FOREIGN INVESTMENT**

Enhanced integration with the global economy, which can help to spur overall innovation and business dynamism, often entails increased cross-border investments in domestic firms. Akcigit and Ates acknowledge that foreign investments in critical areas—such as artificial intelligence, fintech, robotics, and virtual reality—may be leading to technology flows that pose national security concerns.

Still, research suggests that foreign investment is important for innovation. The authors show that foreign investment is associated with greater overall patent activity, more innovative (basic) patents, and increased knowledge flows and spillovers. They advise

policymakers to weigh security risks with innovation benefits, but note that the distortions exerted by cost-raising interventions on firm behavior and resulting productivity costs are likely to outweigh potential gains from higher barriers to foreign investment.

## **INVENTORS, IMMIGRATION, AND APPLICATION TO TAX POLICY**

A major force behind innovation are the innovators themselves—both domestic and foreign. In the United States, there is a strong complementarity between education and innovation. Additionally, there is a strong positive impact of parental income on a child's potential to become an innovator, chiefly through the influence income has on educational attainment and opportunity. Therefore, providing equal educational opportunities for children outside the very top income percentiles could be a powerful policy to increase innovation in the long term.

Akcigit and Ates also turn their focus to the question of immigration as a more immediate solution for expanding the innovation talent pool. They emphasize the substantial contributions immigrants have made to US inventions over the past century, and note that, overall, immigrant inventors were more productive during their lifecycle than were native-born inventors.

Their research suggests that foreign inventor location choices are highly elastic to income tax policy—high income taxes appear to have significant negative effects on inventor relocation. However, the authors warn that ill-devised policies can impose significant costs on societies through their adverse effects on innovation incentives felt by both firms and individuals, hurting economic growth and development.

## **THE R&D TAX CREDIT**

Government spending on R&D as a fraction of GDP has been steadily declining in the United States since the 1970s, while business R&D spending has increased. The two are not interchangeable; while the government is able to undertake high-risk basic research projects, the private sector, driven by return on investment, predominantly focuses on applied research. Akcigit and Ates argue that engaging the public sector in basic research should therefore be an important aspect of innovation policy.

Finally, when considering R&D subsidies, policymakers should be aware of how firms of different sizes use subsidies differently. Smaller firms, for instance, produce more radical innovations and generate more major innovations relative to their size, further supporting the importance of targeted measures. Blanket measures, including R&D subsidies available equally to all firms, may disproportionately help larger players. Akcigit and Ates emphasize that providing a level field conducive to the emergence of competitive, high-growth, small and young firms necessitates more nuanced and targeted approaches.

## ABOUT THE AUTHORS

### **Ufuk Akcigit**

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Ufuk Akcigit is the Arnold C. Harberger Professor of Economics at the University of Chicago. He is an elected Research Associate at the National Bureau of Economic Research, Center for Economic Policy Research, and the Center for Economic Studies, and a Distinguished Research Fellow at Koc University. He has received a BA in economics at Koc University, 2003, and Ph.D. in economics at Massachusetts Institute of Technology in 2009. As a macroeconomist, Akcigit's research centers on economic growth, technological creativity, innovation, entrepreneurship, productivity, and firm dynamics. His research has been repeatedly published in the top economics journals, cited by numerous policy reports, and the popular media. The contributions of Akcigit's research has been recognized by the National Science Foundation with the CAREER Grant (NSF's most prestigious awards in support of early-career faculty), Kaufmann Foundation's Junior Faculty Grant, and Kiel Institute Excellence Award, among many other institutions. In 2019, Akcigit was named the winner of the Max Plank-Humboldt Research Award (endowed with 1.5 million euros and aimed at scientists with outstanding future potential). In 2021, Akcigit was awarded the prestigious Guggenheim Fellowship and was named a Fellow of the Econometric Society. In 2022, he received the Sakip Sabanci International Research Award and Kiel Institute's Global Economy Prize.

### **Sina T. Ates**

*Principal Economist, Federal Reserve Board of Governors*

Sina Ates is a Principal Economist at the Federal Reserve Board. His research focuses on Quantitative Macro, Economic Growth, Firm Dynamics and Innovation, and International Finance. He holds a Ph.D. in Economics from the University of Pennsylvania where his dissertation focused on the Finance of Innovation, Firm Dynamics and Economic Growth.

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