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European industrial policy — tapping the full growth potential of the EU

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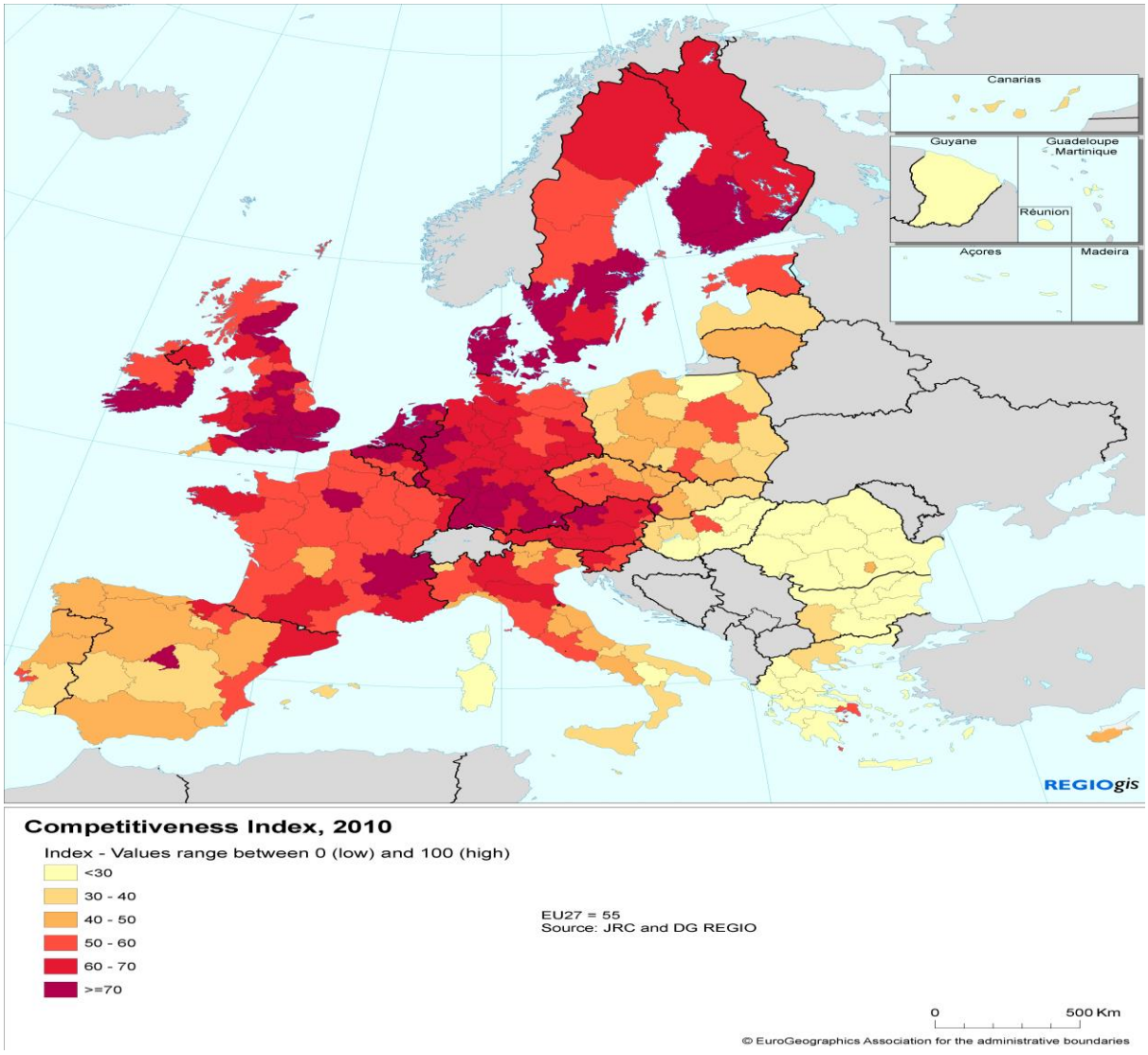
(first incomplete draft)

1. Introduction

Europe, like much of the advanced economy world, is facing a fundamental growth challenge. Growth has slowed down in the wake of the global financial crisis, as investment has come down, and the legacy of non-performing loans and uncertainty about the institutional arrangements established in response to the crisis is 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 (Gordon, 2016; and IMF, 2015). Demographics, particularly the rapid aging of Europe with reduced participation and 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 growth.

This short 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 genuine invention, of new products, processes or forms of organisation. Drawing on the Neo-Schumpeterian framework pioneered by Aghion and Howitt (1992) and further developed in a series of contributions (see, for example, Aghion et al., 2006). Figure X depicting the competitiveness of European regions suggests that there are two parts to the answer: (i) the advanced economies in Europe at the world technology frontier have to become better at promoting genuine invention and doing so under the constraints of environmental and social sustainability; and (ii) the economies in Central and Eastern Europe as well as in much of Southern Europe have to catch-up with the advanced economies, largely through imitation, adaptation and simple transfer of technologies, but also prepare themselves for the rapid pace of technological change at the frontier and increasingly binding environmental and social constraints. Achieving these two objectives will require a transformation of both economic structures and the supporting institutions at 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 policies needed will often meet with resistance and easily be captured by special interests, at the European, national and regional levels.



All this has to be achieved in a context where the pattern of globalisation is changing. As Baldwin (2016) points out, globalisation now increasingly involves massive amounts of advanced economy knowhow being shared with a small number of emerging economies through value chains tightly controlled by corporations. 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 industry to service-sector jobs related to industry and promote the development of cities as they attract those kind of jobs and capture spillovers across value chains. In emerging economies the fragmentation of production reduce entry barriers – a country now only needs to become competitive in one part of the value chain, and not the

entire chain. The key objective for governments in these countries is to capture the knowledge spillovers and convert them into productivity improvements in other parts of the economy. In both sets of countries 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, e.g., in the area of human capital investment, that undermine the incentives of national governments to invest. Yet, while the EU in many ways would be the optimal locus from this perspective, and can point to considerable achievements in the pooling of R&D resources, European institutions might not be strong enough to meaningfully support 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" EU provided in the accession process, but once they became full members EU enforcement powers have weakened substantially. Fortunately, most of these countries have now made the transition from middle to high income status, thus creating greater cohesion around industrial policy objectives.

2. Neo-Schumpeterian industrial policy

The core assumptions of the Neo-Schumpeterian framework are that long-term growth are that (i) long-run growth is driven by innovation; (ii) innovations result from entrepreneurial activities; and (iii) creative destruction, i.e., new innovations displacing old technologies, is critical (Aghion et al., 2016). An economy can be off the frontier in three different ways: (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 (i) combines (ii) and (iii), but it also requires an assessment of the relative importance of individual sectors to the overall economy. (iii) is particularly important in understanding emerging and developing economies where hetereogeneity is particularly striking and where technologically advanced firms, and many emerging economies at least have a few such firms (Freund, 2016), can exist alongside very backward firms – distributions of firms by productivity have long and fat

tails and distorted firm dynamics. An important challenge for industrial policy in these economies is to compress the distribution of firms in terms of distance to frontier by closing down- or up-grading slacking firms and transferring resources from uncompetitive sectors. Of course, up-grading leader firms (shifting from imitation/adaptation to innovation) is also necessary.

The implications of the Neo-Schumpeterian approach for industrial policy in emerging economies off the world technology frontier are that (i) increased competition is not necessarily positive for productivity growth as it might undermine the incentives to innovate; (ii) coordination has a high premium as it helps achieve economies of scale which is important for these countries to be competitive; (iii) financial mobilization is likely to happen through banks rather than financial markets; (iv) while education is important at all stages of development, secondary and tertiary education are particularly important off the frontier (while post-graduate education may actually be a waste of resources); (v) protection of intellectual property, openness and competition are complements and as such more important at the frontier; (vi) similarly, entry barriers and corruption are more important the closer an economy is to the frontier (this is, of course, not meant to condone corrupt practices – corruption is always bad – but it matters more as an economy approaches the frontier); (vii) technology transfers should be a focus (but technology must be appropriate, in the sense that it contributes to productivity improvements); (viii) management skills are very important (Bloom and van Reenen, 2006); and (ix) 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 and also indirectly through 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 conceptualization of the "Middle Income Trap" around the "switching point" from an industrial policy optimal away from the frontier to one that is suited for when an economy 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 political 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. But 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.

3. 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, i.e., the institutional capability of a particular entity to carry out policies that deliver benefits and services to households and firms (Besley and Persson, 2010). 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 what determines this capacity. Fortunately, we have a relatively recent natural experiment with a number of countries transitioning from middle income to high income at approximately the same time, i.e., the EU accession process in Central and Eastern Europe. Bruszt and Campos (2016) looks at the

yearly assessments by the European Commission of these countries to understand the interaction between various aspects of state capacity and the sequencing of institutional development. They identify three aspects of state capacity: the judiciary, the bureaucracy and competition policy. Under each of these they distinguish between independence and capacity, and then 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.

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

4. 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, e.g., supporting human capital improvements, financing conditions and innovation in a particular industry, but also at so-called “smart specialisation” encouraging traditional industries as agricultural and textile manufacturing to invest in ICT or biochemistry. An important related strategy start from the observation 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 (Baldwin, 2016). 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 to attract other value chains.

The most ambitious industrial policy seriously discussed is probably that of the "entrepreneurial state" (Mazzucato, 2015). This approach sees the state as a mission-oriented "venture capitalist" taking important risk in individual sectors and firms, and using a portfolio approach to diversify that risk, while trying to retain 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., 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 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 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 – at least until recently regarded as a great success – and Solyndra which became a huge embarrassment for the Obama administration when it failed.

Needless to say, the "entrepreneurial state" approach to industrial policy is very demanding on state institutions, requiring 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 emerging economies, where industrial policies are focusing on imitation and

adaptation, the demands on state capacity may be too high given the development of their institutions. We have the paradox of industrial policy, i.e., where industrial policy is most straightforward the institutions are the weakest. Next, we proceed to discuss the ambitions of the European Union in terms of industrial policies and whether its institutions are compatible.

5. EU industrial policy

The EU has had an official industrial policy for many years. The so-called "Europe 2020 — A Strategy for Smart, Sustainable and Inclusive Growth" (COM(2010) 2020) brought together four flagship initiatives dealing with industrial policy: "Innovation Union" (COM(2010) 0546); "A digital agenda for Europe" COM(2010) 2020 (COM(2010) 0245); "An industrial policy for the globalisation era" (COM(2010) 0614) and "New Skills for New Jobs" (COM(2008) 0868). The European Council Communication from January 2014 says that "EU Industrial policy aims to stimulate growth and competitiveness in the manufacturing sector and the EU economy as a whole…Industrial policy is horizontal in nature…well integrated into a number of other EU policies such as those relating to trade, the internal 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" (SWD(2014) 14 final) which suggests that industrial policy aims at (i) speeding up adjustment of industry to structural changes; (ii) encouraging an environment favourable to initiative…throughout the Union, particularly small and medium-sized undertakings; (iii) encouraging an environment favourable to cooperation between undertakings; and (iv) fostering better exploitation of 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 "horizontal in nature" and mainly aim to infuse other policy areas with the same horizontal thinking. However, in climate space the level of ambition has been higher with the establishment of the EU Emissions Trading System in 2005 in order to meet the EU 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, 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 capture 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 over-sized 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.

6. **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 Neo-Schumpeterian 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 what are the appropriate policies depends on what the institutions can handle. We spoke of the "paradox of industrial policy" – where industrial policy seems most palatable and justified, i.e., when economies are imitating and adapting existing technologies, institutions tend to be the weakest. Very importantly, state capacity is 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. 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 be become feasible through the strengthening of state capacity. The work of Bruszt and Campos show that building bureaucratic capacity is core, but judicial capacity is also important for the enforcement of, for example, competition policy. The analysis also pointed to areas where resources should be focused in order to strengthen both judicial and bureaucratic capacity at the national level as well as the level of the EU. Yet, these previously so successful measures have lost much of their powers as these countries have become full members (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 to the EU plays an important role in domestic politics). Identifying new "outside anchors" promoting further reform, or stopping reform reversals, would be important. The much discussed Transatlantic Trade and Investment Partnership (TTIP) 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 taking our conceptual framework to the European growth challenge we found that Europe really has needed 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 and Eastern Europe and Southern Europe. As these economies converge industrial policy should now increasingly focus on service-sector jobs related to industry and in attracting the parts of the global value chains with the greatest positive spillovers. Governments should strengthen their capacity to benefit from these spillovers, e.g., through raising the level 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 still finds itself further away from the frontier policies should focus on technology transfers 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 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 the new forms of globalisation.

Industrial policies as the EU level have had some success, such as the efforts to pool resources for R&D, e.g., through 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 facilitating 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. 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 facilitating the flow of knowledge within Europe.

However, there is less likely to be agreement at the European level on firm-specific vertical policies, and even more so 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. Yet, in certain areas EU-level industrial policy has been more ambitious, particularly in the area of green technology and potentially 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 to technologies, often proprietary to individual corporations. Investment in specific global value chains could also become obsolete over time and smart specialization bringing new technologies to traditional industries easily become too domestic not exploiting 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 will continue to evolve. There is a view that as technologies allow for tailored production closer to markets (e.g., 3D printing), robots increasingly replace blue- and white-collar workers, and the relative importance of

costs of transport increase manufacturing may be moved back “on shore”. The uncovering of 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 the global value chains. Even if all these trends suggests 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.

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