

# Could Domestic Industrial Policies, Even With Global Fragmentation, Revive Productivity?

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## Abstract

Many policymakers are using industrial policies more actively, while also pursuing policies tending to fragment global markets. Can this combination revive productivity growth? This essay starts with noting that an average productivity measure used to assess macroeconomic performance often masks important distributions of productivity outcomes, which matter economically, socially, and politically. It then reviews the frameworks that rationalize industrial policies and which derive the outcomes of global engagement. It then considers current empirical assessments of the effectiveness of industrial policies and current modeling work on the consequences of global fragmentation. It presents an overview of two new databases on detailed industrial policies as being deployed by policymakers. With regard to the question posed in the title, the answer is most surely ‘no’. First because the deployed industrial policies rarely match the framework rationalizations. Second because the majority of those policies further fragment global markets. Therefore, globalization gains are being foregone while industrial policies are being mistargeted. That combination is not likely to revive productivity growth nor improve productivity distributions.

These days, policymakers face three developments: First, the trend toward deeper global engagement has been undermined by widening inequalities seen to be caused by global factors, by weakening of the multilateral rules of global institutions such as the IMF and WTO, and by rising geopolit-

ical tensions and associated prioritization of domestic economic and national security concerns.

Second, an upswing in the deployment of domestic industrial policies, which purport to address a variety of externalities including domestic concerns regarding com-

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petitiveness of key industries, agglomeration and skill losses concentrated by region, incompleteness in financial markets with respect to firm size and type of investment, and a failure to price-in supply-chain shocks on externalities from global public goods such as climate change.

Third, the slowdown in productivity growth and the widening distribution between productivity leaders and laggards, whether firm or regions, which weakens the capacity of a countries' policymakers to improve the well-being of individuals, their communities, and their children.

How do the first two developments intersect with the third? The policymakers' objective, to enhance productivity prospects, is key to increasing living standards. But it is clear that macroeconomic – that is, average – productivity growth is not the only concern. The distribution of productivity growth, across firms, regions, and intergenerational cohorts matters too, as these can feed back into the future trajectory of both overall productivity and its distribution. This nexus of productivity and inequalities, and research related to it, was outlined and reviewed in depth by OECD (2018) and Cho, *et al.*, (2024).

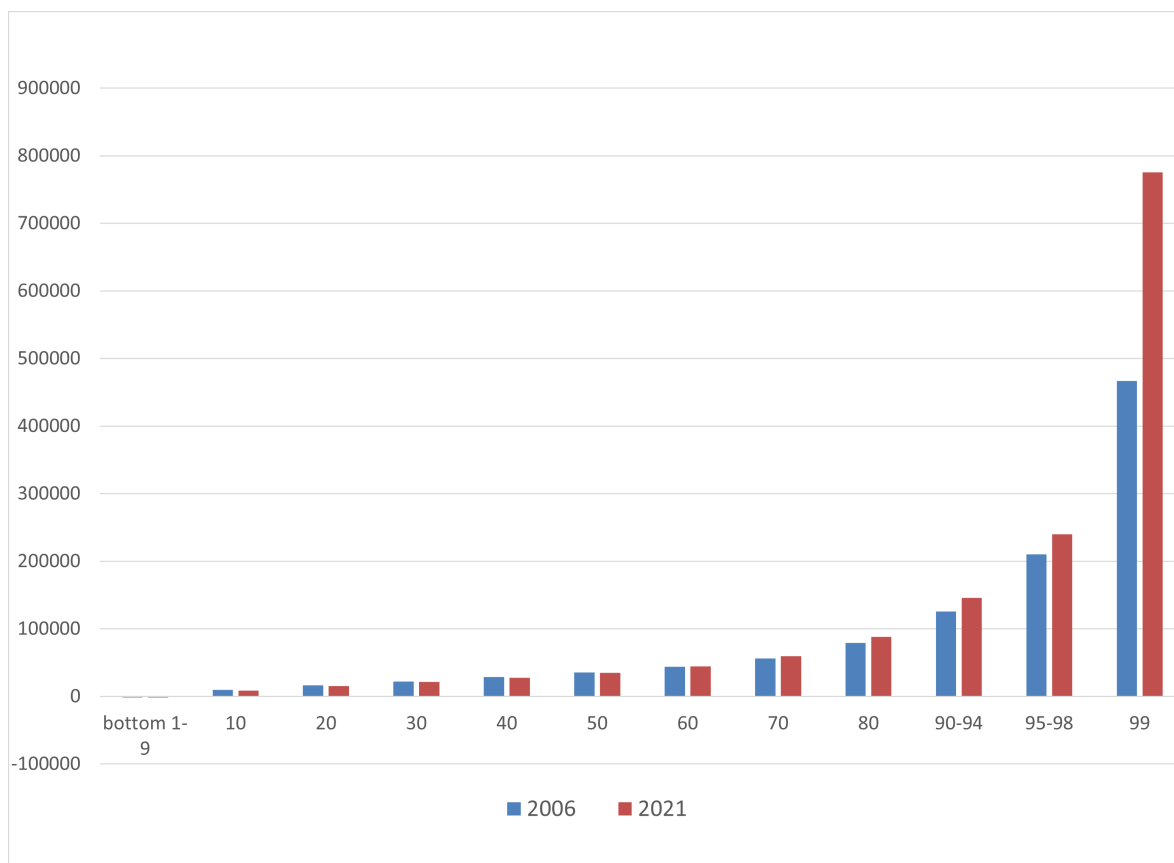
Where do industrial policy and global fragmentation fit into these productivity objectives? Should industrial policies focus mostly on ameliorating negative distributional consequences of global integration even as globalization drives further productivity gains? Or, should they bolster domestic outcomes in part by dampening global integration and its negatives? The first policy design – industrial policy to ameliorate globalization issues – suggests that domestic industrial policies could com-

plement policies of global integration to revive overall productivity growth. It could do this by promoting adjustment strategies and by addressing externalities which together would help diffuse gains from global integration more evenly throughout the economy. The second policy design – domestic industrial policy combined with geoeconomic fragmentation — would appear to forego some gains from global integration and presume that domestic industrial policy can be sufficiently robust to generate productivity gains through domestic-based channels.

The answer to which pair of policies has the greatest potential to revive productivity growth may depend on how we think about and what research might reveal regarding the mean or aggregate productivity outcome versus the variation or distribution of productivity outcomes. It is common to use aggregate or economy-wide outcomes to judge policy, since this aggregate is relevant for macroeconomic assessment of productivity growth. But, the variation in firm (or regional or intergenerational) outcomes around the average clearly also is relevant.

Chart 1 shows the cumulative distribution of labour productivity in constant GBP for deciles (and some smaller percentiles) over time for the UK. Real labour productivity has been flat for near a quarter century for the lower half of the distribution. These workers are in firms often classified as 'laggards'. On the other hand, the real productivity gains enjoyed in firms at the productivity 'frontier' of the 90th and above percentiles is significant; dramatic for the 99th percentile at the top of the distribution. There are myriad inequal-

**Chart 1: Average Labour Productivity Outcomes by Decile and Top Percentile in the United Kingdom, 2006 and 2021 (constant 2019 GBP)**



Source: Annual Business Survey (ABS), Annual Business Inquiry (ABI) – Office for National Statistics (ONS).

ities and both policy and political salience associated with this wide and widening distribution of productivity outcomes.

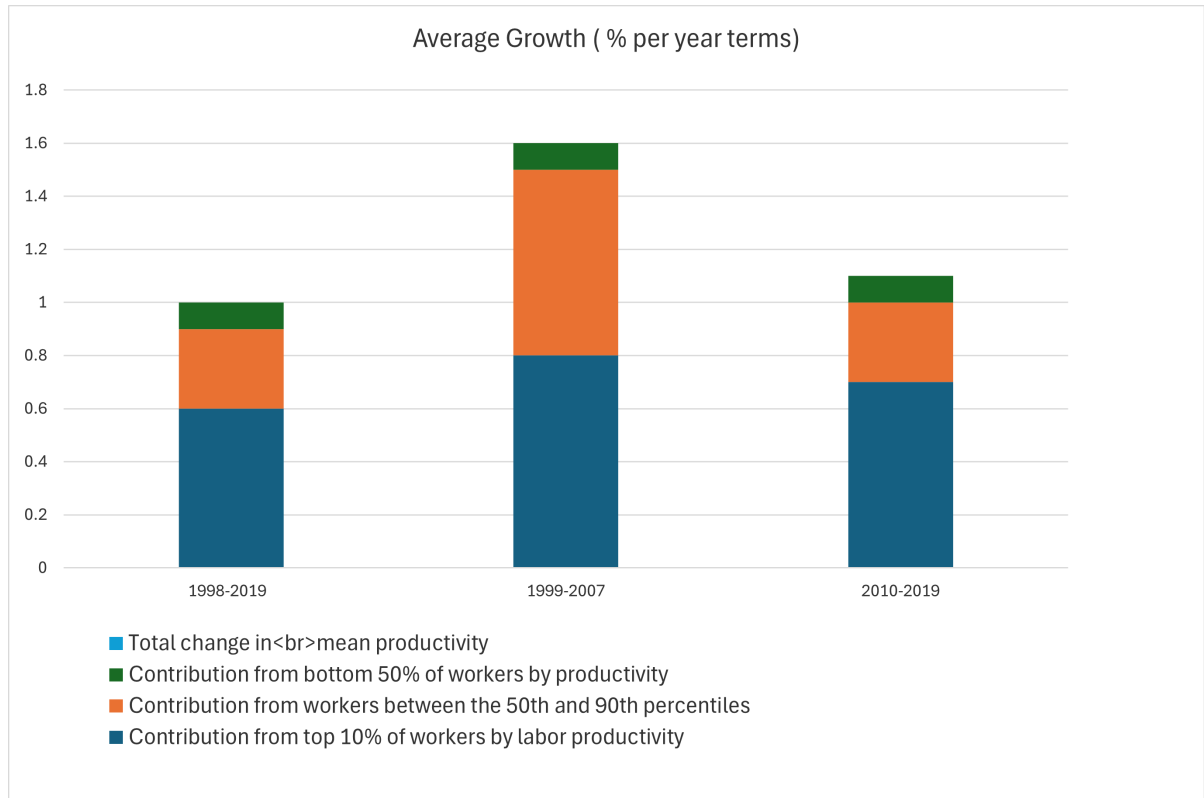
Chart 2 puts these data into perspective on the contribution of the various deciles of the level of productivity into contributions to productivity growth over various time periods. The observation from this presentation versus the previous one reveals that the slowing in productivity growth in the UK is predominantly at the core of the distribution (although the top decile has also slowed). There is a narrowing of the deciles in terms of contribution to productivity growth, but not in a good way.

Imagine a hypothetical alternative whereby the bottom half of the distribu-

tion become just somewhat more productive. Overall productivity growth would improve and the distribution of productivity outcomes would narrow, at least a bit. Can this improvement at the bottom be achieved along with a resumption of productivity in the middle and even as the frontier firms continue to pull away? The distribution and how productivity is achieved across the distribution matters for a number of reasons.

First, knowing the average but not the distribution is a poor representation of the productivity landscape of the economy. The average masks the policymaker challenge of how to increase productivity for the economy by addressing productivity

**Chart 2: Contribution by Different Deciles to UK Labour Productivity Growth, Selected Periods**



Note: Percentages may not sum up due to rounding.

Source: Office of National Statistics

<https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/articles/firmlevel labourproductivitymeasuresfromtheannualbusinesssurveygreatbritain/1998to2019>

disparities that are important in both the present state and future trajectory of the economy. Second, wide productivity disparity might be related to lower economic resilience: An economy that depends on productivity performance of the leaders but with a large fraction of the economy with much lower productivity outcomes could be fragile in the face of shocks or global competition or other factors that disproportionately hit the relatively few productivity leaders.

The process of collecting data, applying measurement and conducting research is to provide guidance to policymakers. Given the three developments that prompted this

essay, it tries to answer the question posed in the title by considering: What do we know about how global fragmentation and industrial policies might affect the mean and distribution of productivity outcomes. What are the objectives of policymakers and what policies are they apparently deploying to meet them. Will these revive productivity growth?

The first section of the article presents some fundamentals of the globalization and industrial policy frameworks, including the channels through which they purport to support productivity growth. An important focus is the extent to which these frameworks consider average or overall outcomes

versus distribution of outcomes and potential vulnerabilities. Section 2 takes a look at the current discourse on these topics, that is, what recent research has to say about what might be given up with the trend toward global fragmentation versus what might be gained from industrial policies. Section 3 gives an overview of two new datasets of industrial policies as deployed. This section focuses on (1) whether there is a good match between the objectives of industrial policy (as outlined in the framework section) and the policies and their targets as actually deployed; and (2) how intertwined industrial policies and globalization policies apparently are and whether this is complementary to raising productivity growth or may be working against that goal. Section 4 offers some final observations

## Global Integration, Industrial Policies, and Productivity Growth

### The Fundamentals of Productivity Growth

Where does productivity growth come from? Transformation, total factor productivity, is central to productivity growth. Transformation, in products, processes, and workplace practices, when we consider the firm lens of analysis. As firms transform, so do regions and people who live and work there – successfully or not. Transformation needs a technological foundation of innovation; domestic and global competition to promote investment, learning, and innovation; and people skills to inno-

vate, complement capital, and prosper in the overall transformation process. A recent report from The Productivity Institute (van Ark, de Vries and Pilat, 2024) puts it this way:

“The policy analysis identifies four categories of pro-productivity policies:

- **The accumulation of the factors of production** (e.g. policies focused on stimulating investment or strengthen education and skills)
- **Markets and resource allocation** (e.g. policies focused on improving the functioning of product and labour markets)
- **Technological and structural change** (e.g. policies focused on strengthening innovation)
- **Internationalization** (e.g. policies to enhance openness to trade or foreign direct investment)”

Stumbling blocks to these transformations will inhibit productivity growth.

When measuring productivity growth, it has been most common to use national aggregates, since it is this national aggregate that feeds into the overall capacity of an economy to deliver higher living standards. However, as noted earlier, as more granular data have come into research, it is increasingly relevant to evaluate productivity growth beyond the aggregate specifically to include firm and regional variation. For the UK, variation around aggregate measures of productivity growth along these two dimensions is substantial and has been increasing for some time yielding dismal aggregate productivity performance (van Ark and O’Mahoney, 2023). A look under the bonnet reveals that there has been a slow-

down in productivity growth at the frontier (Coyle and Mei, 2022) as well as no catch-up of the lower half of the distribution of workers in firms (ONS, 2022), yielding a widening distribution of productivity outcomes. The slowdown in average productivity growth challenges policymakers in many countries, not just the UK, even as the specifics of the underlying productivity distribution and causes thereof varies across countries.

Given this firm, worker, and regional variation, an important question when thinking about pro-productivity policies is whether to focus on improving productivity of the leading firms, workers, and regions or whether improving outcomes along the wider set of laggards is better economically (and perhaps politically too). Do policies differ for leaders vs laggards? They probably do. For leaders, the policies might focus on pushing out the knowledge frontier, and these policies might involve domestic R&D, but also deepening global market opportunities and disciplines, with technology learning and upgrading, and more market competition. For laggards, the policies might focus on strategies to encourage agglomeration and diffusion, such as infrastructure and housing, skills development, and first-loss financing for riskier firms, with more specifics on policies to be discussed later. The empirical work discussed below present some of what we know about these strategies.

### **Global Integration and the Distribution of Productivity Growth: the Framework**

How does global integration support the

sources of productivity growth, but also affect the variation in productivity outcomes and possible vulnerabilities to shocks? Do all these ‘run in reverse’ with the slowing of the pace of global integration?

Sources of productivity growth from global integration, and the transformation that is assumed to take place to obtain those gains, has a very long history, both theoretical and empirical. Ricardo, Stolper-Samuelson, Intra-Industry Trade, and Schumpeterian theories all reveal sources of overall gains through the mechanisms of consumers and firms responding to prices, resource availability, competition, and market opportunities that generate those gains.

Changes in relative prices and differences in resource endowments, technologies, and tastes all incentivize consumers and therefore firms into the transformations of product and place that generate gains. Larger markets support economies of scale. More varieties through intra-industry trade enhance consumer well-being and availability of business inputs. Imports and/or production re-location increase efficiencies, reduce costs, enhance knowledge of ‘close to consumer’ preferences, and allow access to resources not available at home. Technology transfer, managerial development, and financial flows are all enhanced with global integration.

Suppose all firms and regions could transform in the face of the signals, incentives, and opportunities associated with global integration. We could trace out a global integration productivity frontier for an economy.

However, just as there is vast empirical evidence on these gains from global engage-

ment, the facts are that not all firms, workers, and regions can transform so rapidly, leading to disparities in outcomes (Rodrick, 2024) manifested in the focus in this essay on both the productivity average as well as its distribution. As some firms access global markets to reap the benefits, including as measured by productivity growth, other firms and/or some regions, and the people there, may be left behind. Leading firms in pursuit of globalization and productivity gains for themselves, can leave agglomeration holes, income inequalities, and weakened knowledge diffusion, all of which negatively affect the productivity dynamic of firms in and of a region, and the people and communities there.

To the extent that some firms and regions struggle to transform then the overall potential productivity gain from global integration is not being achieved. The wider is the distribution, the less representative is the macroeconomic metric of average productivity growth and the further inside the possible productivity frontier associated with global integration the economy might lie.

In addition, global integration accentuated by technology has created complex supply networks, which is another lens on how the mean and distribution of productivity outcomes might matter. There is increasing appreciation that domestic and global value-chain specialization, which increases firm-level productivity, may not fully price infrequent shocks such as from climate, pandemics, or geopolitical stresses. Even if these tail shocks are becoming more frequent, their costs remain uncertain and hard for firms to value. However, if shocks were accounted for, firm costs probably

would be higher and measured productivity growth likely lower. Any individual firm may not have the incentive to incorporate the cost of tail shocks, particularly if competitors do not. What policies might internalize this externality, and are there productivity consequences?

National policies toward supply chain restructuring could be viewed as a coordinating device to address the externality that comes from inconsistent firm approaches to incorporating tail risks. But, this national perspective and prescriptive approach runs the risk of global tit-for-tat backlash and a shrinking of product market opportunities for all firms. Such global fragmentation could reduce measured productivity growth, which raises the stakes for industrial policy to offset. Without commenting on the price of de-risking or of national security, it is more difficult to achieve those objectives when operating in a low productivity environment.

## **Industrial Policies and the Distribution of Productivity Growth: the Framework**

Industrial policy has a somewhat eclectic theoretical heritage, but a key theme is that industrial policies should address externalities where private returns and societal benefits diverge, either at a point in time or dynamically over time, either within a country or with global objectives. The definition of societal benefits can be quite broad such that a wide array of objectives and microeconomic policies could fall within scope. Juhász, Lane, and Rodrik (2023) define industrial policy as “government policies that explicitly target the

transformation of the structure of economic activity in pursuit of some public goal.” Productivity growth might be a goal, but there are many others too. And, industrial policies need not have just a domestic focus: Externalities associated with global societal objectives, for example addressing mitigation and adaptation associated with climate change or biodiversity loss, also could be in-scope for industrial policy.

Getting more detailed and policy operational, Warwick (2013) sets out a framework that moves from product-market interventions, such as to develop infant-industry competitiveness; to factor-market interventions, such as the market’s failure to finance optimal R&D; to systems-intervention issues, ranging from network externalities to governance. Chriscuolo, Gonne, Kitazawa, Lalanne (2022) take another stab at an encompassing framework with an eye toward mapping objectives to policies to instruments, with a clearer focus on productivity growth as the goal. Industrial policies can be mission-oriented (such as the 1960’s moon-shot with productivity spillovers), place-based (to enhance transformation and narrow the productivity distribution), and/or sectoral and technology focused (including national security, strategic, and winner-take-all concerns).

Mazzucato’s (2024) broadens the challenge: “Modern industrial policy should shape markets, not just fix their failures.” In this view, industrial policy should take a pro-active stance toward economy-wide structural change to raise overall productivity growth in an inclusive way. Such an industrial policy could focus on a catalytic role for the public sector to boost innovation by domestic firms and within re-

gions to enhance productivity growth overall (Kattel and Mazzucato, 2018). A specific example of this might be the success of the ‘Asian Tigers’ as government interventions pushed domestic firms to move away from heavy industries to manufacturing (Chriscuolo, Gonne, Kitazawa, Lalanne, 2022: Box 1).

Because governance plays a central role in industrial policy, considering the effectiveness of the state and the relationship between governance and productivity is receiving renewed attention. See the UK case in Pabst and Westwood (2021). Following in the steps of the 2013 assessment by Crafts and Hughes (2013), Juhasz and Lane (2024) pursue a more general discussion of the political economy of industrial policy. In terms of political economy and accountability, a relevant question is whether bad policies matter for political outcomes: the evidence is not clear. Voters may turf-out the incumbents, but the incoming administration does not appear to achieve better outcomes, at least as measured by employment. (Marinova, 2024). And, voters may turf-out the incumbents based more on misinformation than on economics anyway. (Hellwig and Marinova, 2015).

### **Global Integration and Industrial Policies: Complementary or Separate?**

Given the presence of a left-behind tail of firms and regions struggling to transform, the implication is that the economy is operating inside some possible productivity frontier. The globalization theories indicate that the gains are large enough to



be redistributed to make everyone better off. But the globally-focused theories do not say whether or through what policies the gains accruing to the leading firms can either be distributed to, or effectively received to pull up the laggards. And the empirical facts evidence that these redistributions either have not taken place or have not been successful at meeting the transformation challenge (Juhasz, Lane, Rodrick, 2023).

Given this externality, can industrial policy be deployed to accelerate the transformation of left-behind firms and regions so that the maximum productivity gains from globalization can be achieved? This thinking could make policies of global engagement and domestic industrial policy complementary; and thinking in these terms could put the process of global integration and associated productivity growth back on track. Both industrial policy and global integration are needed to reach the highest average productivity. But in this view global integration is the primary driver of productivity growth, with industrial policies designed to ameliorate the distribution problem, resulting in a closing of the gap between the actual and possible productivity frontier.

In contrast, advocates of domestic-focused pro-active industrial policies argue that these policies will better achieve the goal of productivity growth, or at least of society without the distribution of leaders and laggards characterized by global integration. The incentives, disciplines, and rising distributional consequences of deepening global integration should not be the default to be remedied.

With pro-active policies in place, pre-

sumably firms and regions are less likely to fall behind the leaders – the tide does lift all boats. There should be less of a distribution in productivity outcomes and that contributes to a smaller gap between the potential productivity frontier and the actual one. However, does the tightening of the distribution of productivity outcomes come at the expense of higher productivity growth as measured by the mean? The bar is high, since domestic industrial policy would need to be sufficiently robust at generating productivity gains at the frontier as well as across the distribution of firms and regions to match the productivity growth associated with deeper global integration.

The complementarity of industrial policy and global engagement would appear to be the optimal strategy to raise average productivity growth two ways—at the frontier and among the laggards. The question still remains, on balance should policymakers focus on pro-active industrial policies while still deepening global engagement. Or should the trend toward global fragmentation be accepted, or even welcomed on account of the distributional issues? Mann (2019) concludes, “if globalization has peaked, this portends fewer resources to address inequalities regardless of their proximate cause. From this perspective, the problem is not too much globalization, but too little. To address the adjustment and distributional challenges, we need both to reinvigorate globalization and to deploy domestic policies to ensure that the gains are widely shared.”

## **Empirical Evaluation of Global Fragmentation and Industrial Policy**

With industrial policy being deployed more aggressively and more targeted and global fragmentation becoming more entrenched and policies more explicit, empirical research is starting to shed light on implications for global output and its distribution, albeit with limited attention specifically to productivity growth. This research allows a first stab at the question of whether gains from deploying domestic industrial policy could offset losses from global fragmentation. Although early days and difficult to compare scenarios across estimation methodologies, the results suggest that the losses from global fragmentation are macroeconomically material and the gains from deploying industrial policy more notable only for certain sectors.

A comprehensive report from the IMF (Aiyar, Ilyina, and others, 2023) details the state of globalization and then addresses various pressures for fragmentation. A recent CEPR volume (Aiyar, Presbitero and Ruta, 2023) assesses the costs of global fragmentation from a number of perspectives, including friend-shoring, commodities, innovation spillovers, FDI fragmentation, and uncertainty and bank lending. A symposium on industrial policies in the Fall 2024 issue of the *Journal of Economic Perspectives* offers views on picking export winners (Reed, 2024), lessons from shipbuilding (Barwick, Kalouptsidi and Bin Zahur, 2024) and semiconductors (Bown and Wang, 2024), political economy (Juhász and Lane, 2024) and a reprise on Alexander Hamilton's Report on Manufactures (Sylla, 2024).

## Global Fragmentation: Empirical Assessment

A number of recent papers use a variety of empirical models to run scenarios of different types of global fragmentation to quantify the losses to GDP for different regions, with some attention to productivity growth. There is much more to analyze.

Hakobyan, Meleshchuk, and Zymek (2023) takes the global perspective and assesses losses from global fragmentation through the lens of greater sensitivity of trade to geopolitics. The authors use a many-country many-sector gravity model and parameterize distance to include geopolitical alignment. Geopolitical trade sensitivity appears most relevant for foods, transport equipment, and other manufacturing. Geoeconomic fragmentation increases distance, which reduces trade and GDP. Emerging markets and developing countries are worst off. Joining non-aligned blocs using regional trade agreements can offset some of the overall losses, but incompletely so. As is well known, regional trade agreements are less productivity enhancing than global engagement on account of 'spaghetti bowl' costs associated with rules-of-origin.

Baba *et al.* (2023) focuses on the EU and the channels of trade, finance, and intellectual property flows. In the case of a strict form of global fragmented, with four autarkic blocs without cross-bloc trade in goods, knowledge and FDI (United States, EU, China, Rest of the World), GDP losses are huge – some 5 to 10 per cent. If the EU retained global relationships in the face of US-China decoupling, the losses are dramatically smaller, only 0.25 to 0.5 per cent

of GDP. Maintaining geoeconomic neutrality is difficult, especially given the intertwining of technological inputs and the extra-territorial reach of technology sanctions. In thinking about the relationship between global fragmentation and industrial policies, if industrial policies in the EU were defined to include deepening the EU's single market, EU GDP would increase even in the face of other parts of the world fragmenting. This deepening of the single market enhances the power of industrial policy because spillovers from one country become positive spillbacks to another.

Cerdeiro, Kamali, Kothari and Muir (2024) address supply-chain reconfiguration (re-shoring and friend-shoring) with China and OECD members in focus. If the structure of global integration returned to its year-2000 relationships –foregoing a quarter century of global integration– global GDP would be 4.5 per cent lower. The authors also consider consequences of supply chain reconfiguration just in certain strategic products by measuring the change in the quality of inputs. For example, if supply chain rules of re-shoring and friend-shoring were applied to environmental goods, quality could decline by some 5 per cent for the OECD aggregate, with knock-on effects to lower productivity growth.

Financial fragmentation is also a consequence of overall global fragmentation (IMF, 2023). Financial fragmentation brought on by geopolitical tensions can affect financial stability through the volume and allocation of capital. The divergence in voting behavior of the United States and China at the United Nations since

2016 is one measure of geopolitical tensions. A one-standard deviation increase in this measure could reduce cross-border portfolio and bank allocation by about 15 per cent, probably reducing the availability of financial capital needed for productivity enhancing investment.

## **Industrial Policies: Empirical Assessment**

The empirical work on economic gains from pursuing industrial policy is more mixed, in part because the objectives and tools of industrial policy are somewhat diffuse. This means that comparing industrial policy and global fragmentation side-by-side to assess productivity growth by sector, region, firm size, or even macro average will be difficult. However, this research using firm-level data and detailed policies should help to prioritize industrial policy strategies, and will therefore be foundational to the assessment of whether the policies that are currently being deployed (as discussed in Section 3) match those identified by the research as best practice.

One approach to assessing industrial policy focuses wholistically on the industrial policy implementation and environment, recognizing that industrial policies have been part of the landscape for decades, but assessing their effectiveness has been challenged by definition of success and institutional context. This new work is case-study focused, and therefore quite different in scope and method from either macro models or analysis using large firm-level datasets. The empirical test for this work is whether industrial policy did focus resources in the desired areas, not more nar-

rowly on, say, whether there were productivity gains. Therefore, it is difficult to map these successes against the quantitative experiments of the losses from global fragmentation. (Juhász, Lane, and Rodrik, 2023)

A second approach, using very detailed data on industrial policies and firms, comes from the OECD researchers, Criscuolo, Gonne, Kitazawa, and LaLanne (2022). They develop a taxonomy for industrial policy that distinguishes between industrial policy that focuses on supply enhancing productivity versus demand generating productivity. This initial findings show that:

- R&D tax credits and subsidies can stimulate R&D and innovation, so long as policies to enhance diffusion are in place as well. This finding is consistent with the discussion above whereby just pushing out the frontier through supporting higher productivity growth for leading firms widens the spread of productivity growth outcomes leaving the average, or macro, measure of productivity growth less representative of the economy overall, and more fragile to stumbles by the leading firms.
- Positive productivity outcomes associated with grants and subsidies is not clear, but to the extent that these policies do enhance productivity, it is by targeting to young and small firms, not large or multinational firms. In part, the targeting to the smaller and younger firms acts as a signal to financial investors, reducing information asymmetries, and contributing to needed financial capital for productivity enhancing investments.
- Maximum effectiveness of industrial

policy comes when competition and trade policies support transformation and allow the most productive firms to grow. This points to the complementarity of global integration and domestic industrial policies, and implies that global fragmentation would be a headwind for industrial policies.

As background to the complementarity of global engagement and industrial policy, OECD researchers Andrews, Criscuolo, and Gal (2015) consider relationships between domestic firms and foreign firms. There are firms comprising a global productivity frontier, firms that comprise a national productivity frontier and then laggards in the national context. There are two types of catch-up – national frontier firms to the global frontier and national laggards to the national frontier. Deepening global engagement pushes out the national frontier to the global frontier. Catch-up among national laggards through technology diffusion is enhanced when the national frontier firms adapt global frontier technologies to “country-specific circumstances”. This adaptation is enabled by domestic policies that ensure reallocation of resources to the adjusting firms although various approaches to R&D policies are also relevant. Empirical assessment of potential productivity gains are highly country and policy specific.

Further analysis, again using the detailed cross-country policy data at the OECD, by Berlingieri *et al* (2020) on the laggards details the type of industrial policies that could help raise their productivity. Laggards are smaller and younger, and over time, if they survive, they catch-up faster to the frontier the further away they start

from it. Therefore, at least some of the current laggards will be the productivity drivers of the future. However this pace of catch-up has slowed, which is an important ingredient in the overall slowing of productivity growth. Better digital skills, loosened financial constraints, and government support of R&D appear to be relevant policies to spur faster catch-up. Research finds that increasing the productivity of laggards to the level of the median firm (i.e., by about 60 per cent) could, on average, increase aggregate productivity by roughly 6 per cent. Results vary by country

Criscuolo, Martin, Overman, and Van Reenen (2019) focus on subsidies for investment and productivity growth using firm-level data. The authors find that a 10-percentage point increase in the investment subsidy stimulates a 10 per cent increase in manufacturing employment, only on account of small firms responding. Large companies accept subsidies without increasing activity. There are positive effects on investment and employment for incumbent firms but not productivity.

Industrial policy for regions is the focus of Bolter and Robey (2020) and Graham, Gibbons, and Martin (2009). The first authors argue that achieving agglomeration economies is central to regional success. Policies might best support agglomeration include workforce skills and transportation linkages to create density, which then build on each other to further attract firms and boost agglomeration economies. Agglomeration gains include increased employment, wages, and productivity levels. The second set of authors estimate that, for UK cities, doubling a city size would increase productivity by 2.4 per cent for

manufacturing and consumer services, 3.4 per cent for construction, and 8.3 per cent for business services.

## **NIPO and QuIS Datasets on Industrial Policies: Type, Target, and Cost**

Section 1 outlined frameworks that suggested that global engagement raises the productivity bar, but can lead to a wider productivity distribution and then how industrial policies focused on market failures could raise both productivity mean and narrow the distribution. Section 2 presented research evidence on the potential GDP and productivity losses from global fragmentation and on the productivity outcome of various kinds of industrial policies.

Given these frameworks and associated empirical evaluations, the next question is: What type of industrial policy is actually being deployed and does this match with the market failures highlighted by the industrial policy frameworks and with what the empirical research indicate is the type of industrial policy most likely to raise average productivity growth?

There are two datasets that allow a preliminary assessment of how industrial policy is actually being targeted and deployed: The New Industrial Policy Observatory (NIPO), now available from the IMF, and the Quantifying Industrial Strategy (QuIS) from the OECD. The top-line conclusion from a look at what industrial policies are actually being deployed is:

- On climate, there is a good match between industrial policy to focus on the global public good of climate transition.
- On most every other objective, there is

a poorer match between what the externalities of the industrial policy framework indicates would be the best strategy by policy, sector, and firm size and what is actually being deployed.

- Rather than being complementary to global integration, the industrial policies that are actually deployed tend to undermine global integration.
- Industrial policies appear to favor incumbent firms in traditional industries rather than be targeted to innovative new firms.
- With regard to whether industrial policies target the laggard firms with lower productivity growth, the two datasets give somewhat different views.

According to NIPO, industrial policy as deployed appears to favor large incumbents. According to QuIS, SMEs do get some benefits, albeit varying by country.

A look at the New Industrial Policy Observatory (Evenett *et al.*, 2024) in more detail finds:

- Over the first 12 months of data collection, NIPO recorded over 2,500 IPs worldwide.
  - 71 per cent are trade distorting.
  - Corporate subsidies are the most common type of trade-distorting instrument.
  - In many cases, industrial policy support is deployed to firms already exporting, not infant industries or SMEs needing support to grow.
- China, European Union, and United States accounted for 48 per cent of the measures.
- In terms of motivation or targets

(adding to more than 100 per cent of incidents because some policies are classified with more than one objective:)

- Strategic competitiveness accounts for about 1/3 of measures.
- Climate change accounts for 28 per cent.
- Supply chain resilience for 15 per cent.
- National security and geopolitical tensions combined account for 20 per cent.
- In terms of sectoral emphasis: military/civilian dual use products and advanced technology products, including low-carbon technology, semiconductors, and their upstream inputs such as critical minerals.

Noting the close association, as deployed, with industrial policy being trade distorting, Evenett *et al.* (2024) caution that “gloeconomic fragmentation could be self-reinforcing and hard to reverse. This is because larger research-intensive economies tend to have more domestic spillovers and, as such, greater incentives to implement industrial policies, which often entail preferential treatment for domestic industries.”

The second data set evaluates not just the deployment of industrial policy but also the costs. The QuIS (Quantifying Industrial Strategies) database from the OECD gathers data on industrial policy expenditures at the policy instrument level categorized by instrument type and eligibility criteria. (Criscuolo *et. al*, 2022). This initial analysis of 9 OECD countries finds that the cost of deploying industrial policies is sizeable, with 1.5 per cent of GDP in grants and tax expenditures, and an additional

1.8 per cent of GDP through financial instruments (loans, loan guarantees, equity investments) much of which is focused on SMEs, including 1.1 per cent of GDP on export finance schemes. There is important heterogeneity across countries. For example: grants and tax expenditures range from 0.6 per cent of GDP in Ireland to 2.3 per cent in the United Kingdom. Financial instruments range from 0.4 per cent of GDP in Ireland and the United Kingdom to 5.4 per cent in Canada, where the larger expenditure is mainly explained by a higher level of export finance.

In terms of strategic priorities, industrial strategies mainly rely on sectoral instruments, representing on average 29 per cent of grants and tax expenditures; green instruments are increasingly important and account for 15 per cent. There is also a considerable degree of heterogeneity in terms of strategic priorities.

- 34 per cent of grants and tax expenditures are green in Denmark versus less than 1 per cent in Ireland;
- 35 per cent is related to jobs and skills in France versus less than 1 per cent in Israel.
- 'SMEs and young firms' represent 30 per cent of grants and tax expenditures in the Netherlands, compared with 12 per cent on average across the country sample.

## Concluding Observations

This essay offers a view of productivity growth which argues that both mean or aggregate macroeconomic as well as the distribution across firms and regions are important for an overall assessment of the productivity landscape for an economy. This distinction matters for three

reasons. First, policies to promote absorption or diffusion from the frontier (domestic or global) likely differ from policies to push out the frontier. Second, the wider is the distribution the less representative is the average or macroeconomic productivity measures and the greater is the absorption and diffusion challenge. Third, the wider is the distribution the more fragile is the macroeconomic average to possible slowing of productivity growth at the frontier firms.

The article then reviews frameworks that link global integration on the one hand, and industrial policy on the other hand to productivity growth. The links for global integration are well understood to achieve an increase in average productivity growth, but there is more skepticism about distributional outcomes. The links for industrial policy and productivity growth are more diffuse and varied, but importantly relate to externalities or market failures that may hamper the achieving of possible productivity gains.

The essay considers empirical evidence on losses from global fragmentation and potential gains from industrial policy. Methods vary too much for any side-by-side comparison. Neither address productivity growth per se but couch conclusions in more general terms of GDP growth. Nevertheless the losses from global fragmentation seem large and widespread whereas the gains from industrial policy seem to be smaller and more concentrated in targeted sectors.

Finally, the essay reviews two datasets on industrial policies to determine to what extent industrial policy, as it is actually deployed, matches the types of externalities and market failures that the industrial

policy framework purports to have as objectives. The conclusion from NIPO appears to be that there is an alignment between industrial policy to target green investment and the externality of global public goods to meet the climate challenge. However, there is little overlap between what the framework analysis says should be deployed to improve domestic productivity outcomes and what is being deployed. In particular, rather than industrial policy being used to offset any globalization losses, three-quarters of industrial policies as deployed appear to be further trade distorting. The emphasis is on subsidies to incumbent firms in traditional sectors rather than support for left-behind firms or regions or support for innovative next generation productivity leaders. More critical, the research suggests that the types and targets of policy as deployed do not yield much productivity gain.

The QuIS database evaluates the cost of industrial policies to the fiscal purse, which is not insubstantial. To afford these policies, higher productivity growth is needed. Undermining global integration as a key foundation for productivity growth would appear to reduce the ability of a policymaker to pay for industrial policies.

To conclude: The answer to the question in the title is almost surely no. There is a true need to focus attention on raising the productivity growth of the lagging firms and regions. Empirical research using granular data on industrial policies shows which policies do work. However, data on the industrial policies as currently deployed imply that these do not appear to match well the market failures they purport to address, nor the policies that research finds

most effective. Moreover, the policies being deployed are overwhelming distortive to global engagement. Therefore, globalization gains are being foregone while industrial policies are being mistargeted. That combination is not likely to revive productivity growth or improve productivity distribution.

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