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Industrial Policy and the Promotion of Domestic Industry**

– Background Note –

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More documentation related to this discussion can be found at
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Please contact Mr. Chris Pike if you have any questions about this document [E-mail:
Chris.Pike@oecd.org].

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Latin American and Caribbean Competition Forum

Session III: Industrial Policy and the Promotion of Domestic Industry

– Background Note by the Secretariat –*

Industrial policy describes the set of interventions that governments use to affect the economic structure of the economy. Its success or failure therefore has a huge impact on the extent to which a country can achieve inclusive growth. Individual industrial policies can broadly be considered to have either horizontal effects on each industry, or selective effects on certain markets, sectors, firms, technologies or places. For instance, competition policy is itself a common element within most countries' overarching industrial policy. Depending on the coherence of that policy, a government may or may not find that its competition policy conflicts with the other elements of its industrial policy (for instance, its policies designed to achieve growth in less prosperous regions of the country).

There are a number of ways in which governments have sought to promote domestic industry through their industrial policies. This paper looks at the issues that arise and the experiences of competition agencies in Latin American and the Caribbean when encountering these policies.

* This paper is by Chris Pike of the OECD Competition Division. It draws where necessary on the 2009 OECD background note on Industrial Policy, Competition Policy and National Champions [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/GF\(2009\)1/REV1&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/GF(2009)1/REV1&docLanguage=En).

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1. Introduction

1. Industrial policy describes the set of interventions that governments use to affect the economic structure of the economy (Rodrik, 2004). Its success or failure therefore has a huge impact on the extent to which a country can achieve inclusive growth. Individual industrial policies can broadly be considered to have either horizontal effects on each industry, or selective effects on certain markets, sectors, firms, technologies or places. For instance, competition policy is itself a common element within most countries' overarching industrial policy. Depending on the coherence of that policy, a government may or may not find that its competition policy conflicts with the other elements of its industrial policy (for instance, its policies designed to achieve growth in less prosperous regions of the country).

2. There are a number of ways in which governments have sought to promote domestic industry through their industrial policies. This paper looks at the issues that arise and the experiences of competition agencies in Latin American and the Caribbean when encountering these policies.

3. Industrial policies that are horizontal or cross-cutting in nature are less likely to conflict with competition. These might include government funding basic research, education and national infrastructure projects. Indeed some of the most valuable horizontal industrial policies include competition policies themselves, such as reducing regulatory barriers to entry and the rigorous enforcement of merger control and competition law against exclusionary conduct. While these are neutral policies, the likely beneficiaries might nevertheless be smaller local firms since they are often the most vulnerable to these barriers and practices.

4. An increasingly common form of this approach is to apply some type of competitive neutrality framework that seeks to protect domestic producers from distortions created when rival firms receive subsidies or other support from their governments. These frameworks might be set at a national level and apply to local governments, as in Australia and China, or they might be set at a supra-national level and applied to local and national governments, as in the EU and at the WTO. In some cases, these frameworks might also be set by a national government and applied to its own actions, as in Australia, Sweden and Ukraine. In these cases, competition agencies may find themselves with responsibility for enforcing these frameworks, or they may need to work with the agency that does have this responsibility.

5. A different type of industrial policy is to selectively target measures. Here there is a greater risk of conflict with competition objectives. For instance, a government might adopt a selective industrial policy in order to obtain, on behalf of those firms located within the country, a competitive advantage in a key market over other regions or countries. However, it might also adopt a selective policy in order to correct specific market failures, other than those market failures that can be addressed through horizontal industrial policies. In general, where an industrial policy addresses a market failure rather than seeking to boost competitiveness, it can be complementary to competition policy. Selective policies therefore include those that conflict, for example, creating and supporting a national or local champion); as well as those that may or may not conflict, such as sector or technology specific policies that offer support to firms that choose to invest in certain industries or technologies.

6. These selective policies might be open to all, or may be conditional for example on recipients not only operating in the domestic market, but also having owners that are resident within that market, or on recipients sourcing domestic content (for example in procurements). Selective policies may also differ in the sense that some target established markets that the government wants to support, while others might focus on markets or emerging technologies which firms have found uneconomic or too risky, or which have not even been envisioned by private sector entrepreneurs.¹

7. We begin by looking at the rationale for industrial policy. In section 3 we look at horizontal policies. Then in section 4 we describe the policy of creating national champions. We consider whether they are efficient, and hence the need for competition agencies to take an advocacy role in relation to these, either through opinions or market studies. We also identify where such policies might have an impact on an agency's role in merger control and enforcement of competition law. In the following sections, we do the same for policies that: a) support existing national champions; b) facilitate the emergence of clusters of firms; c) drive the development of local areas; and d) support certain sectors or the delivery of certain missions. We conclude in section 9.

8. The main conclusions are as follows.

- Industrial policy should be designed around the goal of tackling market failures rather than improving competitiveness of certain firms or sectors. However, market failures will vary from market-to-market and so selective industrial policies may be efficient when they address an identified market failure.
- As noted, competition policy is designed to address market failure, and is therefore complementary to other policies that address different market failures. These policies each have a role within a coherent and effective industrial policy. However, given competition authorities remit to investigate mergers and advocate for the removal of competitive distortions, protectionist policies will inevitably conflict with competition policy. However, a competition authority should not hesitate to act where it is within its remit to do so by independently investigating the effect that potentially anti-competitive agreements, exclusionary conducts and proposed mergers are likely to have on consumer welfare.
- When a government is considering the merits of an industrial policy that tilts the playing field, a competition authority should first encourage the government to consider the feasibility of achieving the goals through competitively neutral policy tools. For example, by investing in cross-cutting rather than targeted measures. Secondly, it should encourage them to be transparent on the trade-offs involved and minimise the competitive distortions that are created. Thirdly, they should take care to avoid any policies that help facilitate anticompetitive conduct or agreement.
- The case for industrial policy that supports specific individual firms, as for example in the creation of and support for a national champion is a weak one. The view that size brings decisive competitive advantages is belied by the mixed record of many mergers, and there are significant doubts over governments' ability to pick winners. Evidence suggests that a large share of productivity increases result from market share moving from less to more productive firms, and that many innovations come from entrants, meaning that protecting an incumbent champion is likely to dampen growth, both in developed and developing countries.

- The case for place-based industrial policies that use procurement to discriminate in favour of locally owned businesses is also a weak one. Handing market power in local markets to locally owned businesses can be relied upon to increase prices paid by local consumers and redistribute this into the profitability of local businesses, thereby increasing inequality. At a broader level, it will simply damage neighbouring local economies (who are likely to reply in kind, leaving everyone worse off). While the goal of stimulating demand in poorer local economies that have earned no dividend from more competitive markets is a good one, this should not be pursued through protectionism, but instead by investing to tackle the specific market failures that afflict these areas. For example investing in local infrastructure, human capital, access to credit, and support for entrepreneurs, as well as sponsoring entry into missing markets, addressing local market power, and providing targeted demand side stimulus where appropriate.
- The existence of positive externalities induced by clustering effects is well documented. Non-discriminatory policies with a clear mission to encourage new activities and reach a well-defined goal, rather than to support an incumbent, may therefore speed up learning and drive innovation. They may also reduce risk and hence crowd-in private investment.
- Selective industrial policies are often vulnerable to rent-seeking. The evidence of rent-seeking behaviour implies that governments should favour policy instruments that do not endow them with the power to favour individual companies and should focus on more neutral instruments. The same is true for sectors, except where the institutions are strong enough to deter such behaviour by market participants.

2. The rationale for Industrial Policy

9. Industrial policy begins with the decision by a government on whether to make (and shape) a market for a product, or whether to directly provide the product, or whether to leave its people to do without it. As Polanyi identifies, markets do not simply exist, they are created by governments that decide to intervene and create them by awarding and defending property rights. In this paper, we take as our starting point that the government has decided to use market mechanisms to deliver a given product (since this is where the remit of competition agencies begins). However, when it uses a market mechanism, it then has a subsequent choice as to whether to provide a level playing field, or one that is tilted towards one or more participants.

10. As the Former Chief Economist at the World Bank, Justin Lin says: “The historical record indicates that in all successful economies, the state has always played an important role in facilitating structural change.” In some markets, the provision of physical and intellectual property rights, a stable currency and effective enforcement of competition law is sufficient to create a market that delivers efficient outcomes. However, in many other cases there remains the likelihood of market failures. In these cases, industrial policy may also involve some form of regulation, funding by government or an arms-length agency. While regulation is often the response to asymmetric information or natural monopolies, some form of tax or funding is typically required to internalise externalities. For example, imposing taxes to reduce excessive consumption, or funding to increase consumption where there is under-consumption or a missing market. This for example is the case in which Keynes argued “the important thing for government is not to

do things which individuals are doing already, but to do those things which at present are not done at all.”

11. As solutions to market failures, these additional elements of an industrial policy can play a complementary role to that of antitrust enforcement, merger control, and consumer protection in making markets work for consumers. After all, antitrust enforcement and merger control is also a solution to a market failure; that markets can be vulnerable to collusion, exclusionary conduct, or to becoming overly concentrated.

12. However, where an industrial policy seeks to increase the competitiveness of firms located (in some sense) within a country, this goes beyond fixing market failure and becomes an attempt to alter efficient market outcomes. This is likely to bring it into conflict with competition policy. For example, a decision to tilt the market in favour of one or more participants (local firms, SOEs, NFPs, SMEs or PLCs)² will soon run into conflict with competition policy if its goal is not to increase efficiency, but to increase the competitiveness of a particular firm; type of firm; sector; region; or country, at the expense of others. This means competition and the common interest in a higher rate of growth is sacrificed for the competitiveness and the interests of the few.³

13. Naturally, however, understandable demands from interest groups for preferential treatment often arise where experience tells them that pursuit of the common interest has resulted in that growth being distributed asymmetrically across different groups within an economy. As inequality grows in many economies, governments are likely to look at ways to promote the interests of all their people, and perhaps particularly those that have not enjoyed the same benefits from more open competition as others have. These might be those communities that have borne the brunt of import competition, or the firms that are located within those communities. They might also be innovative start-ups, traditional small businesses, non-commercial operators, or powerful special interest groups.

14. Indeed, it appears that since the financial crisis these types of rationale have driven a renewed interest in setting out active industrial policies. This is perhaps not surprising. Governments have demonstrated their willingness and capability to actively intervene and bailout failing banks that they consider to be of systemic importance and so voters have naturally questioned whether their areas (or their countries) and the industries that employ them are not also of systemic importance (and if not have sought to make them so via the ballot box).⁴

15. The World Economic Forum suggests that the revival of industrial policy has been driven by five forces:

“First, there is the pressure to reduce unemployment and stimulate growth after the recent financial and economic crisis. Second, popular domestic demands for more proactive government action to address the difficult socio-economic situations reflecting the multiple “crises” in finance, economy, food, health, and the environment. Third, a desire to develop the manufacturing sector both in developing countries (for example, India and South Africa) and in developed nations. Fourth, low-income countries (LICs) and middle-income countries (MICs) want to participate more actively in global production chains and develop their comparative advantages in labour-intensive as well as strategic technology/capital-intensive sectors. Fifth, after the success of fast-growing economies such as China, India, and South Korea, there is pressure on developed countries to respond to commercial rivalry from

emerging economies, and low- and middle-income economies are eager to learn from the experiences of those countries.

16. This resurgence of interest is evident in a 2018 UNCTAD survey of 114 industrial policies across 101 countries. The survey demonstrates the breadth of industrial policies that are used (figure 1). It also identifies that these packages sometimes include anticompetitive tools that restrict entry or that potentially distort competition by setting “performance requirements” such as requiring local content (see figure 2).⁵ For example, 27 strategies referred to import substitution and 10 percent of strategies set out measures to protect the domestic market.

Figure 1. Industrial policy package matrix

Policy Level:	Supply side				Demand side		
	basic infrastructure	financial capital	production capacity	skills/labour productivity	technology infrastructure	domestic	international
Firm		SME finance schemes	manufacturing policies; conditional subsidy programmes			market creation schemes,	export promotion schemes
Sector	industrial zones development programmes	bank and finance regulations, development banks		training and vocational programmes, higher education policies	innovation and technology policies; pre commercial procurement	strategic public procurement policies	
Economy	infrastructure development programmes, energy policies						
Enabling macro, socioeconomic and environmental policy framework							

Source: UNCTAD (2018) based on Andreoni (2016)

Figure 2. Investment Policy tools in industrial development strategies

	Incentives	Special zones/incubators	Investment facilitation	Liberalisation of entry	Restriction of entry	Performance requirements
Developed	97	83	67	3	0	3
Developing	92	78	82	18	5	20
Less developed	96	92	88	17	8	25

Source: UNCTAD (2018)

17. Notable examples of developed country industrial policies that were covered included: the German Industrie 4.0 and Mittelstand-Digital policies; the Japanese New Robot and Revitalisation strategies; the US National Strategic Plan for Advanced Manufacturing, and its “Making in America: US Manufacturing, Entrepreneurship and Innovation Policy; and the Automotive Sector Deal in the UK. Similarly, examples from developing countries included: “Made in China 2025” and the Chinese Intelligent Manufacturing Plan as well as the Brazilian National Science, Technology and Innovation strategy. Finally, examples in less developed countries include the National Motorcycle Industry Development Policy in Bangladesh, the Craft Industry Strategic Plan in Rwanda, and the National Textile Policy in Uganda.

3. Horizontal policies

3.1. Policies to address cross-cutting market failures

18. The least problematic industrial policies from a competition policy perspective are those cross-cutting measures that leave a level playing field intact. These measures may include intervention by government to invest or subsidise the provision of public goods like law enforcement, defence, education and skills, healthcare, basic research, and transport and telecommunications infrastructure (see box 1). They also include restrictions like cross-cutting minimum standards on safety, pollution or workers' rights. Most notably for the purposes of this paper, they also include competition policy.

19. Each is a response to genuine market failures that are likely to occur regardless of the product or geography of the market in question. They therefore largely benefit all firms, regardless of their location, or the sector or the specific markets to which they sell.

Box 1. Horizontal policies in Peru

“Peru has focused its industrial policy efforts on providing the horizontal public inputs that facilitate an equitable and easily-navigated business environment. Additionally, the country has implemented a number of horizontal intervention instruments designed to promote exports. Beyond pursuing preferential trade agreements, the Peruvian government has provided export incentives in the form of drawbacks on import tariffs for exporting firms. Peru’s national development bank COFIDE (Corporación Financiera de Desarrollo) provides substantial financing to SMEs through a microfinance program. One of the only significant vertical intervention policies in Peru is the establishment of production and export Free Zones in certain regions (Tello and Tavera 2010).” Frank, (2015)

20. Supporting such horizontal policies, Philippon and Véron (2008) conclude that the best industrial policy is one that helps small innovative firms grow faster, not by picking the ones looking most promising, but by creating a favourable environment and facilitating their financing. They advocate measures such as simplifying securities regulation (to facilitate the issuance of shares by small companies), changes in insolvency legislation, the removal of distortions in the tax treatment of equity and debt, and, last but not least, increased competition in financial markets. Other key cross-cutting measures include reducing the costs of entry for new businesses, which are still high in many countries: the cost of creating a new firm varied in 2017 from 0% of Gross National Income per capita in the UK, to 5% in Brazil, 22% in Ecuador, and 352% in Venezuela. The average for Latin America and Caribbean was 78% and the world average was 105% (OECD average was 11.5%).⁶

21. An important tool in competition policy enforcement is to protect domestic firms from anti-competitive conduct, whether it be perpetrated by dominant domestic firms, or SOEs, or larger multinational firms, including those that benefit from a lack of competitive neutrality in their own domestic markets. Such concerns often revolve around predatory pricing concerns, though they may equally apply to other exclusionary conducts.

22. In dealing with such concerns it may be important that competition agencies do not suffer the same enforcement gap as that of the EU in which a showing of ex-ante dominance is required, rather than a showing of ex-post dominance that is required under the US monopolisation offence. This is particularly important where the conduct is

undertaken by a multinational that adopts the conduct when entering the domestic market, that is, before it has foreclosed domestic rivals and acquired a dominant position. It is of course important that the exclusionary effects of the conduct are assessed by the agency, and that there is not a reliance on simple formulaic assessments of the form of the conduct (e.g. exclusivity clauses that may have different effects depending on the context in which they are used).

23. In some cases, the agency may wish to reflect on whether the standard approach to predatory pricing by a profit-maximising firm facing a level playing field remains the appropriate test to use. For example, if the allegedly harmful anticompetitive conduct is perpetrated by a firm or state-owned enterprise that benefits from a lack of competitive neutrality. In particular, it may be that the recoupment element of the test is no longer necessary for non-profit-maximising firms, and that harm to consumers can be identified simply through a showing that price is below cost. Similarly, the relevant price-cost test might be for pricing below the cost in the absence of subsidies or other support.

24. An increasingly common horizontal policy is to apply a competitive neutrality framework that seeks to protect domestic producers from distortions created when rival firms receive subsidies or other support from their governments. These frameworks might be set at a national level and apply to local governments, as in Australia and China, or they might be set at a supra-national level and applied to local and national governments, as in the EU and at the WTO. In some cases, these frameworks might also be set by a national government and applied to its own actions, as in Australia, Sweden and Ukraine.

25. Nevertheless, even where horizontal policies are used, certain imbalances might remain. For instance, the types of skills that workers are trained in, the location of the transport infrastructure that is built, or the type of research that is produced. Each of these might be more valuable for certain firms than for others. Similarly, smaller firms, or firms in certain types of market, might benefit more from the deterrent effect of competition policy. This is not to question the horizontal nature of these interventions. Rather, it is to emphasise that we should not underestimate the scope to tailor these horizontal interventions to the particularities of the cross-cutting market failure as it applies within a given place or product market.

26. For example, if a skills policy has to be one-size-fits-all in order to be strictly competitively neutral in the sense that precisely the same intervention is made, then the definition of neutrality will not be a useful one. A better definition is therefore neutrality as measured in the extent to which the intervention successfully resolves the locally specific aspects of what remains a cross-cutting market failure. This may require investing in developing certain sets of skills more than others (e.g. nursing), or certain skills in certain locations (nursing in a particular city), as part of a cross-cutting intervention which assesses and addresses the skills gap in each different market.

27. This shows the importance of market definition in assessing the competitive neutrality of a policy. Indeed, such market specificities are not uncommon for competition agencies that often identify distinct and sometimes quite narrow geographic and product markets in which the specific market failures that they look for are taking place (for example whether a merger results in a substantial lessening of competition across various local markets). Even in market studies for example, the outcome of an analysis of competition, in say credit markets, might find that some local markets or product markets are working more effectively than others are, and so may require targeted remedies. Furthermore, the horizontal nature of the potential application of competition policy is not uniform in its actual application, or in the benefits of its application. For example,

competition agencies often prioritise certain behaviours or sectors for enforcement or advocacy in order to focus on the more significant risks of anticompetitive conduct or regulation (see for example advocacy on local regulation of taxis).

28. There are also likely to be some market failures that are not cross-cutting, in the sense that they do not apply at all in certain areas or markets. However, if neutrality is defined, not by the neutrality of the inputs, but by the effective resolution of market failures within relevant markets, then this is not an issue and competitive neutrality is not damaged by interventions to resolve such failures in certain locations or sectors but not others. For example, government action to foster co-operation between universities and firms might be necessary in some industries but not others. We turn next to look at selective policies, which pose a greater risk of conflicting with considerations of efficiency and the common good.

3.2. Implication for Competition Authorities

29. Competition authorities will want to act within their capacity as an advocate for competitive markets to promote the use of horizontal policies within a government's industrial policy. It may be the case that it can do so more effectively by playing a formal role within the types of 'productivity commission', that are sometimes given the objective of driving efficiency and productivity across the economy. See for example the Australian productivity commission and recent work on the topic by the OECD.⁷

4. Creating National Champions

30. A classic, but increasingly historic, example of selective industrial policy is the creation of national champions. These can be created as start-ups, or, more often, result from the merger of smaller pre-existing firms. Governments may create national champions directly, by acquiring several private firms and merging them into a single government-owned company, as the UK government did for example in 1967 when it acquired the largest fourteen domestic steel companies so as to create the British Steel Corporation; or by having a government-owned company merge with a private firm – as happened in France when GDF merged with Suez in order to form a national champion in energy, thereby fending off a bid from an Italian company. They may also be created as government-owned companies and then privatised, as in the case of Embraer (see Box 2).

Box 2. The case of Embraer

In Brazil, Embraer (Empresa Brasileira de Aeronautica – Brazilian Aeronautical Corporation) was created in 1969. It was supported through its early development (by means of subsidies and preferential procurement rules) before becoming a successful global player in the aeronautics sector. Goldstein (2002)⁸ explains that “It was majority-owned by the government and inherited some mission-oriented activities from the Centro Tecnológico Aeroespacial (Aerospace Technology Centre), especially the IPD-6504 project to produce a prototype of a twin-engine turbo-prop plane. Although the relationship between the company and the Ministry of Aeronautics remained very close, much bureaucratic red tape was avoided and a clear sense of corporate mission emerged. Not only did the Ministry manipulate the domestic market to Embraer’s advantage, but it also concentrated in its hands most financial, fiscal, marketing, regulatory, and international responsibilities, which were transferred to Embraer. In addition, the firm was able to provide customers with alternate financing through BNDES (a State development bank), it benefited from FINEX (Fundo de Financiamento à Exportação – Export Finance Fund), an export support scheme administered by Banco do Brasil, and it was granted very generous tax holidays.”⁹

31. Governments may also act indirectly, by using their influence over companies (which may result from government control over credit, procurement decisions, or taxes and subsidies) in order to encourage them to merge. For instance, as part of the Industrial Expansion Act of 1968, the British government presided over the creation of a national champion in the sector of computers, ICL, through the merger of several domestic firms, by granting subsidies to various R&D programs.¹⁰ Governments lacking direct control over firms may still attempt to favour certain mergers and deter some others in order to bring about the creation of a national champion - as the Spanish government did in 2006 when it unsuccessfully supported a merger between Gas Natural and Endesa in order to prevent Endesa’s takeover by a foreign utility.

32. Even though this type of heavy-handed government intervention aiming to shape entire sectors is now less frequent than in the past, many governments still consider that they should retain some authority over merger control policy in order to allow industrial policy concerns to occasionally override competition concerns. In many jurisdictions, public interest clauses allow ministers to decide against the recommendation of the domestic competition authority.

4.1. Efficiencies from merging to create a National Champion

33. The claim that governments should foster the creation of national champions by merging smaller domestic firms is often motivated by the view that mergers allow firms to realise economies of scale, to reallocate production towards the most efficient plants, and more generally to benefit from various synergies, ultimately leading to expanded output, better quality and more product innovation.

34. Merging several smaller firms in order to form a larger one often leads to rationalisation and lower production costs. This may be the case for a series of reasons. Fixed cost duplication may be eliminated by concentrating all production activities within a single plant. High-cost plants may be shut down as their production is shifted towards low-cost plants. Merging firms can pool their technologies and know-how, thus ending up with lower costs than either firm pre-merger. Finally, large firms with complementary customer bases may reach a scale that renders profitable cost-reducing or quality-enhancing innovations, as well as the creation of new products.

4.2. Theory

35. There is no single unified theory of the efficiency gains from mergers. However, economic theory has focused extensively on one particular type of efficiency gains, namely, those resulting from the ability of larger firms to rationalise production by shifting it to the most efficient plants and reaping the benefits of economies of scale. The main theoretical analysis of this issue is Farrell and Shapiro (1990).¹¹ Their model considers a highly stylised market in which all firms produce homogeneous goods and compete in quantities. Farrell and Shapiro's main result is that mergers that are only justified by the rationalisation of production (i.e., the reallocation towards low-cost plants and the avoidance of fixed cost duplication) necessarily lead to a lower output and a higher price level, even though they may raise total welfare.

36. The reason behind this striking result is quite intuitive. In competitive enough markets, rationalisation takes place spontaneously, since high-cost firms cannot compete against their more efficient rivals. Whatever rationalisation is left for mergers to realise (as opposed to market-generated reallocation) in some sense reflects the weakness of competition, which allows relatively inefficient firms to remain active in the first place. But if this is the case, then a merger is likely to reduce competition in a market already lacking competition, which explains why it necessarily leads to higher prices and a lower level of output.

37. In a related paper, Spector (2003)¹² showed that this result carries over to the case where entry is possible as a response to a merger-induced increase in prices. Even with free entry, profitable mergers not generating any synergies other than those resulting from the rationalisation of the use of existing plants lead to higher prices and lower levels of input.

38. These results are not sufficient by themselves to rule out the possibility that mergers can be efficiency enhancing. Like all theoretical results, they rely on highly stylised modelling of the economy. More importantly, they do not investigate all kinds of synergies, such as those resulting from the pooling of know-how or the possible strengthening of incentives to innovate thanks to the possibility of spreading innovation costs over larger volumes. However, they imply that there is no *prima facie* case in favour of national champions on the grounds of scale economies alone.

4.3. Evidence

39. The existing studies of the impact of mergers break down into three categories. A first group of studies focuses on the impact of mergers on firms' performance, measured by profits or return to shareholders. A second group focuses on the impact of mergers on markets shares and outsiders' share prices, in order to distinguish between market power and efficiency effects. A third group of studies examines directly whether mergers tend to make firms more efficient.¹³ Finally, there is also anecdotal evidence of both success (see

Boxes 2 and 3) and failure, such as the UK's ICL, France's Bull, and Italy's Olivetti, which were supposed to challenge IBM's dominance of the computer market.

40. The evidence about the impact of mergers on firm profitability is mixed. Studies of mergers that took place in Europe, the United States, and Japan from the 1960s to the 1990s find little evidence that mergers on average create a lot of value, and conclude that many mergers actually destroyed value, especially those involving large companies¹⁴. More recent studies focused on the impact of merger announcements on the combined stock market value of the merging firms.¹⁵ The underlying assumption is the "efficient market hypothesis", i.e., the view that stock market prices accurately reflect all available information about the expected flow of future profits. On balance, these studies do not provide overarching evidence that mergers make firms more profitable.

41. Like all empirical studies, the abovementioned ones raise a number of methodological issues. The older ones, which focused on profits before and after mergers, relative to other firms in the same sectors, failed to take into account the fact that mergers are endogenous. If mergers are more frequent when one of the merging firms faces particularly unfavourable prospects, then considering other firms as a benchmark is unjustified. Event studies focusing on the evolution of stock prices shortly before and shortly after a merger is announced are immune to this criticism, but they rely on the efficient market assumption, which one may consider unrealistic.

42. These results therefore appear to contradict one of the most frequent arguments in favour of national champions. The fact that, contrary to shareholders' hopes, many mergers do not significantly increase profitability, or at least that shareholders have it wrong in many cases, means that the impact of mergers is quite uncertain *ex ante*. Governments willing to create national champions thus face a significant informational problem, which is more acute than the problem facing shareholders since they are likely to possess less firm-specific information. Even if one does not take into account the other problems associated with government intervention, such as rent-seeking or the lack of adequate incentives, this informational problem alone invites caution.

43. Moreover, even if they did not make firms more efficient, we would expect mergers creating market power to be profitable. The absence of unequivocal evidence in this direction thus justifies some scepticism regarding the claim that size by itself makes firms more efficient and that a sound industrial policy requires a more lenient merger control so as to achieve merger-generated efficiencies.

44. In order to disentangle the impact of mergers on market power from their impact on efficiency, some studies have examined how mergers affect market shares. The underlying idea is that mergers increasing market power should reduce the merged firms' market share (as a consequence of the increase in their prices), while mergers primarily making firms more efficient (in terms of costs or product quality) should have the opposite effect. Another way to assess whether the main effect of mergers is to make firms more efficient or rather to endow them with more market power is to look at their impact on non-merging rivals' share prices. If the main effect of a merger is expected to increase the merging firms' market power and thus the prices they charge, this should benefit their competitors. On the contrary, if the main effect is to make the merging firms more efficient, this should be detrimental to competitors and their share price should fall. According to the existing literature, mergers were followed on average by declines in the merging firms' market shares and/or increases in rivals' stock market prices, which is consistent with the view that on average, the efficiency gains, if any, were not large enough to offset the decrease in competitive intensity.¹⁶

45. Another study¹⁷, looking directly at the impact of mergers on costs in the banking sector finds that the mergers on average did not increase cost efficiency, and that there was a lot of variation in that some mergers led to large efficiency gains and some other to large efficiency losses.

Box 3. Hyundai

The Hyundai conglomerate in Korea was subsidised, and occasionally shielded from foreign competition by the government at every step of its diversification. According to Rodrik (1995), the case is a good illustration of the usefulness of a properly implemented policy targeting a national champion. On the one hand, government support to diversification allowed Hyundai to internalise labour market externalities, as managers who had acquired skills in the cement and construction industry could then apply them to other sectors, as Hyundai developed new activities, such as car manufacturing and shipbuilding. On the other hand, the government's direct and indirect subsidisation (including in the form of implicit purchase guarantees for the ship building division) encouraged Hyundai to catch up with foreign incumbents in terms of efficiency.

However, Rodrik stresses the limitation of such policies. Unless subsidies to investors in new sectors are strictly limited in their scope (with a restriction to new sectors) and duration (long enough for discovery to occur, but not longer) and made conditional on some market-based measure of performance, they may well be inefficient. In addition, in the case of Korea, Rodrik stresses the importance of President Park's personal interventions: "President Park, in particular, was famous for his daily involvement in the implementation of his economic policies, and his willingness to override the bureaucracy at a moment's notice when businessmen had legitimate complaints." This interpretation of the Korean success as being attributable to a large extent to a single man's influence and wise decisions makes it quite difficult to derive from it general policy prescriptions, in particular as regards the avoidance of rent-seeking. Also, it must be noted that there is considerable disagreement as to the decisiveness of Korean Industrial Policy in the overall Korean performance. Some authors argue that other factors, such as the high investment rate, the educational level of the Korean population, and the relatively equal wealth distribution were the main factors¹⁸.

46. All in all, these studies show that while some mergers create large efficiencies, there should be no presumption that this is systematically the case since even informed, profit-maximising decision makers often undertake mergers that create few if any efficiencies.

4.4. Implication for Competition Authorities

47. When governments adopt industrial policies that seek to create national champions through mergers and acquisitions, competition authorities are likely to review the impact of these mergers on competition and consumers. In doing so, they should not depart from a best practice approach to merger control, including a focus on the substitutability of the firms' products, and rigorous testing of the alleged efficiencies of the proposed merger.

48. Agencies should take particular care to evaluate and test arguments that the acquired firms would otherwise be unable to compete. While this can be an attractive argument for a supportive government department, such 'failing firm' arguments are usually difficult to sustain since the 'failing' firm's assets are often competitively re-allocated across the market after the failure has occurred (see OECD, 2009).

49. Where governments are supportive of a merger they can of course still change the law to remove certain mergers from the scope of merger control (as for example occurred in the UK during the financial crisis when the government orchestrated a merger of major banks despite the expectation that it would reduce competition). This explicitly removes the duty upon the competition authority to independently investigate the effect that potentially anti-competitive mergers are likely to have on consumer welfare. It therefore removes the risk of creating unhelpful precedents that dilute evidentiary standards, for example, on the merger specificity of claimed efficiencies.

5. Supporting national champions or local firms

50. Having created a national champion, or after finding that one has emerged competitively, governments may look to support and protect that firm. In doing so, they may hope to obtain further economies of scale, and to protect the jobs that are reliant on that firm and the demand that the firm creates, both within its own supply chain, and in the local economies in which its production is located.

5.1. Rent-seeking risks

51. National champion policies are particularly vulnerable to capture by the vested interest of large incumbents which possess the resources and knowledge required to twist public intervention in their favour. Investment in rent-seeking efforts are wasteful for an economy since they produce nothing of value to that economy. Instead, where successful, they reallocate production to a potentially less efficient firm. As a strategy, rent-seeking might be attractive for any incumbent, even highly efficient ones that have already earned significant rents through innovation. However, it might be expected to be particularly important where a firm or industry is struggling to compete. This has led to the suggestion that instead of government ministers 'picking winners', what often happens is that 'losers pick ministers'.

52. An econometric study spanning 32 developed and developing countries suggests that there exists a close relationship between the presence of policies supporting national champions and the level of corruption.¹⁹ Everything else being equal, the existence of procurement policies favouring national champions, or of preferential fiscal treatment, is associated with a large increase in corruption, and the relationship is statistically significant. While this study suffers from the same methodological limitations as all

cross-country studies, it suggests that support for individual firms, is largely captured by private interests.

53. These findings invite caution regarding policies that leave room for precisely targeted help to individual companies, because large established firms are likely to be the prime beneficiaries of such policies due to their comparative advantage in rent-seeking.

5.2. Risk of disrupting creative destruction

54. Policies to support large ailing firms are in fact pervasive, though probably less now than in the past. For instance, there is hardly a government that did not put large amounts of money into the national flagship air carrier. In the UK, government contributions to civil aircraft and engine development from 1945 to 1974 totalled 1.5 billion pounds at 1974 prices and produced receipts of 0.14 billion pounds.²⁰ Meanwhile in Brazil foreigners can only hold 20% of the shares in an airline, thereby protecting those airlines operated by Brazilian nationals from competition from foreign airlines.

55. Time-limited support to declining industries that are concentrated in specific geographic areas may have some benefits if it helps manage the decline smoothly, allowing the re-training of workers that might be needed in order to avoid a collapse in local demand and the risk of hysteresis (see for example the import shock analysed by Autor, 2016). However it does not offer a long-term solution to the decline and should therefore have from the very beginning a clear end-date.

56. Extended support for national champions disrupts the process of creative destruction that drives productivity improvement. For example, in their micro-econometric study of productivity growth in the United States, Foster et al. (2000)²¹ find that one-third to one-half of total productivity growth is caused by the reallocation of production from less efficient to more efficient firms, rather than by the realisation of within-firm productivity gains. The same story is evident in Autor et al (2017). This suggests that while older incumbents may be highly efficient, governments should not prevent less efficient ones from being destabilised by new competitors.

57. It is sometimes argued that the creative destruction process is only an important one in developed countries that are close to the technological frontier, since for them growth is mostly related to innovation, while developing countries should focus on catching up with richer countries by applying existing technologies, which could be achieved through national champions. According to this theory, economic development would require national champions in a first phase, when a country simply applies pre-existing “recipes” and should focus on the realisation of economies of scale; and creative destruction would become an important engine of growth only at a later stage.

58. However, a study by Fogel, Morck and Yeung (2006)²² suggests that the benefits of creative destruction are tangible in the developing world as well as in developed countries. They measure “big business stability” in a sample of 44 developed and developing countries, defined by the fraction of the top 10 businesses in 1975 that (i) either were still in the “top 10” in 1996, or (ii) had their labour force growing at least as quickly as domestic GDP between 1975 and 1996. Based on this index, they test the relationship between big business stability between 1975 and 1996 and growth between 1990 and 2000. Their main finding is that turnover at the top appears to “cause growth”: countries where the largest firms in 1975 did not prosper as well as the overall economy did better on average, and this finding holds for both developed and developing countries. This result implies that independently of the pace of development of new companies,

helping less efficient established companies to prosper entails a large cost in itself. While the precise underlying mechanism has not yet been the focus of detailed empirical work, supporting established companies is likely to deprive newer ones of access to the inputs (especially skilled labour) and markets that they would need in order to prosper.

5.3. Should champions be national?

59. Policies aiming to foster and protect national champions rely on the assumption that the nationality of the main shareholders of a company and the location of its headquarters have an important impact on its contribution to the countries where its activity takes place. This belief is expressed in most countries whenever a large domestic firm is acquired by a foreign one.

60. Such “economic patriotism” concerns have been voiced in many developed countries and have led to the enactment or strengthening of legislation controlling foreign investment (such as the Foreign Investment and National Security Act of 2007, which extended the scope of the Exon-Florio amendment of 1988 in the United States). Several European countries have legislation restricting foreign takeovers; additionally, several European governments have attempted to discourage cross-country takeovers, in sectors ranging from energy to air transportation and food.

61. Until recently, one exception is the UK, which let foreign firms acquire its entire automotive industry and large parts of the water distribution and energy sector, sectors that are politically sensitive in many countries. The example of the British automotive industry is interesting, because the end of national champions (after their acquisition by foreign firms) did not spell the end of the industry: total production was greater in 2005 than in 1995, and, quite strikingly, car exports from the UK increased from 837,000 to 1,315,000 vehicles per year in 2005, and continued to increase to 1,671,166 in 2017.²³

62. Some empirical studies suggest that foreign takeovers do not harm host countries. For example, they find that foreign takeovers have a large and positive impact on productivity and little impact on total employment on average. This result has been found in the case of the UK,²⁴ Sweden (with some caveats)²⁵ and the United States.²⁶ However, there is also evidence that it can lead to a decrease in R&D in the acquired firm (OECD, 2007).²⁷ For example, Velho (2004) and Cimoli (2001) found that in Latin America, FDI led to a reduction in domestic R&D.

63. In the case of developing or transition economies, there is some evidence that the presence of affiliates of foreign-owned firms tends to increase the productivity of their local suppliers. For instance, “*after a Czech producer of aluminium alloy castings for the automotive industry signed its first contract with a multinational customer, the staff from the multinational would visit the Czech firm's premises for two days each month over an extended period to work on improving the quality control system. Subsequently, the Czech firm applied these improvements to its other production lines (not serving this particular customer) and reduced the number of defective items produced.*”²⁸

64. Beyond anecdotal evidence, an econometric study of foreign firms in Lithuania also found such an effect. Contacts with the local affiliates of foreign-owned firms tend to make local suppliers more efficient as a result of technological spillovers. This effect may also be large: a 4% increase in foreign ownership is associated with a 15% increase in supplier productivity.

65. However, it must be acknowledged that in contrast to such supply-chain linkages, several studies on Morocco, Venezuela, and the Czech Republic failed to find evidence of positive intra-sectoral spillovers that were specifically associated to foreign ownership.²⁹ Nevertheless, even in the absence of spillovers a foreign acquisition of a successful home-grown firm may still have a positive impact by raising labour productivity and making the acquired firm more efficient.

5.4. Implication for Competition Authorities

66. Where governments adopt industrial policies that support national champions (either incumbents or start-ups), competition agencies should act within their capacity as an advocate for competitive markets. They might first encourage the government to consider the feasibility of achieving the goals through competitively neutral policy tools. For example, by investing in cross-cutting rather than targeted measures. Secondly, they should encourage them to be transparent on the trade-offs involved and minimise the competitive distortions that are created. Thirdly, they should advise them to take care to avoid any policies that help facilitate anticompetitive conduct or agreement.

6. Clustering policies

67. Perhaps the most popular type of selective industrial policy has been the clustering policies that seek to create new Silicon Valleys. The main rationale in such cases is to correct markets' failure to generate the local production externalities that come from the regional concentration of firms that produce within a specific sector. For example, the concentration of firms in a given region might generate different types of externalities.

- The first is input sharing: the concentration of firms in the same sector in a given area attracts input suppliers, which lowers all firms' costs.
- The second is labour market pooling: a concentration of firms attracts a large pool of workers with the requisite sector-specific skills, leading to reduced search costs for both workers and firms.
- The third is knowledge spillovers: a company's R&D efforts may benefit other companies because new knowledge diffuses outside the company undertaking R&D, through social and business interaction (for instance between suppliers and customers), or as a consequence of employees moving across companies.
- A variant of these arguments, especially relevant to developing economies, involves informational externalities: whenever a firm is established in a new sector, other agents observe its performance and learn about the prospects in that sector. According to Rodrik (2004),³⁰ this discovery process generates positive information externalities and therefore warrants a government intervention aiming to identify promising sectors and to encourage firms to enter them.

68. There is good evidence that positive clustering externalities exist. However, the evidence on governments' success in taking advantage of these well-evidenced opportunities is mixed. Many such attempts failed, and several success stories appear to owe little to governments; however, in some instances, especially in developing countries, government intervention played a key role in the successful development of entirely new sectors.

6.1. Evidence of clustering effects

69. The importance of clustering effects and sector-wide economies of scale has been substantiated by a series of convergent studies. The magnitude of these effects is also likely to be quite large: for instance, according to a recent study, a doubling in the regional scale of an industry leads on average, in Japan, to a 4.5% increase in productivity.³¹ As opposed to firm-level economies of scale, such sector level economies of scale in theory justify public intervention in order to help industries reach a large enough scale. The various underlying mechanisms have been measured as well. The input sharing assumption has received empirical confirmation: the more firms are concentrated in an area, the more outsourcing one observes, which reflects the greater availability of outside inputs.³² The best-documented type of local externality is knowledge spillovers. For instance, Agrawal et al (2006) showed, by studying patent citations, that the knowledge created by an inventor is applied disproportionately in locations where the inventor lived previously, which can be explained only by the importance of personal connections,³³ and Audrestch and Feldman (1996) highlighted the geographic concentration of innovations.³⁴

70. There is evidence that many developing countries' specialisations owes more to the development of sectors in which there was an initial presence, because of clustering and informational externalities, than to genuine comparative advantage. For instance, as Hausman and Rodrik (2003)³⁵ note, countries with nearly identical resource endowments end up with very different specialisations: Korea exports microwave ovens but no bicycles, while Chinese Taipei exports bicycles but almost no microwave ovens; Bangladesh is one of the main exporters of hats worldwide while Pakistan exports almost none. These findings suggest that specialisation patterns are largely explained by random events occurring at the initial stage of development, i.e., on random attempts by lone entrepreneurs, which then give rise to self-reinforcing dynamics. If that is the case, then the argument against industrial policy based on the claim that governments should not pick winners loses some of its strength. If the lack of development of a given sector is simply caused by the fact that no entrepreneur happened to make an attempt in the past – partly for fear that, in case of success, it would be emulated by many domestic competitors and would not reap the benefits of its initial risk-taking – then there is case for governments to actively favour the development of new activities. This could allow countries to diversify, which is part of the development process.³⁶

71. There is also some evidence pointing towards the fact that positive local spillovers (adjusting for firm size) are less important when a large firm settles in a region than when a small firm does.³⁷ This is probably because large firms have less need for interaction with outsiders. However, there also is some anecdotal evidence in the other direction, pointing to the importance of large firms in the success of some innovative clusters (like Nokia in Finland).³⁸

6.2. Evidence on government's success in capitalising on these opportunities

72. In contrast to the accumulation of knowledge about the nature and magnitude of clustering externalities, the evaluation of the public policies supposed to stimulate them yields mixed results. Many governments' attempts to emulate the Silicon Valley have proved inconclusive, even in the United States where first-hand, detailed information was available.

73. Conversely, Rodrik (2004)³⁹ argues that some industrial policies followed in Latin America and East Asia succeeded in taking into account informational externalities and fostering the development of entirely new sectors. For instance, in Chile, the public agency Fundación Chile started to experiment with salmon farming in the 1970s. While this industry was non-existent in Chile prior to this policy, Chile is now one of the main exporters of salmon. Similarly, Rodrik argues that the launch of orchid production by government firms in Chinese Taipei was a good way to reveal the profitability of this sector in order to stimulate private investment and the development of a new sector.

74. More traditional tools for generating clustering effects include targeted special enterprise zones. For example, science and technology parks, or export processing zones. One example is Electronic City in Bangalore, similar there is the renewables zone known as Masdar City in Abu Dhabi, and various automotive zones in south east Asia.

75. The implication of the empirical literature on clustering effects is that they are important. Some form of cluster based industrial policy is therefore potentially helpful in facilitating the co-location of firms within the same industry and enable them to reap the benefit of the positive externalities that they create for one another.

6.3. Rent-seeking risks

76. One of the criticisms most frequently levelled at selective industrial policies is that even if such policies make sense in principle, in practice private interests engaging in rent-seeking are likely to capture governments and extract rent. These risks are the same as those considered in section 5.1, however where the beneficiary is a group of firms rather than a single firm their combined lobbying power might be even stronger.

77. Examples of industrial policies that can be better explained by rent-seeking or political motives include aid granted in the 1990s by the State of Michigan to various firms on job-creation grounds at a cost more than 2 million dollars per job.⁴⁰ More generally, the ability of private interest groups to distort economic policy in their favour has been well documented,⁴¹ just as the impact of firms' political connections on business outcomes, both in developed and developing countries.⁴² For example, the degree of tariff protection enjoyed by various industries in the United States is directly correlated to the level of donations to political parties.⁴³

78. An econometric study of state aid in Europe finds that the more a country's political system makes the provision of targeted aid politically profitable (e.g., in countries with small electoral constituencies, little ideological distance between parties, and little party unity), the greater the share of aid to firms that is indeed targeted at sectors, as opposed to "horizontal".⁴⁴ This suggests that the provision of support to specific sectors is based, to some extent, on electoral considerations – despite strict control by the European Commission.

79. These findings have two consequences. First, rent-seeking and politically motivated decisions may affect the quality of industrial policy and lead to an inefficient use of public funds and to productive and allocative inefficiencies. In addition, the more industrial policy lends itself to capture by private interests, the more companies are likely to invest in rent-seeking activities, which represents a waste of resources since according to various estimates, the cost of rent-seeking activities is very high.⁴⁵

80. According to Rodrik (1995), industrial policy in East Asian countries in the last decades was relatively immune to rent-seeking. This might, as the IADB (2014) note, reflect the importance of strong institutions in implementing effective industrial policies that can be vulnerable to rent seeking in their absence. Also, as Rodrik (2004) points out, the presence of rent-seeking does not suffice to conclude against industrial policy, no more than rent-seeking in education justifies an end to the public provision of education. Moreover, the risks identified can be minimised by targeting support at new activities in which there is no established incumbent to lobby for the available rent.

6.4. Implication for Competition Authorities

81. Where governments adopt industrial policies that target support at building clusters of firms from the same sector within a specific location, competition agencies should act within their capacity as an advocate for competitive markets. In doing so, they should recognise the good evidence for the existence of clustering externalities.

82. However, where there are doubts over the practical ability of their government to deliver such measures without generating inefficient rent seeking, competition agencies may wish to encourage the government to instead consider the feasibility of achieving its goals through competitively neutral policy tools. For example, by investing in cross-cutting rather than targeted measures and allowing firms to cluster of their own accord.

83. In either case they should encourage the government to be transparent on the trade-offs involved and minimise the competitive distortions that are created, while taking care to avoid facilitating anticompetitive conduct or agreements.

7. Place-based policies

84. In poorer local areas where previous industries have failed, governments might decide to adopt ‘place-based’ policies that are not focused on specific sectors but on supporting the area as a whole. Unlike policies whose target is to build a sector in a specific place, these are not intended to generate positive externalities in production. Instead, they seek to create and sustain local jobs and demand, and to reduce what some refer to as ‘leakage’ of rents to other areas.⁴⁶

7.1. Evidence of market failure

85. Some local areas have higher unemployment and hence generate less demand than other areas. This might be the result of a lack of investment in physical or digital infrastructure that leaves the area at a disadvantage in attracting businesses to locate there, or it may be due to the inability of labour to move, or retrain and develop new skills after the exit of previous industries. Such market failures have been well-established by those such as Autor et al (2016), who find substantial and long-lasting effects on local employment as a result of an area and the firms located in that area becoming unable to continue to compete successfully in international markets.

7.2. Local procurement policies

86. One response from government is to decide to adopt policies that help keep spending within the local economy in the expectation that this will generate demand spill-overs and jobs. This might be expected to occur through the supply chain, since local firms might be more likely to source their intermediary products and services, as well as their labour from local markets. Furthermore, it might be expected that even the profit earned by local firms will then be spent on consumption of locally produced goods and services and will therefore generate a multiplier effect on demand within the local economy. See for example Brazilian policies that provide for differential treatment in public procurement for foreign and domestic producers (up to 30% price differential for domestic producers).⁴⁷

87. There is a good case for an industrial policy response to help in cases where these market failures arise. However, responding to one market failure by creating distortions to competition to somehow counterbalance the failure is not efficient, not in the common interest, and not advisable. Instead, place-based policies should directly resolve the specific market failures of the area, rather than attempting to do so indirectly by reallocating profits to local firms.

88. In the first place, the creation of these competitive distortions does not only reallocate rents to local firms. By protecting local firms, it also increases the rents earned by the firms, and hence increases the prices paid by consumers (or by taxpayers if the service is provided to local government). This unnecessary generation of market power serves to increase inequality (OECD, 2017), and reduces the income that consumers have available to spend on other products and services (thus reducing local demand).

89. Secondly, it is also far from clear that funnelling profits towards shareholders in local firms will in practice lead them to in turn invest that money in the local economy. They may spend the money on non-locally produced products and services, or they may save or invest it in non-local accounts or funds. They may also waste some of it in rent seeking to define the policy so as to improve the advantage they enjoy over potential rivals.

90. Thirdly, when the decision by a firm to locate a plant in a given area (or country) generates positive externalities locally, it may be tempting to jump to the conclusion that the provision of subsidies to attract that plant is justified. This reasoning however fails to take into account the negative externalities on other areas. If the positive local externalities are the same irrespective of where the plant is located, and the only impact of a subsidy is to shift a plant from one place to the other, then each area's gain is another's loss and industrial policy does not generate any global benefits. When taking into account the fact that public funds have a deadweight cost, such subsidies end up decreasing global surplus, even though they may be rational from each area's individual viewpoint.⁴⁸

91. Finally, the adoption of such policies does not occur within a vacuum, and is therefore likely to trigger a response. For example, one poorer area providing protection for firms based within its locality is likely to attract rents not only from more prosperous areas, but also from other neighbouring poorer areas. Where these respond in kind, it will leave both areas worse off and simply waste funding that might have been used to directly resolve the market failure.

92. To see how these problems can play out we can look at the available literature on the United States, where aid by states is not prohibited. States seem to engage into costly competition in order to shift activities from neighbouring states towards themselves, without creating new activities.⁴⁹ A prominent recent example has been Amazon's decision on where to locate its second headquarters. This destructive cross-state competition has prompted some American authors to recommend a federal control over State aid.⁵⁰ Such frameworks exist and are applied by the competition agencies in both the EU and China, and will be applied by the competition authority in the UK during the transition phase of the Brexit process. These concerns have also led countries to agree to instruments such as the OECD arrangement on export credits, which seeks to prevent them from engaging in destructive competition.

7.3. Special enterprise zones

93. In contrast to local procurement policies, special enterprise zones may offer a more efficient way of addressing localised market failures. While we have previously discussed their use to target the location of particular industries within an area, these are also often used in a less targeted fashion to attract any firms and hence jobs to an area. The specific tools they employ are therefore more cross-cutting and do not discriminate between firms. They include additional investments in local infrastructure (e.g. transport, broadband and telecommunications), local services (schools and healthcare), local human capital (e.g. retraining and improving the skills of the local workforce), access to credit, and support for entrepreneurs. They might include tax-breaks and might even conceivably involve direct measures to stimulate local demand (see box 4).

94. These policies do not allow local firms to set prices above competitive levels and so do not create additional market power. However, in some cases (e.g. tax credits) they may allow local firms to set prices below competitive levels. They may therefore potentially distort markets and lead to allocative inefficiency that generates deadweight loss if areas compete to subsidise firms to locate in their area rather than another. For example, these incentives might lead to firms choosing not to locate in areas that generate additional productive externalities (clustering effects). To reduce this risk and ensure that the identification of local market failures is objectively conducted these are therefore sometimes defined at a national or supranational level (see EU enterprise zones and Chinese SEZs). This prevents local governments having the ability to react and compete with one another to offer larger tax breaks (which must be funded, and hence have either opportunity costs or deadweight losses, or both).

Box 4. Special Enterprise Zones

A Special Enterprise Zone is a geographic area where the economic regulation of business is different from those in the rest of the country. These zones often include better infrastructure, and more friendly investment conditions, including tax and tariff exemptions, streamlined customs procedures. The objective is to create a globally competitive economic area that, through cost reductions and administrative simplification, attracts corporate investment that encourages new economic activity. They can be particularly useful for experimenting with different policies and exploring what works before rolling it out more widely.

However, the incentives offered to attract investors mean forgone tax revenues, at least in the short term. SEZs can also create competitive distortions inside their respective host economies, which is one reason why nationwide liberalisation measures are typically better than these patchwork efforts.

There are currently about 4,300 SEZs in 73 countries around the world. For instance:

- The Dominican Republic, El Salvador, and Honduras each use SEZs to generate large-scale manufacturing sectors in economies that previously were reliant on agricultural commodities. For example, employment in the Dominican Republic’s industrial ‘free zones’ has risen from 500 in 1970 to almost 200,000 today.
- Uruguay’s Zonamerica is one of the cutting-edge SEZs oriented towards IT, software, bio-technology and electronics operations. With more than 350 companies (including Citi, Deloitte, PwC) housed in Zonamerica, there are 10,000 people directly employed, contributing to 1.5% of the GDP of Uruguay. Zonamerica has also recently opened a new zone in Cali, Colombia.
- Chile’s largest SEZ is Zofri, which is located on the northern coast in the city of Iquique, providing 25% of the local employment.
- Mexico is developing SEZs in Mexico’s poorer southern states which are generally underdeveloped from an industrial perspective compared to the rest of Mexico.
- It has also been suggested that allowing those in refugee camps to work in SEZs might help both refugees and help make the SEZ an effective one (Betts & Collier, 2015).⁵¹

7.4. Implication for Competition Authorities

95. Where governments adopt place-based industrial policies, competition agencies should act within their capacity as an advocate for competitive markets. In doing so, they should be conscious that there can be genuine market failures that justify the use of such policies. However, they should also encourage the government to consider the feasibility of achieving its goals through competitively neutral policy tools where possible. In particular they should campaign against the use local procurement policies and advise governments to use less distortionary means to stimulate local demand, including

investing in local infrastructure and human capital as well as special enterprise zones. They should also encourage the government to take care to avoid facilitating anticompetitive conduct or agreements, for instance between firms within the special enterprise zones.

8. Mission-oriented or Sector-based policies

96. An increasingly popular industrial policy is to draw up a list of missions or priority sectors and to put in place policies to achieve or support them. These are not place-based policies in the sense that they do not target particular geographic areas that might have suffered market failures. Nor are they clustering policies, since they are not intended to incentivise the creation of positive externalities within production (e.g. the creation of something akin to Silicon Valley).

97. As a response to different types of market failure, there is no reason why mission-orientated policies need conflict with competition policies. However, perhaps more common, are sector policies that might invoke a mission, but which simply involve some way of protecting or subsidising the competitiveness of the firms within that sector that locate within the country. While the use of these policies might resolve a market failure when a domestic industry is in its infancy, open-ended versions of these policies are likely to clash with competition policy, we therefore discuss these separately.

8.1. Mission-orientated innovation policies

98. Mission-oriented innovation policies begin by defining a mission, and then proceed to a) address existing market failures, b) tackle systems failures such as disconnects between science and industry, and c) create and shape new markets in order to complete that mission. While it might sometimes be helpful to think of these as distinct elements of the policy, they are to some degree simply three types of market failure in the broader analytical sense of the term.

99. The first category, existing market failures, are less about those cases where the private sector has evaluated the opportunity and decided that there is no money to be made (healthcare, education and so on). Instead, these are typically cases where the private sector is constrained from pursuing the project; where entrepreneurs have envisaged the business model but have been unable to raise sufficient funding to develop it, perhaps due to the risks being too high or the payoff too far away, or insufficiently appropriable. For instance, investment in public goods like early stage research which is both expensive and highly risky with a payoff horizon that often extends well beyond those that a commercial investor could justify.

100. The second category, systems failures, can also be thought of in terms of a market failure framework. For instance, a disconnect between science and industry is on the one hand a case where firms lack the competitive incentive to efficiently connect with the science and research community. However, it can also be thought of as a government failure to properly incentivise the publicly funded science projects (which they create to resolve the basic market failure of insufficient investment in science) to commercialise their research.

101. Finally in the third category, the need to create and shape markets results from the failure of unfettered market mechanisms to create those markets, or to create them in the shape that would be efficient. For example, in the UK the competition agency set out to create a market for digital applications that allow consumers and business to manage their money across multiple bank accounts and hence to drive better competition between banks. The lack of such a market is the likely result of banks with market power having the incentive and ability to foreclose the emergence of such services (except to the extent that they scrape the data and therefore require consumers to compromise the safety of their accounts in order to use the service). To facilitate the creation of this market the competition agency therefore required the large banks not just to share their data with third party applications where consumers requested it, but to do so using open access and common standards on the form of the data (the application programme interface, or API).

102. This market creation role also includes products or services that have barely been envisioned by firms. Examples might include the internet, GPS, touch screen and voice activated technology, and others might be found in those innovations that have been developed not by firms, but by open source communities and non-profit organisations (e.g. Linux, blockchain, and Wikipedia). Whether we call these a market failure (a missing market reflecting an absence rather than undersupply of a product or service that would generate valuable social externalities beyond its own value), or a something else (taking the overly literal view that there cannot be a market failure if there is no market), the important point is that their resolution does not conflict with, and is perfectly consistent with other policies that resolve market failures (such as competition policy).

103. The most direct resolution of a missing or underserved market is sponsored entry (absent direct provision, which is beyond the scope of this paper). Sponsoring entry into unserved or underserved markets can deliver the innovation itself (which might be specified in the mission of the policy), and may crowd-in investment from firms that can take advantage of the increased certainty that the innovation goal will be achieved by someone, and over a shorter timetable as a result of the policy.

104. An extension of the argument is not only to sponsor entry into missing markets, but also to increase competition within uncompetitive ones. The case for this is less clear, but where the barriers to entry are particularly high there may be a case to be made.⁵² For example, Europe successfully challenged Boeing's dominance in the aircraft manufacturing industry through Airbus and this decreased prices for purchasers. As expected, the incumbent suffered a loss, since a portion of the profits that remained shifted to Airbus, but on a consumer welfare standard, this might nevertheless be judged a success.⁵³ Similarly, in telecommunications packages of spectrum or rights to televise live events are in some cases reserved for non-incumbents in order to help facilitate new entry. What is likely to be important in such cases is that the foreseeable incentives that drove the original innovative entry are not undercut,⁵⁴ and that the sponsorship is available to competing proposals to enter into the market, rather than being reserved for a specific firm. For example, both Tesla and Solyndra competed for support from the US Advanced Research Projects Agency-Energy (ARPA-E) which was designed to stimulate investment in Green Technology.

105. Mazzucato (2013) emphasises that the state can and should do more than provide the financial capital to fix market failures. She argues that because economic development is an endogenous process, the state should also provide social capital, coordinate initiatives and public-private partnerships, and foster synergies. However, we focus here on the provision of capital since these other roles need not conflict with

competition policy except to the extent that they in effect provide additional capital through other means (in which case the analysis that applies is the same as for the provision of capital).

106. These innovation policies might appear far-removed from smaller countries in Latin America and the Caribbean. However opportunities for such states to be entrepreneurial may still arise, see for example some of those countries that have led the way in setting ambitious missions related to blockchain technology (Estonia and Georgia) and mobile banking (Kenya). Furthermore, given the local nature of many markets within an economy, a market may well be missing within a country despite thriving elsewhere.

107. Meanwhile where markets are not underserved, they might nevertheless be misshapen. For example they might involve firms competing on parameters that do not achieve the outcomes that final consumers want from them, perhaps because the incentives of buyers and final consumers are not aligned (as in credit rating agency markets, or other dysfunctional principal-agent relationships). Alternatively, consumers' short and long-term welfare maximising decisions may conflict with one another, meaning that the perfect simplicity of consumer sovereignty ceases to provide a straightforward answer to the question of what an efficient market should provide.

8.2. Building up a sector

108. A different category of targeted policies are those sector policies that are designed to promote the competitiveness of domestic firms, to promote exports and help domestic firms to first become part of global value chains (GVCs), and then to move up to higher levels of those chains.

109. These might be prompted by a market failure. For example, firms may lack the opportunity to fulfil their potential and become efficient, perhaps because of a lack of access to capital, or because buyers are unaware of their offer. Where these challenges are on the demand-side this might lead to firms joining trade missions and other export promotion activities in order to improve potential buyer's information on their products or services (see box 5). It also leads to export credit guarantees being offered by government to reduce uncertainty that buyers may have over purchasing from firms based in other countries.

Box 5. Export financing and sector policies in Argentina

As Frank describes: "Argentina's industrial policy scheme has centered around horizontal support to SMEs, investments, and exports. The most common policy instruments are subsidised loans and tax credits. Much of the export-oriented financing is distributed by the public development bank BICE (Banco de Inversión y Comercio Exterior). Recently, a number of vertical policies that target the software and agricultural biotechnology sectors, and are administered as part of the Argentine Technology Fund (FONTAR), have emerged." (Frank, 2015)⁵⁵

110. The failure however can also occur on the supply-side. For example, it may be necessary to discover which types of goods and services that already exist in world markets can be produced in a domestic economy at low cost, that is to say, to discover in which products domestic firms have a competitive advantage (Rodrik, 2004). However, this discovery role might not be undertaken by private credit markets, which may lack

information on the risk of default by domestic firms that are potential entrants into the infant industry. This may lead them to charge a premium which reflects their inability to distinguish between the risks of lending to different firms in the pool of potential entrants (Flam & Steiger, 1989). This can lead to potentially efficient entrants into ‘infant industries’ lacking access to the patient long-term capital that might allow them to demonstrate their comparative advantage (see box 6). In such cases, the state might need to play a central coordinating role in the discovery process.

111. What might be discovered is that these firms do not in fact have a comparative advantage, or that the provision of financial support (or tariff protection) might undermine the potential advantage by inducing inefficiency and complacency. Nevertheless, governments may decide to take that risk in sectors where they perceive that domestic firms are likely to have an advantage, and are otherwise unlikely to have an opportunity to demonstrate it. Indeed, despite the risk of failure, the success of the East Asian economies in using such policies to develop and catch up has demonstrated that there can be value in these policies where they are time-limited.

Box 6. The World Bank on latent comparative advantage

Lin & Monga (World Bank) agree with Rodrik that the key to a successful selective industrial policy is to (a) identify new industries in which a country may have latent comparative advantage, and (b) to remove the constraints that impede the emergence of industries with latent comparative advantage and create the conditions to allow them to become the country's actual comparative advantage.

They propose a six-step process:

“First, the government in a developing country can identify the list of tradable goods and services that have been produced for about 20 years in dynamically growing countries with similar endowment structures and a per capita income that is about 100 percent higher than their own.

Second, among the industries in that list, the government may give priority to those in which some domestic private firms have already entered spontaneously, and try to identify: (i) the obstacles that are preventing these firms from upgrading the quality of their products; or (ii), the barriers that limit entry to those industries by other private firms. This could be done through the combination of various methods such as the value-chain analysis or the Growth Diagnostic Framework suggested by Hausmann, Rodrik, and Velasco (2008). The government can then implement policy to remove those binding constraints and use randomised controlled experiments to test the effects of releasing those constraints so as to ensure the effectiveness of scaling up those policies at the national level (Duflo 2004).

Third, some of those industries in the list may be completely new to domestic firms. In such cases, the government could adopt specific measures to encourage firms in the higher-income countries identified in the first step to invest in these industries. The government may also set up incubation programs to catalyse the entry of private domestic firms into these industries.

Fourth, in addition to the industries identified on the list of potential opportunities for tradable goods and services in step 1, developing country governments should pay close attention to successful self-discoveries by private enterprises and provide support to scale up those industries.

Fifth, in developing countries with poor infrastructure and an unfriendly business environment, the government can invest in industrial parks or export processing zones and make the necessary improvements to attract domestic private firms and/or foreign firms that may be willing to invest in the targeted industries. Industrial parks and export processing zones also have the benefits of encouraging industrial clustering.

Sixth, the government may also provide limited incentives to domestic pioneer firms or foreign investors that work within the list of industries identified in step 1 in order to compensate for the non-rival, public knowledge created by their investments.”

112. However, where these sector-based policies are not time-limited there becomes a real risk that they do not help resolve a market failure and instead simply reflect the state supporting domestic firms to compete more successfully within a market. This might have a predatory nature (as often anticipated by anti-dumping rules), or more expensively, it might be an explicit policy of maintaining consistent support for certain priority markets, without the expectation of recoupment.

Box 7. Mexico's car industry

The Mexican government's decision to develop its automobile industry, by conditioning the operation of foreign firms' plants (attracted by the relatively low level of wages and the proximity to the US market) on strict domestic content requirements led to a remarkable performance, and the automotive sector is now Mexico's top export sector. In line with this view, many developing countries have followed and are still following policies which aim to encourage the development of specific sectors ranging from mining to tourism (in several Latin American countries), to software (in China and India, in particular) and shipping. (OECD, 2009)

113. Here the principle of allocating production according to comparative advantage is entirely abandoned and it seems to be expected that, instead of firms, countries around the world either compete on the degree of support they provide, or agree with one another which will focus on which priorities (thus avoiding the need to compete). Either scenario is hugely wasteful since the resources to fund this 'competition between countries' do not themselves produce anything of value. The WTO and the multilateral system is there to prevent these globally harmful races, however its success has been mixed, and its existence is increasingly challenged despite the lack of a proposed alternative.

8.3. Implication for Competition Authorities

114. Where governments adopt industrial policies that target support at achieving innovation, competition agencies should act within their capacity as an advocate for competitive markets. In doing so, they should be conscious of the strong case for government to intervene and sponsor firms and institutions to do those things that at present are not done at all. Indeed, they may be able to play a valuable role in helping governments to identify which markets might benefit from sponsored entry, and which might not.

115. Where policies support or protect certain sectors, competition agencies should again act within their capacity as an advocate for competitive markets. However in these cases they will want to consider the work that government has done to identify a genuine market failure, and to time-limit the support that is provided. Despite the potential role for such policies in certain circumstances, competition agencies should nevertheless encourage the government to consider the feasibility of achieving its goals through competitively neutral policy tools. For example, by investing in cross-cutting rather than targeted measures. They should also encourage the government to be transparent on the trade-offs involved and minimise the competitive distortions that are created, while taking care to avoid facilitating anticompetitive conduct or agreements.

9. Conclusion

116. The main conclusions are as follows.

- Industrial policy should be designed around the goal of tackling market failures rather than improving competitiveness of certain firms or sectors. However, market failures will vary from market-to-market and so selective industrial policies may be efficient when they address an identified market failure.
- As noted, competition policy is designed to address market failure, and is therefore complementary to other policies that address different market failures. These policies each have a role within a coherent and effective industrial policy. However, given competition authorities remit to investigate mergers and advocate for the removal of competitive distortions, protectionist policies will inevitably conflict with competition policy. However, a competition authority should not hesitate to act where it is within its remit to do so by independently investigating the effect that potentially anti-competitive agreements, exclusionary conducts and proposed mergers are likely to have on consumer welfare.
- When a government is considering the merits of an industrial policy that tilts the playing field, a competition authority should first encourage the government to consider the feasibility of achieving the goals through competitively neutral policy tools. For example, by investing in cross-cutting rather than targeted measures. Secondly, it should encourage them to be transparent on the trade-offs involved and minimise the competitive distortions that are created. Thirdly, they should take care to avoid any policies that help facilitate anticompetitive conduct or agreement.
- The case for industrial policy that supports specific individual firms, as for example in the creation of and support for a national champion is a weak one. The view that size brings decisive competitive advantages is belied by the mixed record of many mergers, and there are significant doubts over governments' ability to pick winners. Evidence suggests that a large share of productivity increases result from market share moving from less to more productive firms, and that many innovations come from entrants, meaning that protecting an incumbent champion is likely to dampen growth, both in developed and developing countries.
- The case for place-based industrial policies that use procurement to discriminate in favour of locally owned businesses is also a weak one. Handing market power in local markets to locally owned businesses can be relied upon to increase prices paid by local consumers and redistribute this into the profitability of local businesses, thereby increasing inequality. At a broader level, it will simply damage neighbouring local economies (who are likely to reply in kind, leaving everyone worse off). While the goal of stimulating demand in poorer local economies that have earned no dividend from more competitive markets is a good one, this should not be pursued through protectionism, but instead by investing to tackle the specific market failures that afflict these areas. For example investing in local infrastructure, human capital, access to credit, and support for entrepreneurs, as well as sponsoring entry into missing markets, addressing local market power, and providing targeted demand side stimulus where appropriate.

- The existence of positive externalities induced by clustering effects is well documented. Non-discriminatory policies with a clear mission to encourage new activities and reach a well-defined goal, rather than to support an incumbent, may therefore speed up learning and drive innovation. They may also reduce risk and hence crowd-in private investment.
- Selective industrial policies are often vulnerable to rent-seeking. The evidence of rent-seeking behaviour implies that governments should favour policy instruments that do not endow them with the power to favour individual companies and should focus on more neutral instruments. The same is true for sectors, except where the institutions are strong enough to deter such behaviour by market participants.

Endnotes

¹ Mazzucato (2013).

² State Owned Enterprises, Not-For-Profits, Small and Medium Enterprises, and Publicly Limited Companies

³ Meanwhile, how to distribute the gains from higher growth is then a question on which a society must reach a view. Notably work by the OECD (2015) has suggested that growth can be constrained by high levels of inequality. Meanwhile predistribution policies (Hacker, 2011) suggest that the state can ensure that higher growth is shared more equally by empowering disadvantaged citizens to earn a larger share of these higher rates of growth.

⁴ This is not to question the necessity of the bailouts, given the circumstances at the time, but to suggest some of the consequences of the failure to force those institutions to internalise the risks that they posed in the decisions that they made prior to the crisis.

⁵ Performance requirements include things like minimum investments, contributions to R&D of technology transfer, job creation, energy efficiency improvements, geographic location, local content, export, productivity, partnership. These can be mandatory but are more often linked to incentives such as tax breaks, grants, land allocations or loan guarantees.

⁶ World Bank 2017:

https://data.worldbank.org/indicator/IC.REG.COST.PC.ZS?end=2017&start=2017&view=map&year_high_desc=false

⁷ <https://www.oecd.org/economy/Institutions-to-promote-pro-productivity-policies-OECD-productivity-working-papers.pdf>

⁸ Goldstein, A. “EMBRAER: From national champion to global player” CEPAL Review, 77 <https://www.cepal.org/publicaciones/xml/5/19965/lcg2180i-Goldstein.pdf>

⁹ “All weapons-producing companies were exempted from duties on the import of inputs. Moreover, Embraer did not pay trade (ICM) and production (IPI) taxes. Furthermore, all Brazilian companies buying non-voting shares in Embraer could obtain a 1% rebate on corporate income tax. Federal agencies were also required to buy Brazilian aircraft provided their price was not more than 15% higher than that of competing imported goods. Finally, aircraft imports were subject to a 50% duty if a competing Brazilian product was available.” Goldstein (2002).

¹⁰ Stephen Young and A. V. Lowe, (1974) *Intervention in the Mixed Economy: The Evolution of British Industrial Policy, 1964-72*.

¹¹ J. Farrell and C. Shapiro, “Horizontal Mergers: An Equilibrium Analysis”, *American Economic Review*, vol. 80(1), 107-126, 1990. See also, J. Farrell and C. Shapiro, “Scale Economies and Synergies in Horizontal Merger Analysis”, *Antitrust Law Journal*, vol. 68(3), 2001.

¹² D. Spector, “Horizontal Mergers, Entry, and Efficiency Defence”, *International Journal of Industrial Organisation*, vol. 21(10), 1591-1600, 2003.

¹³ Part of this section is based on Röller, Lars-Hendrik, Johan Stennek and Frank Verboven (2001). “Efficiency Gains from Merger.” *European Economy*, No 5, 31-128.

- ¹⁴ See, e.g. Lubatkin, M., Srinivasan, N. and Merchant, H. (1997), “Merger strategies and shareholder value during times of relaxed antitrust enforcement: the case of large mergers during the 1980s”, *Journal of Management*, 23, 59-81; Sirower, M. L. (1997). *The Synergy Trap: How Companies lose the Acquisition Game*. New York: The Free Press; The effects of mergers: an international comparison; K. Gugler, D. Mueller, B. Yurtoglu, and C. Zulehner, “The Effects of Mergers: An International Comparison”, *International Journal of Industrial Organization*, vol. 21, 625-653, 2003.
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- ¹⁹ National Champions and Corruption: Some Unpleasant Interventionist Arithmetic. Alberto Ades; Rafael Di Tella. *The Economic Journal*, Vol. 107, No. 443, 1997.
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- ²² K. Fogel, R. Mork and B. Yeung, “Big Business Stability and Economic Growth: is what’s good for General Motors good for America?” NBER Working Paper N°12394.
- ²³ <https://www.smmmt.co.uk/industry-topics/brexit/key-exports-data/>
- ²⁴ Griffith and Simpson, «Characteristics of Foreign Owned Firms in British Manufacturing», NBER Working Paper n° 9573.
- ²⁵ Heyman, Sjöholm and Gustavsson «Is There Really a Foreign Ownership Wage Premium? Evidence from Matched Employer Employee Data», *Journal of International Economics*, Elsevier, vol. 73(2), pages 355-376, 2007.
- ²⁶ Bernard and Jensen, «Firm Structure, Multinationals and Manufacturing Plant Deaths», *Review of Economics and Statistics*, vol. 89(2), 2007.
- ²⁷ See table 4.2 of OECD (2007) <https://www.oecd.org/investment/internationalinvestmentagreements/40476100.pdf>
- ²⁸ B. Javorcik, “Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers through Backward Linkages”, *American Economic Review*, 2004, vol. 94(3).
- ²⁹ Javorcik (2004).
- ³⁰ D. Rodrik, “Industrial Policy for the twenty-first century”, Harvard Kennedy School Working Paper 04-047.
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³³ A. Agrawal, I. Cockburn and J. McHale, Gone But Not Forgotten: Knowledge Flows, Labour Mobility, and Enduring Social Relationships, *Journal of Economic Geography*, vol. 6(5), 2006; see also E. Moretti, Workers' Education, Spillovers and Productivity: Evidence from Plant-Level Production Functions, *American Economic Review*, vol. 94(3), 2004.

³⁴ D.B. Audretsch and M. Feldman, R&D Spillovers and the geography of innovation and production, *American Economic Review*, vol. 86, 630-664, 1996.

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⁴⁶ CLES, 2017.

⁴⁷ Cristiane Alkmin J. Schmidt (CADE, 2016)
http://www.cresse.info/uploadfiles/2016_sps5_pr6.pdf

⁴⁸ Research suggests that if the deadweight cost of taxation is high and the market considered is one of homogeneous products, then industrial policy may result in inefficient subsidy races leading to a waste of public funds, even if each government acts rationally and attempts to maximise its country's surplus (see Collie, 1998, 2002, and 2005 and Garcia & Neven, 2005).

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⁵⁰ P. Enrich, “Saving the States from Themselves: Commerce Clause Constraints on State Tax Incentives for Business”, *Harvard Law Review*, vol. 110 (2), 1996, p. 377. Notice however that if the positive externalities vary a lot according to the location of a plant, competition between governments offering subsidies to attract it to their territory may lead to efficient outcomes (W. Tiebout, A pure theory of local expenditures, *Journal of Political Economy*, vol. 64 (5), 1956, p. 416; T. Besley and P. Seabright, “The Effects and Policy Implications of State aids to Industry: an Economic Analysis », *Economic Policy*, 1999, p. 15-53).

⁵¹ <https://www.foreignaffairs.com/articles/levant/2015-10-20/help-refugees-help-themselves>

⁵² As an example Coyle (2018) has recently argued that the barriers to entry into certain digital platforms that are created by network effects are such that there is a case for a public option – e.g. a social network operated by the BBC, or a ride-hailing platform operated by Transport for London (the regulator).

⁵³ Though the WTO has ruled against support received by Airbus (and is soon to issue a verdict on support to Boeing).

⁵⁴ Notably in intellectual property a clear time limit to the expectations of protection from competition is set out under the terms of the patent system, the protection is not open ended.

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