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Erik Berglof

European Industrial Policy – Tapping the Full Growth Potential of the EU

Europe, like many of the world's advanced economies, is facing a fundamental growth challenge. Growth has slowed in the wake of the global financial crisis, as investment has decreased and the legacy of non-performing loans and uncertainty about the institutional arrangements established in response to the crisis are likely to be with us for years. However, the evidence suggests that this slowdown started before the crisis, as improvements in productivity did not come at the same pace as in the past.¹ Demographics, particularly the rapid ageing of Europe that has led to smaller working populations, has also played its part. Moreover, the data shows that human capital, the quality of labour input, is not improving as quickly as before. Taken together, all these trends suggest a rather bleak future for European economic growth.

This article asks what industrial policy at the national and the EU level can do to increase growth in Europe. It does so from the perspective that long-term growth is determined by innovation – either through imitation and adaptation or through the genuine invention of new products, processes or forms of organisation. The article draws on the Neo-Schumpeterian framework pioneered by Aghion and Howitt and further developed in a series of contributions.² The differences in competitiveness across European regions suggest that there are two parts to the answer:³ first, the regions in the advanced economies in Europe at the world technology frontier, i.e. economies dominated by industries and firms using “state-of-the-art” technology, have to become better at promoting genuine invention and doing so under the constraints of environmental and social sustainability. Second, the economies in Central

and Eastern Europe, as well as many regions of Southern Europe, have to catch up with the advanced economies, largely through imitation, adaptation and transfer of technologies, but they must also prepare themselves for the rapid pace of technological change at the frontier amid increasingly binding environmental and social constraints – a dual structural transformation, if you will. Achieving these objectives will require a transformation of both economic structures and the supporting institutions at both the European level as well as in individual countries. Importantly, regions within countries differ greatly and would be best served by different policies. This in turn will place high demand on state capacity, as the economically desirable policies will often be met with resistance and could easily be captured by special interests at the European, national and regional levels.

All this has to be achieved in a context in which the pattern of globalisation is changing. As Baldwin points out, globalisation now increasingly involves massive amounts of advanced-economy know-how being shared with a small number of emerging economies through value chains tightly controlled by corporations.⁴ In such a world with fragmented and easily mobile production, advanced economies should focus on “sticky” production factors and positive spillovers that the private sector ignores. Government policy should move from emphasising indigenous industry towards service-sector jobs related to industry, and it should promote the development of cities, as they attract these kinds of jobs and capture spillovers across value chains. In emerging economies, the fragmentation of production reduces entry barriers – a country now only needs to become competitive in one part of the value chain and not the entire chain of production. The key objective for governments in these countries is to capture knowledge spillovers and convert them into productivity improvements in other parts of the economy. In both advanced and emerging economies, social policies are needed to deal with the consequences of structural transformation.

The core conclusion is that relying solely on national industrial policies is not desirable, as there are important cross-country spillovers, for example in the area of human capital investment, that undermine the incentives for national governments to invest. Yet, while the EU in

- 1 R. Gordon: *The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War*, Princeton 2016, Princeton University Press; and International Monetary Fund: *World Economic Outlook: Uneven Growth. Short- and Long-Term Factors*, 2015.
- 2 P. Aghion, P. Howitt: *A Model of Growth Through Creative Destruction*, in: *Econometrica*, Vol. 60, No. 2, 1992, pp. 323-351. See also D. Acemoglu, P. Aghion, F. Zilibotti: *Distance to Frontier, Selection, and Economic Growth*, in: *Journal of the European Economic Association*, Vol. 4, No. 1, 2006, pp. 37-74.
- 3 For an assessment of the competitiveness of different European regions, see P. Annoni, L. Dijkstra: *EU Regional Competitiveness Index RCI 2013*, Luxembourg 2013, Publications Office of the European Union.

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- 4 R. Baldwin: *The Great Convergence – Information technology and the new globalization*, Cambridge 2016, Harvard University Press.

many ways would therefore be the optimal locus for such policies – and it can point to considerable achievements in the pooling of R&D resources – European institutions might not be strong enough to meaningfully support the more ambitious policies. In particular, “entrepreneurial state” policies require a level of intervention that is hard to imagine in the current context. Those economies that were further away from the frontier, particularly those in Central and Eastern Europe, benefitted from the “outside anchor” the EU provided in the accession process. Since accession, however, the enforcement powers of the EU have weakened substantially. Fortunately, many of these countries have now made the transition from middle to high income status, thus creating greater cohesion around industrial policy objectives.

Neo-Schumpeterian industrial policy

The Neo-Schumpeterian framework has three core assumptions:

- long-run growth is driven by innovation
- innovations result from entrepreneurial activities
- creative destruction, i.e. new innovations displacing old technologies, is critical.⁵

An economy can be off the frontier according to three different measures: (i) the aggregate of all industries and individual firms in these industries; (ii) the industry average and median; and (iii) each individual firm has its own (average) distance(s) to the frontier(s) in the industries in which it operates. Obviously, measure (i) combines (ii) and (iii), but it also requires an assessment of the relative importance of individual sectors to the overall economy. Measure (iii) is particularly important in understanding emerging and developing economies, where heterogeneity is particularly striking and where technologically advanced firms – and many emerging economies have at least a few such firms – can exist alongside very backward firms; the distributions of firms by productivity in these economies have long and fat tails and distorted firm dynamics.⁶ An important challenge for industrial policy in these economies is to compress the distribution of firms in terms of distance to the technological frontier by closing down or upgrading slacking firms and transferring resources to more competitive sectors. Of course, upgrading leader

firms (shifting from imitation/adaptation to innovation) is also necessary.

There are many implications of the Neo-Schumpeterian approach for industrial policy in emerging economies off the world technology frontier. First, increased competition is not necessarily positive for productivity growth, as it might undermine the incentives to innovate. Second, coordination has a high premium, as it helps achieve the economies of scale that are important for these countries to be competitive. Third, financial mobilisation is likely to happen through banks rather than financial markets. Fourth, while education is important at all stages of development, secondary and tertiary education are particularly important off the frontier. Post-graduate education, however, may actually be a waste of resources. Fifth, the protection of intellectual property, openness and competition are complements, and as such they are more important at the frontier. Sixth, and similarly, entry barriers and corruption are more impactful the closer an economy is to the frontier. This is, of course, not meant to condone corrupt practices in countries that are off the frontier – corruption is always bad – but it matters even more as an economy approaches the frontier. Seventh, technology transfers should be emphasised, but the technology must be appropriate, in the sense that it contributes to productivity improvements. Eighth, the importance of management skills should not be underestimated.⁷ Finally, strong efforts should be made to reallocate factors of production across firms and industries to more productive uses. The levers can be activated both directly as well as indirectly by reducing corruption, relaxing credit constraints and improving education quality.

As an economy reaches the world technology frontier, the importance of competition and its complements increases, and the emphasis shifts from imitation and adaptation within existing firms to innovation through the entry and exit of firms. Financial markets gain in importance relative to banks in the financing of innovation, and tertiary and post-graduate education become more important.

A core contribution of the Neo-Schumpeterian framework to the discussion of industrial policy is the conceptualisation of the “middle income trap” around the “switching point” from an industrial policy that is optimal away from the frontier to one that is better-suited for an economy that is close to or on the frontier. There could be many forces frustrating this switch. The most commonly discussed is one associated with special interests and po-

5 P. Aghion, C. Bircan: The Middle Income Trap from a Schumpeterian Perspective, Background paper, Asian Development Bank, 2016.

6 C. Freund: Rich People, Poor Countries: The Rise of Emerging-Market Tycoons and their Mega Firms, Washington, DC 2016, Peterson Institute for International Economics.

7 N. Bloom, J. van Reenen: Measuring and Explaining Management Practices Across Firms and Countries, in: Quarterly Journal of Economics, Vol. 122, No. 4, 2007, pp. 1351-1408.

litical economy, where incumbents and insiders block the emergence of institutions necessary to support a frontier industrial policy or just outright block the decisions associated with the switch itself.

However, there could also be rigidities in, for example, human capital formation or financing arrangements that make switching more difficult. An industrial policy must take the existence of a switching point into account and incorporate features that would help facilitate this transition. In other words, some specific policies may be needed as an economy approaches the switching point so as to increase the likelihood of the switch.

Industrial policy and state capacity

An important critical consideration in assessing what type of industrial policy a particular economy could and should pursue is its ability to implement and enforce specific policies. Does it have sufficient checks and balances in order to prevent policies from being captured by special interests? We need some concept of state capacity, the institutional capability of a particular entity to carry out policies that deliver benefits and services to households and firms.⁸ Different industrial policies place different demands on state capacity, and some aspects of a particular industrial policy are likely to be more demanding than others. Different industrial policies depend on different aspects of the institutional environment. This complementarity between the institutional context and policies is important throughout the development process, but which aspects should reinforce each other is likely to differ from one development phase to another.

In order to assess the capacity of countries to implement particular industrial policies, we need a more granular description of state capacity and its determinants. Fortunately, we have a relatively recent natural experiment as a number of countries transitioned from middle income to high income at approximately the same time – the EU accession process in Central and Eastern Europe. Bruszt and Campos looked at the yearly assessments of these countries by the European Commission to understand the interaction between various aspects of state capacity and the sequencing of institutional development.⁹ They identified three aspects of state capacity: the judiciary, the bureaucracy and competition policy. Under each of these, they distinguish among independence and capacity, and then

8 T. Besley, T. Persson: *Pillars of Prosperity: The Political Economics of Development Clusters*, Princeton 2011, Princeton University Press.

9 L. Bruszt, N. Campos: *Deep Economic Integration and State Capacity: The Case of the Eastern Enlargement of the European Union*, Working paper, Asian Development Bank, 2016.

look at the interrelationship between the different elements. Using lagged variables, they also look at the sequencing of institutional development and suggest that judicial capacity and ultimately judicial independence, i.e. the establishment of a constitutional supreme court, are essential to bureaucratic capacity and the enforcement of competition policy. They demonstrate an intricate relationship between bureaucratic independence and judiciary capacity in unleashing a virtuous spiral of institutional change.

Applying these findings to industrial policy, the implication is that a certain bureaucratic independence and judicial capacity are necessary, even for horizontal policies like the enforcement of competition, and they in turn trace back to judicial independence. Industrial policies that demand greater state capacity will require even more bureaucratic independence and judicial capacity. The strong suggestion is that more demanding industrial policies may not be feasible until later stages of institutional development when state capacity is greater.

Industrial policy in practice

There are many ideas in circulation for how the state can support structural transformation, transcending the traditional distinction between the universally embraced horizontal policies and the more controversial vertical policies. There are a number of intermediate approaches which could be characterised as sectoral-based horizontal policies, such as supporting human capital improvements, better financing conditions and innovation in a particular industry; another intermediate approach is so-called “smart specialisation”, which encourages traditional industries such as agricultural and textile manufacturing to invest in ICT or biochemistry. An important related strategy starts from the observation and recognition of the growing importance and fragmentation of global value chains and how industrial policy can be used to facilitate the entry of firms into these global chains.¹⁰ Once the focus is on benefitting from being part of these global production systems, broad sector-based policies may be less effective, as only part of the value chain will be based in a particular country. Instead, the emphasis should be on attracting those parts of the value chains which have high (positive) spillovers, possibly in order to attract other value chains.

The most ambitious industrial policy seriously discussed is that of the “entrepreneurial state”.¹¹ This approach sees the state as a mission-oriented “venture capitalist” taking important risks in individual sectors and firms and us-

10 R. Baldwin, *op. cit.*

11 M. Mazzucato: *The Entrepreneurial State – Debunking Public vs. Private Sector Myths*, New York 2015, PublicAffairs.

ing a portfolio approach to diversify the overall risk, while trying to retain a level playing field in individual sectors. The model has perhaps most clearly been expressed in various US government-sponsored innovation schemes, but another example is the Israeli state-sponsored Yozma programme, which launched an (eventually) very successful venture capital industry, now essentially privately owned. The state would set the direction of travel of individual industries and provide road maps, preferably through sector dialogues. One important aspect stressed by the proponents of this approach is the need to improve assessment tools and encourage evidence-based learning so as to facilitate structural transformation. Under this approach, the state has a role in developing markets, e.g. by establishing feed-in tariffs in order to allow the market for renewable energy to develop.

The “entrepreneurial state” would also crowd in private capital, particularly institutional capital, to mitigate coordination failures and to achieve critical scale (see, for example, the BNDS development bank in Brazil). Needless to say, this form of industrial policy is easily captured and as such is very demanding on institutions and sensitive to political risk (as seen, for example, in the renewable energy industry, both in emerging and advanced economies). The potential and the risks involved in such ambitious industrial policy are illustrated by the two US examples of Tesla, which at least until recently has been regarded as a great success, and Solyndra, which became a huge embarrassment for the Obama administration when it failed.

This approach to industrial policy requires in-depth understanding of technologies and the context in which they are applied. At best, only very advanced economies with strong institutions can be expected to manage the downside risks of this approach. But there are also concerns that even in emerging economies – where industrial policies primarily focus on more straightforward imitation and adaptation – the demands on state capacity may be too high given the weak development of their institutions. This is the paradox of industrial policy, i.e. where industrial policy is most straightforward, the institutions are the weakest.

EU industrial policy

We now turn to the ambitions of the European Union in terms of industrial policies and discuss whether its institutions are compatible. The EU has had an official industrial policy for many years. The policy initiative “Europe 2020 – A Strategy for Smart, Sustainable and Inclusive Growth”¹²

12 European Commission: Communication from the Commission. EU-ROPE 2020 – A strategy for smart, sustainable and inclusive growth, COM(2010) 2020, 3 March 2010.

brought together four flagship initiatives dealing with industrial policy: “Innovation Union”,¹³ “A Digital Agenda for Europe”,¹⁴ “An Industrial Policy for the Globalisation Era”,¹⁵ and “New Skills for New Jobs”¹⁶. EU industrial policy aims to stimulate growth as well as competitiveness, both in the manufacturing sector and in the entire EU economy. These policies are essentially horizontal in nature and aspire to be well integrated into other EU policies, such as those relating to trade, the Single Market, research and innovation, employment, environmental protection, and public health.

The objectives are further spelled out in a document entitled “For a European Industrial Renaissance”,¹⁷ which suggests that industrial policy aims at (i) speeding up the adjustment of industry to structural changes; (ii) encouraging an environment favourable to entrepreneurial initiative throughout the Union, particularly in small and medium-sized undertakings; (iii) encouraging an environment favourable to cooperation between enterprises; and (iv) fostering better exploitation of the industrial potential of policies of innovation, research and technological development.

These documents suggest that the European Union has ambitious objectives in the area of industrial policy, but the policies advocated are indeed horizontal in nature and mainly aim to infuse other policy areas with the same horizontal thinking. However, in the area of environmental policy, the level of ambition was higher in 2005 with the establishment of the EU Emissions Trading System in order to meet the EU’s obligations under the Kyoto Accord. The creation of the European Research Council was another key initiative fostering research quality and ultimately state-of-the-art innovation. However, proceeding further down the path towards the “entrepreneurial state” will be a challenge,

13 European Commission: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Europe 2020 Flagship Initiative – Innovation Union, COM(2010) 546 final, 6 October 2010.

14 European Commission: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A Digital Agenda for Europe, COM(2010)245 final, 19 May 2010.

15 European Commission: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. An Integrated Industrial Policy for the Globalisation Era Putting Competitiveness and Sustainability at Centre Stage, COM(2010) 614 final, 28 October 2010.

16 European Commission: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. New Skills for New Jobs – Anticipating and matching labour market and skills needs, COM(2008) 868 final, 16 December 2008.

17 European Commission: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. For a European Industrial Renaissance, COM(2014) 14 final, 22 January 2014.

given the weakness of the institutions at the European level and the limited support from member state governments and populations for strengthening these institutions.

Despite this realism about the prospects for industrial policy in general at the EU level, there are a number of important areas where specific sector policies are having a strong impact and will probably become even more important. Green growth horizontal policies are critical to capturing the upside of climate policy (regulation, supervision, funding schemes, trading mechanisms, etc.). Here the EU has played an increasingly important role and is also likely to do so in the future. Another example is the Capital Market Union, which is still in its infancy but could help scale back the oversized European banking sector, strengthen financial markets and encourage bankruptcy reform. The European Union also has potential to strengthen its capacity for development finance, particularly in the areas of infrastructure and SME finance. The Juncker Plan represented a step in this direction, but institutional innovation is needed to crowd in institutional capital into this space.

Conclusions

The Neo-Schumpeterian framework combined with the literature on state capacity has helped us understand the actual and potential roles of industrial policy in different contexts. In particular, the framework sheds light on the differences in the desirable policies when an economy, an industry or a firm is at the world technology frontier and when it is far from that frontier. But the literature on state capacity also suggests that determining which policies are appropriate depends on what the institutions can handle. We referred earlier to the paradox of industrial policy – where industrial policy seems most palatable and justified, i.e. when economies are simply imitating and adapting existing technologies, institutions tend to be the weakest. Very importantly, state capacity is severely tested around the point where it is optimal to switch from one set of policies to another. This switching point is the key to understanding how to avoid getting stuck with inappropriate institutions and policies – what we have defined as the “middle income trap” with regard to industrial policy. Fortunately, most of the new EU member states have by now managed the transition from middle to high income without getting stuck in the middle income trap.

Much of this structural transformation was achieved during the EU accession process. We saw that more ambitious industrial policies can become feasible through the strengthening of state capacity. The work of Bruszt and Campos shows that building bureaucratic capacity is crucial, but judicial capacity is also important for the enforce-

ment of, for example, competition policy.¹⁸ The analysis also pointed to areas where resources should be focused in order to strengthen both judicial and bureaucratic capacity at both the national as well as the EU level. Unfortunately, these previously successful measures have lost much of their power as these countries have become full EU members.¹⁹ Identifying new “outside anchors” which could promote further reform, or at least stop reform reversals, would be important. The much discussed Transatlantic Trade and Investment Partnership between the US and the European Union could have served as such an anchor, but this agreement now looks highly unlikely to become reality in the near future.

In applying our conceptual framework to the European growth challenge, we found that Europe really needs two types of industrial policies – one for the countries at the world technology frontier and another for the countries away from the frontier, mainly in Central, Eastern and Southern Europe. As these economies converge, industrial policy should increasingly focus on service sector jobs related to industry and on attracting the parts of global value chains with the greatest positive spillovers. Countries and regions should strengthen their capacity to benefit from these spillovers, e.g. through raising their levels of human capital, in particular through tertiary and post-graduate education. Cities are at the core of these strategies, as they tend to agglomerate important skills. In the parts of Europe that are still far away from the frontier, the focus should be on technology transfers, a focus which is likely to be easier when only parts of the value chains are involved. The emphasis in these parts of Europe should be on benefitting as much as possible from the spillovers from these knowledge flows. Both sets of countries need social policies that match these industrial policies and that help societies adapt to structural change. Schemes are also necessary to help adjustment in more remote cities and rural areas, as central cities, particularly cosmopolitan mega-cities, will prosper under these new forms of globalisation described so well by Baldwin.²⁰

Industrial policies at the EU level have had some success, such as the efforts to pool resources for R&D, for example through the establishment of the European Research Council and the various framework programmes for research. But the challenge for EU-level industrial policy has been that while European institutions potentially could have played a more important role in facilitat-

18 L. Bruszt, N. Campos, op. cit.

19 They are still having an impact in the countries aspiring to EU accession in Southeast Europe and to some extent in countries like Ukraine, where the dream of a closer relationship with the EU plays an important role in domestic politics.

20 See R. Baldwin, op. cit.

ing spillovers within and among advanced economies and encouraging technology transfers from advanced to emerging parts of the continent, they really were not set up to differentiate policies between advanced and emerging economies, and even less so between advanced and emerging regions. Moreover, there was little agreement among member states on industrial policy objectives. Going forward, there may be more convergence of views on policies to attract parts of value chains with high spillovers and to facilitate the flow of knowledge within Europe.

However, there is less likely to be agreement at the European level on firm-specific vertical policies, particularly something like the “entrepreneurial state” approach. These policies are more susceptible to capture by special interests and more vulnerable to political risk and other forms of uncertainty. Not many EU member states, let alone European voters, would be comfortable with the European institutions playing this kind of activist role in general. Nonetheless, in certain areas, EU-level industrial policy has been more ambitious, particularly in the field of green technology as well as in capital markets, but policies have primarily been horizontal. Sector-specific horizontal policies are less demanding on institutions, and probably more palatable from a political point of view, but industrial policy is shifting away from sectors and towards technologies, which are often proprietary to individual corporations. Investment in specific global value chains could also become obsolete over time, and smart specialisation bringing new technologies to traditional industries could easily become too domestic, failing to exploit potential spillovers across countries.

The long-term prospects for European industrial policy will depend on how global value chains and associated trade and investment patterns continue to evolve. There is a view that as technologies allow for tailored production closer to markets (e.g. 3D printing), robots could increasingly replace blue- and white-collar workers; this could potentially increase the relative importance of costs of transport once again, causing manufacturing to be moved back “on shore”. New energy supplies, particularly shale oil and gas in the US, but also the falling costs of renewables, could also affect the location of different parts of global value chains. Even if all these trends suggest some revival of manufacturing in the advanced economies of Europe, including a “re-shoring” to Central and Eastern Europe, the overwhelming trend will be for emerging economies outside Europe to rise and permanently shift the balance in the global economy. European industrial policies at the national level as well as the EU level must aim to allow European firms and consumers to benefit as much as possible from this global structural transformation.