

Unclassified

DAF/COMP/GF(2009)1/REV1

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development

16-Feb-2009

English - Or. English

DIRECTORATE FOR FINANCIAL AND ENTERPRISE AFFAIRS
COMPETITION COMMITTEE

Global Forum on Competition

INDUSTRIAL POLICY, COMPETITION POLICY AND NATIONAL CHAMPIONS

Background Note

-- Session I --

This paper was drafted as a Background Note by David Spector (Centre National de la Recherche Scientifique, Paris School of Economics, and MAPP), Antoine Chapsal (University Pompeu Fabra and MAPP) and Laurent Eymard (MAPP). It is submitted for DISCUSSION under session I of the Global Forum on Competition to be held on 19 and 20 February 2009.

JT03259703

Document complet disponible sur OLIS dans son format d'origine
Complete document available on OLIS in its original format



DAF/COMP/GF(2009)1/REV1
Unclassified

English - Or. English

INDUSTRIAL POLICY, COMPETITION POLICY AND NATIONAL CHAMPIONS

BACKGROUND NOTE¹

1. Introduction

1. The expression “industrial policy” means different things to different people. According to the context, it may refer to government interventions influencing business decisions, from general measures such as across-the-board investment incentives to more targeted, sector-specific incentives, or “nationalist” policies such as domestic content requirements for public procurement, the direct or indirect subsidisation of specific companies, or dirigiste policies such as the creation of national champions and their protection from competitors and foreign acquirers.

2. Whatever its meaning, industrial policy is invariably rationalised as a means to correct market failures, while competition policy is a means to ensure that market mechanisms are not hindered by anticompetitive behaviour. Therefore, at first glance, there seems to be a contradiction between the underlying principles of industrial policy and those of competition policy. In practice however, this impression must be qualified because many government interventions that could be labelled as industrial policy do not interfere with competition policy.

3. However, one of the main tools of industrial policy, the creation, support or protection of “national champions”, is indisputably at odds with competition policy. The faith in national champions rests on several possible premises. One premise that is often articulated is that private initiative alone is often insufficient to foster the development of new sectors that could prove highly profitable, and that a temporary helping hand from governments is needed in order to speed up development and sectoral diversification. Another argument in favour of national champions is that size and market power are the main drivers of productivity and growth, and that the nationality of companies has an impact on the contributions they make to the countries in which they operate – such as increasing the overall skills of the work force, or generating complementary activities, for instance through their purchases from local suppliers. The advocates of sector-specific industrial policies and national champions can point to several striking successes. In Brazil, Embraer was created in 1969 as a government-owned company (it was privatised in 1994) and was supported through its early development (by means of subsidies and preferential procurement rules) before becoming a successful global player in the aeronautics sector, to the point that aircraft are now Brazil’s top export product. The Hyundai conglomerate in Korea was subsidised, and occasionally shielded from foreign competition by the government at every step of its diversification. Similarly, 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.

4. In contrast, those who claim that “competition policy is the best possible industrial policy” stress that intense rivalry between firms and the permanent threat posed by innovative entrants to incumbents are

¹ This paper was drafted as a Background Note by David Spector (Centre National de la Recherche Scientifique, Paris School of Economics, and MAPP), Antoine Chapsal (University Pompeu Fabra and MAPP) and Laurent Eymard (MAPP). It does not necessarily represent the views of the OECD Secretariat or those of its Member countries.

a far better engine of growth than bureaucratic industrial policies fraught with rent-seeking by vested interests. This sceptical view is often backed with evidence about the striking failure of many national champions, which can often be ascribed to a lack of accountability, and to economically irrational decisions resulting from politicised governance.

5. In practice, the creation of national champions endowed with a lot of market power is often at odds with merger control policy; conversely, governments sometimes attempt to bend the merger control process towards the furtherance of industrial policy goals in order to prevent the takeover of a national champion by a foreign firm.

6. Recent cases have made this tension between industrial and competition policy topical, as several governments, especially in Europe, expressed concerns over cross-border mergers in politically sensitive sectors such as banking and energy, and attempted to create or protect their national champions. In order to contribute to this debate, the present paper discusses the pros and cons of industrial policy and competition policy, in the light of the available empirical research. The main conclusions are as follows.

- The case in favour of creating national champions is weak. On the one hand, the view that size brings decisive competitive advantages is belied by the mixed record of many mergers, which casts doubt on governments' ability to efficiently pick winners, let alone create them. On the other hand, there is no evidence that foreign-owned companies generate fewer benefits to their home countries than domestic companies.
- The case in favour of protecting existing champions is weak as well. A growing body of evidence suggests that a large share of productivity increases results from inter-firm reallocations, from less- to more productive firms, and that many innovations come from entrants, so that a systematic protection of incumbents is likely to dampen growth, both in developed and developing countries.
- The existence of positive externalities induced by sector-wide economies of scale and agglomeration effects has been documented empirically. In particular, informational externalities seem to be strong in developing countries, since there is a lot of uncertainty as to the prospects of success in new sectors, which may deter private initiative. Government policies encouraging new activities may therefore help private agents to learn which sectors are promising and can speed up development and diversification. However, delineating proper policies to address these externalities is complex. While there is no universal policy prescription, the available evidence suggests that efficient industrial policies should be targeted towards the development of new activities rather than towards supporting well-established national champions.
- Like all government interventions, industrial policy is prone 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, across-the-board instruments.
- Competition policy can address many of the concerns that are usually mentioned in support of industrial policy. Intense competition leads to the exit of inefficient firms and the rationalisation of production without the need for government-sponsored mergers. It can limit exploitative pricing by foreign firms possessing market power and facilitate entry into sectors dominated by a few foreign firms – these two effects are especially relevant to developing countries. Last but not least, competition makes companies more efficient by sharpening managerial incentives to reduce slack and, according to some studies, by increasing incentives to innovate.

- There is little conflict between a properly defined industrial policy and competition policy. There may be some tension regarding the treatment of synergies in merger control, but it should be amenable to compromise.

2. The creation of national champions through mergers: theory and evidence

7. One of the main types of government interventions usually considered as constituting industrial policy is the creation of national champions, either created ex nihilo, or, more often, resulting 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 recently when GDF merged with Suez in order to form a national champion in energy, thereby fending off a bid from an Italian company. 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, inter alia) 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 programs². 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 supported (in vain) a merger between Gas Natural and Endesa in order to prevent Endesa's takeover by a foreign utility.

8. 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, the ministry of finance may decide against the recommendation of the domestic competition authority.

9. 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.

10. In order to assess the merits of this argument, it is helpful to decompose it into several building blocks. It relies on the following four assumptions.

- (i) Assumption 1: “big is beautiful”, i.e., when firms become larger, they tend to become more efficient.
- (ii) Assumption 2: market mechanisms by themselves fail to lead to large enough firms, i.e., the fact that more efficient firms tend to gain market share, invest more, and become larger, does not suffice to bring about all the gains that are associated to size.
- (iii) Assumption 3: firms' incentives to merge are insufficient relative to the social gains resulting from mergers. A milder version of this assumption is that the problem lies with merger control policies rather than with firms' incentives.
- (iv) Governments are able to identify which “champions” should be created and supported.

² Stephen Young et A. V. Lowe, *Intervention in the Mixed Economy: The Evolution of British Industrial Policy*

11. As is explained below, the theoretical and empirical support for each of these assumptions is weak and a systematic presumption in favour of a policy of creation of and support to national champions would be unwarranted. This is not to say that policies aiming to create national champions are never justified. But these results suggest that such policies should be the exception rather than the norm and that the burden of proof should rest squarely upon the governments proposing them rather than upon the sceptics.

2.1. *The rationalisation of plant utilisation is an unconvincing justification for the creation of national champions through mergers*

12. There is no point denying that 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; 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.

13. 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)³. 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. 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. In a related paper, Spector (2003)⁴ 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.

14. These results are not sufficient by themselves to rule out the possibility that mergers leading to national champions might be desirable. 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.

³ 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.

⁴ D. Spector, "Horizontal Mergers, Entry, and Efficiency Defence", *International Journal of Industrial Organisation*, vol. 21(10), 1591-1600, 2003.

2.2. *The evidence about the impact of mergers on efficiency is mixed*

15. In order to have a more precise view of the claim that “big is beautiful”, it is necessary to look at the empirical evidence on the impact of mergers. The existing studies 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. Finally, a third group of studies examines directly whether mergers tend to make firms more efficient⁵.

16. 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 companies⁶. More recent studies focused on the impact of merger announcements on the combined stock market value of the merging firms. 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. 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.

17. These results are relevant to the discussion of industrial policy because they go against one of the oldest and 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 that 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.

18. Second, even if they did not make firms more efficient, one 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.

19. 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)

⁵ 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.

⁶ 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.

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 intensity⁷. Another study⁸, 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.

20. All in all, these studies show that while some mergers create large efficiencies, there should be no presumption that this is systematically the case. Even informed, profit-maximising decision makers often undertake mergers that create few if any efficiencies. This observation, together with the failure of many national champions (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) should dampen the enthusiasm for government-sponsored policies aiming to create national champions on the assumption that size alone is a panacea, even though one can also point to success stories such as Brazil's Embraer.

2.3. Accounting for synergies: the scope for tension between industrial and competition policy

21. Even though the overall evidence is mixed, some mergers undisputedly create efficiencies, and the treatment of these efficiencies in the merger control process may be at odds with perfectly legitimate industrial policy concerns. In almost all jurisdictions, the aim of competition policy is to protect consumers. Accordingly, the main principle of merger control is that mergers benefitting consumers (because they lead to lower prices or improved products) should be authorised, while mergers harming consumers should be prohibited. This criterion is by no means the only one making economic sense. One could also want to clear all the mergers increasing total welfare, i.e., the sum of consumer welfare and firm profits. The divergence between these two sensible criteria is not simply the subject for an academic, theoretical debate. What is at stake is the way fixed cost savings generated by mergers are taken into account. According to textbook microeconomic models, prices are affected by changes in variable costs but not by changes in fixed costs. Competition authorities thus consider that fixed cost savings brought about by mergers cannot be considered an efficiency defence when mergers also arouse competition concerns. They may therefore prohibit mergers that vastly increase productive efficiency by suppressing fixed cost duplication, on the grounds that the ensuing gain will be appropriated by the merging firms rather than by consumers. In addition, the standard of proof required by most competition authorities in order to clear mergers on efficiency grounds is prohibitively high, so that in practice almost no merger case was ever decided on the basis of efficiency claims⁹.

22. The conflict between competition policy, as it is implemented in most jurisdictions, and legitimate industrial policy concerns, is thus twofold. First, the consumer welfare criterion (as opposed to the alternative total welfare criterion), which is the compass of competition policy, may lead competition authorities to prohibit efficiency-enhancing mergers. Second, the merger control process, like all legal

⁷ See, e.g., J. Clougherty and T. Duso, "The Impact of Horizontal Mergers on Rivals: Gains to Being Left Outside a Merger", WZB Discussion Paper SP II 2008-17.

⁸ Berger, Allen N. and David B. Humphrey, The effects of Megamergers on Efficiency and Prices: Evidence from a Bank Profit Function, *Review of Industrial Organization*, 1997, 12, 95-139.

⁹ D. Spector, "Will efficiencies ever matter in merger control?", *Concurrences*, vol. 4-2007.

processes, requires a high enough standard of proof, because decisions must withstand scrutiny before courts in case they are challenged. Since it is difficult to document future efficiencies, which are by nature uncertain, this may bias merger control towards making too little room for efficiencies. On the contrary, industrial policy decisions, like all government decisions, leave room for some discretion and trial-and-error processes. Beyond the choice of the criterion underlying merger control, the very principle of merger control as a legal process in which each decision can be challenged in court can thus be seen as a straitjacket potentially preventing some useful industrial policies from being implemented.

2.4. Supporting existing champions may harm growth

23. One of the most heated debates about industrial policy revolves around the question of whether governments should provide support to large companies. In other words, should governments support national champions after assisting in their creation? Is the answer to this question the same for developed and developing countries?

24. Those who argue in favour of supporting existing champions put forward the following arguments: by virtue of their size, and lesser exposure to risk (especially in the case of conglomerates), large firms have greater incentives to innovate than smaller firms; they lie at the centre of a nexus of suppliers to whom they provide stable expectations (and thus incentives to invest and innovate) as well as technological spillovers; they are a way for developing countries to reach a critical mass (in terms of scale and scope of products) without which a sector cannot take off because of the presence of sector-wide economies of scale. Therefore, they should be supported whenever in trouble, and they should be involved in industrial policy programs, such as public-private R&D programs. In his analysis of Korean industrial policy, Rodrik (1995)¹⁰, for instance, commends President Park's decision in 1975 to force Korean oil refineries to ship oil in Korean-owned tankers in order to support Hyundai's shipbuilding activity, which was then hurt by a global shipping slump.

25. 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 pounds¹¹. According to a study of British industrial policy in the 1960s and 1970s, "what was described as 'picking winners' appeared in practice to amount to spending huge sums shoring up ailing companies." Such support to declining industries is a clear example of misplaced industrial policy¹². It highlights one of the pitfalls of industrial policy, namely the capture of government by the vested interest of large incumbents which possess the resources and knowledge required to twist public intervention in their favour (see below).

26. Even among the proponents of an interventionist industrial policy, there are now few advocates of massive support to ailing firms. But the debate about the usefulness of supporting large companies goes far beyond the issue of supporting losers. For instance, in the European Union, aid for the rescue and restructuring of companies represented only 4% of total state aid in 2005-2007. The bulk of the aid, which accounted for 0.53% of GDP (most of which benefitted large companies), was aimed to further

¹⁰ D. Rodrik, "Getting Interventions Right: How South Korea and Taiwan Grew Rich", *Economic Policy*, vol. 10(20), 1995.

¹¹ Gardner, N. (1976), "The Economics of Launching Aid", in A. Whiting (ed.), *The Economics of Industrial Subsidies*. London: HMSO.

¹² Morris and Stout, p.873 "Industrial Policy", in D. J. Morris (ed.), *The Economic System in the UK*, Oxford: Oxford University, 1985.

other industrial policy goals. The debate about whether industrial policy should target large established companies can be illustrated by the recent twists and turns of French policy toward industrial innovation. The French government created in 2005 an “Agency for Industrial Innovation” that was supposed to provide public funds to technological R&D projects, each of which was to be led by a large industrial company (with some involvement of smaller firms as well). In 2007 however, this approach was reversed as this agency was merged with another one providing 100% of its support to small and medium-size companies, reflecting the view that industrial policy should rather focus on the development of small, innovative companies.

27. This view can be traced back to Schumpeter’s idea that growth is a process of creative destruction in which new firms displace older incumbents, so that a sound industrial policy should foster the development of small, innovative firms rather than help incumbents. A growing body of empirical evidence, both in the case of developed and developing countries, supports this approach. Anecdotal evidence about the computer, software and internet industry highlights the importance of creative destruction: in the early 1980s, IBM failed to understand the strategic importance of operating systems and its market leadership was thus shattered by Microsoft; Microsoft in turn was slow to realise the importance of the internet in the 1990s. In spite of its undisputed leadership in operating systems and the corresponding profits, it could not prevent new, highly innovating firms such as Google and Sun Microsystems from gaining prominence in the new markets brought about by the development of the internet. The most frequently piece of anecdotal evidence cited against shoring up large incumbents is precisely the contrast between this phenomenon of renewal of corporate giants in the United States, which seems to go together with a high pace of innovation, and the relative stability observed in Europe. This contrast is general and by no means limited to high-technology sectors: only 3 European firms belonging to the global “Top 500” in 2007 were created after 1976, against 51 in the United States (and 46 in emerging countries); conversely, small innovative firms grow much more quickly in the United States. It has become customary to relate the relative inertia of the corporate structure in Europe to its innovation deficit relative to the United States, especially (but not only) in high-technology sectors¹³.

28. Such anecdotal evidence has been confirmed by several empirical studies using different methodologies. In their micro-econometric study of productivity growth in the United States, Foster et al. (2000)¹⁴ find for instance that one-third to one-half of total productivity growth is caused by the reallocation of production from less efficient to more efficient firms (including through the disappearance of old firms and birth of new ones) rather than by the realisation of within-firm productivity gains. This suggests that while many old incumbents are highly efficient, governments should not prevent less efficient ones from being destabilised by new competitors.

29. It is sometimes argued that the creative destruction process is 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.

¹³ T. Philippon and N. Véron, “Financing Europe’s Fast Movers”, Bruegel Policy Brief, 2008/01.

¹⁴ L. Foster, C. Haltiwanger and C. Krizan, “Aggregate Productivity Growth: Lessons from Microeconomic Evidence”, NBER Working Paper N° 6803, 2000.

30. However, a study by Fogel, Morck and Yeung (2006)¹⁵ 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 run many different cross-country regressions in order to test the relationship between big business stability between 1975 and 1996 on the one hand and growth between 1990 and 2000 on the other hand. 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, one may assume that supporting established companies deprives newer ones from access to the inputs (especially skilled labour) and markets that they would need in order to prosper.

31. 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. They also suggest that governments wishing to pick the new technologies or firms worthy of support face severe informational problems. Since even large incumbents often fail to make the right strategic decisions - which is why they end up being destabilised by smaller firms - how could governments make informed choices? 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 “horizontal” 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. Finally, the abovementioned results point towards the usefulness of decreasing the costs of entry for new businesses, which are still high in many countries: according to Djankov et al. (2001)¹⁶, the cost of creating a new firm varied in 1999 from 1.7% of per capita GDP in New Zealand to 495% of per capital GDP in the Dominican Republic, with a world average of 66%.

2.5. *Should champions be national?*

32. 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. Such “economic patriotism” concerns have been voiced lately 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 recently attempted to discourage cross-country takeovers, in sectors ranging from energy to air transportation and food. More generally, the increased frequency of acquisitions based in developed countries by companies based in developing countries (such as Lenovo’s acquisition of IBM’s PC division or Mittal’s acquisition of Arcelor), and the continuing pattern of acquisition the other way round (such as the acquisition of Shin Corp, the Thai telecommunications “national champion”, by

¹⁵ 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.

¹⁶ S. Djankov, R. La Porta, F. Lopez-de-Silanes, and A. Shleifer, « The Regulation of Entry ». Quarterly Journal of Economics, 2002, vol. 107.

Temasek, the Singaporean sovereign fund, or of Ranbaxy, the Indian generic drug maker, by the Japanese company Daiichi Sankyo) have made public opinion and governments highly sensitive to the nationality of firms. 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.

33. 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 year¹⁷.

34. Several recent empirical studies confirm that foreign takeovers do not harm host countries, for several reasons. First, the synergies generated by takeovers (cross-border or not) on average accrue to shareholders of acquired firms, while those of the acquiring firms appropriate a very small share of it, or even lose money¹⁸. If that is the case, then foreign takeovers can be seen as a transfer of wealth from foreign to domestic shareholders – little to fret about. Second, several empirical studies 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 UK¹⁹, Sweden (with some caveats)²⁰ and the United States²¹. Moreover, there is evidence that foreign direct investment generates benefits to other firms in the same sector or in vertically related ones (i.e., suppliers or customers). This evidence is so far more abundant in the case of developed countries. In the case of developing or transition economies, there is a (still admittedly small) body of evidence showing 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.*”²² 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, and that the effect may be large: a 4% increase in foreign ownership is associated with a 15% increase in supplier productivity. 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 specifically associated to foreign ownership²³. Nevertheless, even the absence of spillovers is consistent with foreign acquisitions having a positive impact by raising labour productivity and making the acquired firm more efficient.

¹⁷ <http://www.autoindustry.co.uk/statistics/production/uk/index>

¹⁸ See, e.g. Andrade, G., Mitchell, M. and Stafford, E. (2001). “New evidence and perspectives on mergers”, *Journal of Economic Perspectives*, 15, 103-120.

¹⁹ Griffith and Simpson, «Characteristics of Foreign Owned Firms in British Manufacturing», NBER Working Paper n° 9573.

²⁰ Heyman, Sjöholm et 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.

²¹ Bernard and Jensen, «Firm Structure, Multinationals and Manufacturing Plant Deaths», *Review of Economics and Statistics*, vol. 89(2), 2007.

²² 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).

²³ Javorcik (2004).

35. Overall, the available evidence provides little support for the claim that the nationality of a “champion” matters for productivity, innovation or employment. Nor does it seem to have an impact on the location of R&D. This finding weakens the case for national champions.

3. Industrial policy and externalities

36. Another frequently mentioned rationale for industrial policy is the idea that some firms generate positive externalities that government intervention should reward since market mechanisms fail to do so.

37. The debate revolves around two broad types of externalities: competition creation and sector-wide scale economies or agglomeration effects (also known as “cluster effects”). Before addressing each of them, a general theoretical remark must be made. When the decision by a firm to locate a plant in a given country may generate positive externalities locally, one may be tempted to jump to the conclusion that the provision of subsidies to attract that plant is justified. This reasoning fails to take into account, however, the possible negative cross-country externalities. 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 country’s gain is another country’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 country’s individual viewpoint. This remark is probably relevant to some cases of short-sighted industrial policy. For instance, the available literature about the United States, where aid is not prohibited, lends support to a rather negative view of competition across states to attract firms. States seem to engage into costly competition in order to shift activities from neighbouring states towards themselves, without much creation of new activities²⁴. This destructive cross-state competition also seems to have intensified lately²⁵, and this has prompted some American authors to recommend a federal control over State aid²⁶.

38. However, 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.

3.1. The “competition creation” argument

39. According to the “creation of competition” argument, in the presence of large fixed costs, private incentives to enter in a given sector are insufficient because the private gain from entry is often lower than the social gain. The private gain is limited to the entrant’s profit, while the social gain also includes the benefit to customers resulting from more intense competition. In practice, this argument has been mentioned in the context of industrial policy aiming to create national champions in markets where only a very small number of foreign producers were previously active. Examples of such industrial policy include the abovementioned unsuccessful attempts by several European governments to create domestic competitors of IBM in the 1960s and 1970s, and Europe’s successful challenge of Boeing’s dominance in the aircraft manufacturing industry, through Airbus.

²⁴ R. Tannenwald, Are State and Local Revenue Systems becoming Obsolete?, *National Tax Journal*, vol. 55 (2), sept. 2002, p. 467.

²⁵ K. Chi and D. Leatherby, *State Business Incentives: Trends and Options for the Future*, Lexington, Kentucky: Council of State Governments, 1997.

²⁶ 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).

40. From a theoretical viewpoint, this type of justification of industrial policy is reminiscent of “strategic trade policy” by which governments attempt to shift rents from foreign producers to domestic ones²⁷. A well-known caveat when assessing such policies is that they involve large cross-country externalities. The sign of these externalities cannot be known a priori. On the one hand, supporting a national champion benefits all customers, including those abroad (unless the increase in competition is offset by a large overall cost increase resulting from the lack of exploitation of scale economies), and governments’ failure to take foreign customers into account might in theory lead to too little aid being granted. On the other hand, governments fail to internalise the losses to foreign competitors, which may lead to excessive aid levels. Recent papers by David Collie²⁸ show that if the deadweight cost of taxation is high and the market considered is one of highly homogeneous products, then industrial policy may result into inefficient subsidy races leading to a waste of public funds, even if each government acts rationally and attempts to maximise its country’s surplus.

41. As it is often, the empirical evidence on this subject is mixed. First, several cases of industrial policies motivated by the attempt to increase competition failed dramatically, notably in the computer sector. Second, an existing estimation of the impact of the launch of Airbus with the support of several European governments illustrates the magnitude of the negative externalities. On the one hand, the creation of Airbus was beneficial for Europe as a whole because it shifted some rents away from American aircraft producers towards Airbus, and it also contributed to a decrease in (quality-adjusted) prices. However, the creation of Airbus was detrimental to global welfare, because the losses to American manufacturers were large, as the creation of Airbus reduced their ability to recoup fixed costs over large volumes of sales. In that sense, the creation of Airbus made the worldwide production of aircraft less efficient because it led to the wasteful duplication of fixed costs²⁹. The assessment of the Airbus case is thus twofold. On the one hand, it is an example of an efficiently run industrial policy that delivered clear benefits to the participating countries, showing that the problems associated with government intervention in industry, such as rent-seeking or lack of accountability, can be overcome. On the other hand, it would be wrong to view such policies as an example for global growth-promoting strategies since they may decrease global welfare – even when successful.

3.2. *Externalities, spillovers, clusters and national champions*

42. Lately, the main argument of the advocates of interventionist industrial policies relies on the need for governments to correct markets’ failure to reward the local externalities generated by the regional concentration of firms in specific sectors. The most common version of this argument is that the concentration of firms in a given region generates three types of externalities, each of which can be seen as a specific instance of sector-wide economies of scale. 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

²⁷ J. Brander and B. Spencer, Export Subsidies and International Market Share Rivalry, *Journal of International Economics*, vol. 18, 1985, p. 83.

²⁸ D. Collie, State aid in the European Union: The prohibition of subsidies in an integrated market, *International Journal of Industrial Organization*, vol.18, 867-884; 1998; D. Collie, Prohibiting State aid in an Integrated Market, *Journal of Industry, Competition and Trade*, vol. 2 (3), 2002, p. 215; D. Collie, State aid to Investment and R&D, European Economy, *Economic Papers*, vol. 231, 2005, p. 1. See also J.-A. Garcia and D. Neven, State aid and Distortion of Competition, a Benchmark Model, HEI Working Paper No. 06/2005.

²⁹ D. Neven and P. Seabright, European Industrial Policy: the Airbus Case, *Economic Policy*, 1995.

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.

43. The empirical evidence is twofold. On the one hand, there is a lot of evidence that positive agglomeration externalities exist, thereby making the theoretical claim for industrial policy reasonable. On the other hand, the evidence on governments' attempts to emulate the Silicon Valley or to jump start activity in a new sector 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

44. The importance of agglomeration effects and sector-wide economies of scale has been substantiated by a series of convergent studies. Their magnitude is 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 productivity³¹. As opposed to intra-firm economies of scale, such intra-sectoral 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 inputs³². 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 connections³³, and Audrestch and Feldman (1996) highlighted the geographic concentration of innovations³⁴.

45. There is evidence that many developing countries' specialisations owes more to the development of sectors in which there was an initial presence, because of agglomeration 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

³⁰ D. Rodrik, "Industrial Policy for the twenty-first century", Harvard Kennedy School Working Paper 04-047.

³¹ R. Nakamura, "Agglomeration economies in urban manufacturing industries: a case of Japanese cities," *Journal of Urban Economics*, vol.17, 108-124, 2005.

³² Holmes, T. J. (1999), "Localisation of Industry and Vertical Disintegration," *Review of Economics and Statistics*, Vol. 81(2): 314-25.

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

³⁵ R. Hausman and D. Rodrik, "Economic Development as Self-Discovery", *Journal of Development Economics*, vol. 72, 2003.

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 process³⁶.

46. Interestingly, there is 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 does³⁷. 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.

47. In contrast to the accumulation of knowledge about the nature and magnitude of agglomeration 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. A comprehensive study of innovative clusters by the OECD highlights the diversity of the mechanisms that allowed some clusters to flourish and concludes that (i) it is very difficult to measure the contribution of public policy to the success of some of these clusters, and (ii) there is no single, one-size-fits-all policy prescription. Tellingly, one of the most successful technological clusters in the developing world, in the Bangalore region, appears to have been caused by a series of serendipitous events (such as IBM's refusal to let Indian shareholders purchase 60% of its Indian subsidiary, which led IBM to leave India and forced Indian software professionals to turn towards open platforms, thereby acquiring the skills that would prove highly valuable more than ten years later)³⁹.

48. Conversely, Rodrik (2004)⁴⁰ 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 Fundacion Chile started to experiment with salmon farming in the 1970s. Whereas this industry was inexistent 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 is a good way to reveal the profitability of this sector in order to stimulate private investment and the development of a new sector. According to Rodrik (1995), the case of the Korean conglomerate Hyundai is a stunning 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, as explained above) encouraged Hyundai to catch up with foreign incumbents in terms of efficiency.

49. 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 really 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 (1995) stresses the

³⁶ J. Imbs and R. Wacziarg, "Stages of Diversification", *American Economic Review*, vol. 93(1), 2003.

³⁷ Rosenthal, S. S. and W. C. Strange (2003), "Geography, Industrial Organisation, and Agglomeration," *Review of Economics and Statistics* 85 (2), May 2003. 377-393.

³⁸ See the chapter on Finland in OECD, *Innovative Clusters*, 2001.

³⁹ H. Pack and K. Saggi, "Is There a Case for Industrial Policy? A Critical Survey", *The World Bank Research Observer*, vol. 21(2), 2006.

⁴⁰ D. Rodrik, "Industrial Policy for the twenty-first century", Harvard Kennedy School Working Paper 04-047.

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 factors⁴¹.

50. The general implication of the empirical literature on agglomeration effects is that while they are important, the appropriate policy tools to deal with them are complex and not yet fully understood. In particular, while some kind of industrial policy is likely to be helpful, there seem to be good reasons to focus them on smaller firms at an early stage of development rather than on existing champions (the Korean example notwithstanding), because the various abovementioned externalities are likely to be more acute in the case of small firms.

4. Rent-seeking and the political economy of industrial policy

51. One of the criticisms most frequently levelled at industrial policy, especially when it takes the form of subsidies to specific firms, is that even if such policies make sense in principle, in practice private interests engaging in rent-seeking are likely to capture governments and tilt industrial policies in their favour.

52. One can find many examples of industrial policies that obviously made no sense from a collective interest viewpoint and can be better explained by rent-seeking or political motives - an extreme example is 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 job⁴². More generally, the ability of private interest groups to distort economic policy in their favour has been amply documented⁴³, just as the impact of firms' political connections on business outcomes, both in developed and developing countries⁴⁴. 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 parties⁴⁵. There is also evidence that sector- or firm-specific public policy (for instance trade policy) is in general tilted in favour of declining industries. This is a quite general pattern. It can be observed both in US trade policy⁴⁶, and in European state aid policy: for instance, many European

⁴¹ See G. Grossman and V. Norman's discussion at the end of Rodrik (1995); and Pack and Saggi (2006).

⁴² See R. Tannenwald, Are State and Local Revenue Systems becoming Obsolete?, *National Tax Journal*, vol. 55 (2), sept. 2002, p. 467.

⁴³ Cf. T. Persson and G. Tabellini, *Political Economics: Explaining Economic Policy*, MIT Press, 2000.

⁴⁴ Brian Roberts "A Dead Senator Tells No Lies: Seniority and the Distribution of Federal Benefits." *American Journal of Political Science*, February 1990, 34(1), 31-58 ; Fisman, Ray, (2001), "Estimating the Value of Political Connections", *American Economic Review*, September, 2001.

⁴⁵ P. Goldberg et G. Maggi, Protection for Sale: An Empirical Investigation, *American Economic Review*, vol. 89 (5), 1999, p. 1135.

⁴⁶ G. Hufbauer and H. Rosen *Trade Policy for Troubled Industries*, Policy Analyses in International Economics 15, Institute for International Economics Washington, D.C., 1986 ; G. Hufbauer, Gary, D. Berliner and K. Elliot, Trade Protection in the United States: 31 Case Studies, Institute for International Economics, Washington, D.C., 1986 ; Ray, E . (1991). "Protection of manufactures in the US," in D. Green, *Global Protectionism: Is the US playing on a level field?* Macmillan, London.

governments spent billions of Euros trying to keep inefficient coal mines afloat, only to delay their closure by a few years.

53. A recent econometric study of state aid in Europe⁴⁷ 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 ("sectoral", in EU parlance), as opposed to "horizontal". 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.

54. An econometric study spanning 32 developed and developing countries suggests that there exists a close relationship between the presence of industrial policy geared towards national champions and the level of corruption⁴⁸. 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 industrial policy, especially when it is focused on individual firms, is largely captured by private interests.

55. 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: according to various estimates, the cost of rent-seeking activities is very high⁴⁹.

56. Industrial policy sometimes creates new vested interests that engage in rent-seeking, for instance by pursuing the perpetuation of industrial policies which should in fact be interrupted because of changing circumstances. The Concorde project, sponsored by the British and French governments, illustrates this point⁵⁰. The launch of a supersonic plane made sense in the cheap oil world of the 1960s, but the project lost its economic rationale after the oil shock of 1973. However, its advanced stage implied that the large group of civil servants and businessmen with a stake in the Concorde project had a strong interest in the continuation of the project. Ultimately, this group prevailed over market signals and the project went ahead, at a considerable cost to both governments.

57. According to Rodrik (1995), industrial policy in East Asian countries in the last decades was relatively immune to rent-seeking, unlike what was observed in most developing and many developed countries. Also, as Rodrik (2004) points out, the presence of rent-seeking does not suffice to conclude

⁴⁷ U. Aydin (2007). "Politics of State Aid in the European Union: Subsidies as Distributive Politics", University of Washington, Political Science Department, unpublished.

⁴⁸ National Champions and Corruption: Some Unpleasant Interventionist Arithmetic. Alberto Ades; Rafael Di Tella. *The Economic Journal*, Vol. 107, No. 443, 1997

⁴⁹ In the United States, total expenditures on transfer activity have been estimated at 25% of GDP (D. Laband and J. Sophocleus, An Estimate of Expenditures on Transfer Activity in the United States, *Quarterly Journal of Economics*, vol. 107(3), 959-983, 1992). Other estimates, based on regressions of gross national output on the relative number of lawyers (supposed to be a proxy for the magnitude of rent-seeking activities) and physicians or engineers (supposed to be a proxy for the magnitude of productive activity) point to similar or even higher costs of rent-seeking (S. Magee, W. Brock and L. Young, *Black Hole Tariffs and Endogenous Policy Theory: Political Economy in General Equilibrium*. Cambridge: Cambridge University Press, 1989; K. Murphy, A. Shleifer and R. Vishny, The Allocation of Talent: Implications for Growth, *Quarterly Journal of Economics*, vol. 106(2), 503-530, 1991.)

⁵⁰ D. Myddleton, *They Meant Well: Government Project Disasters*, Institute of Economic Affairs Monographs, Hobart Paper No. 160, 2007.

against industrial policy, no more than rent-seeking in education justifies an end to the public provision of education. However, these findings plead against policies that endow governments with tools allowing them to arbitrarily pick winners and reward specific firms. More across-the-board instruments, or aid targeted to new firms and new activities, on a temporary basis, would probably limit the scope for rent-seeking.

5. Competition policy as a tool to achieve industrial policy goals

58. This section discusses the extent to which competition policy may address the concerns that are often mentioned to justify industrial policy. The topics considered below are the realisation of scale economies, the limitation of exploitative pricing by foreign monopolists, the facilitation of entry into new sectors, and firm efficiency.

5.1. Competition and the rationalisation of production

59. Some abovementioned theoretical results suggest that market mechanisms alone suffice to reallocate production to the most efficient plants: while mergers may further rationalise production, most of the rationalisation results spontaneously from market mechanisms and this is all the more the case that competition is intense. Several studies focusing on the impact of exposure to trade (which operates by increasing competition) confirm this. As Melitz (2003) recalls, “Aw, Chung and Roberts (2000) [...] find evidence suggesting that exposure to trade forces the least productive firms to exit. Pavcnik finds [...] that [market share] reallocations significantly contribute to productivity growth in the tradable sector. In a related study, Bernard and Jensen (1999) find that within-sector market share reallocations towards more productive exporting plants accounts for 20% of U.S. manufacturing productivity growth.”⁵¹ This confirms that competition policy, by targeting cartels and entry-detering strategies, contributes to productive efficiency.

5.2. Competition policy as a tool to fight exploitative pricing

60. According to Jonathan Baker⁵², the cost of imperfect competition to the economy is about 1% of GDP; other sources estimate the damage caused by cartels to be larger because cartel overcharges are estimated to be on average in the 20%-30% range⁵³ and most cartels are considered to be undetected⁵⁴. Competition policy is thus a way to fight exploitative pricing by firms operating in market lacking competition – and this applies even more forcefully to developing countries. According to Levenstein et al. (2003)⁵⁵, 2.9% of all developing countries’ imports in 1997 were in industries found to be internationally cartelised by European and/or American competition authorities. This implies that developing countries can use competition policy as a tool limiting their exploitation by developed countries’ companies - but its effectiveness depends on an aggressive enough enforcement, in order to increase deterrence and the probability of detection of anticompetitive behaviour.

⁵¹ M. Melitz, “The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity”, *Econometrica*, vol. 71 (6), 2003.

⁵² Jonathan Baker, “The Case for Antitrust Enforcement”, *Journal of Economic Perspectives*, 2003.

⁵³ Connor J. (2004), «Price Fixing Overcharges: Legal and Economic Evidence», Working Paper American Antitrust Institute, n°04-05.

⁵⁴ Bryant P., Eckard E. (1991), “Price Fixing: The Probability of Getting Caught”, *Review of Economics and Statistics*, vol. 73, pp. 531-536; W. Wils (2005), “Is Criminalisation of EU Competition Law the Answer?”, *Revue Lamy de la concurrence*, n°4.

⁵⁵ M. Levenstein, V. Suslow, and L. Oswald, “Contemporary International Cartels and Developing Countries: Economic Effects and Implications for Competition Policy”, *Antitrust Law Journal*, vol. 71, pp. 801-852, 2003.

61. Facing a market with an insufficient degree of competition, one answer is to try and create an additional, domestic competitor (a “national champion”); and another is to make the market more competitive using competition policy. The struggle against exploitative pricing involves an obvious substitutability between competition policy and industrial policy.

62. Competition policy is probably a superior answer because it is far less costly. According to Baker (2003), the annual total cost of implementing American antitrust policy was less than the annual deadweight loss induced by the vitamins cartel alone in the United States. In addition, implementing competition policy does not give rise to all the difficulties and risks associated to the promotion of national champions, including productive inefficiency (due to the wasteful duplication of fixed costs and to the possible cost advantage of foreign incumbents relative to the national champion).

63. An important point for policy purposes is that competition policy generates cross-country positive externalities. When a competition authority prohibits a merger or an exclusionary practice and thus protects competition, this benefits all customers in the affected market, including abroad. In the case of cartels, there is less complementarity because firms may decide to collude only in countries with a weak competition policy. However, even in the case of cartels, there are some cross-country positive externalities because companies can more easily cartelise an industry when they interact in many countries, since multi-market contact facilitates collusion. These considerations imply that the case for competition policy is even stronger than would appear on the basis of a country-by-country analysis.

5.3. *Competition policy as a tool to facilitate the development of new firms and new sectors*

64. One branch of competition policy is the repression of exclusionary strategies by dominant firms. Competition authorities can thus facilitate entry in sectors previously dominated by a small number of firms wielding a lot of market power. One example is the telecommunications sector. It is widely considered that in Europe, competition authorities’ and regulators’ decisions forcing incumbents to provide access to their infrastructures on reasonable terms contributed to the rapid development of residential broadband access, as it facilitated the entry of non-integrated companies that launched innovative services such as “triple play” (TV, internet and telephone services).

65. The pharmaceutical sector offers an example of competition policy facilitating the entry and the development of a “national champion” from a developing country (India) by weakening barriers to entry. Econometric studies have shown that pharmaceutical incumbents sometimes engage into entry-detering strategies prior to or immediately after patent expiration, in order to discourage entry by generic drug producers⁵⁶. Some of these strategies, like predatory pricing, contravene competition law and can be repressed by competition authorities. There is indeed a large body of case law regarding predatory strategies by pharmaceutical companies that were trying to deter or delay the entry of generic drugs. Competition policy thus allows governments to prevent pharmaceutical companies from trying to enjoy monopoly power after patent expiration. This is of high value to generic drug makers, some of which (like India-based Ranbaxy) originate from developing countries. Competition policy can remove entry barriers for generic drug companies from developing countries by ensuring that when patents are supposed to expire, they cease to protect incumbents in practice and not only in theory. While developing and developed countries for a long time could not agree on the scope of patent protection in the pharmaceutical sector, competition policy offers a middle way.

⁵⁶ G. Ellison and S.F. Ellison, “Strategic Entry Deterrence and the Behavior of Pharmaceutical Incumbents Prior to Patent Expiration”, NBER Working Paper No. 13069.

5.4. *The impact of competition on firms' efficiency and innovativeness*

66. Competition can affect firms' efficiency in mainly two ways: first, by altering the incentives to innovate, and second, by altering managers' incentives to run firms efficiently (this second effect is about the extent of "X-inefficiencies", i.e., inefficiencies resulting from a firm's failure to exploit its own technological possibilities).

67. Theoretical research has highlighted the ambiguous effects of competition on innovation. On the one hand, very intense competition reduces post-innovation rents because it reduces the expected time during which a successful innovator can reap the benefits of its innovation; on the other hand, a monopolist's incentives to innovate are dampened by the fact that any new product it offers displaces its own older products, rather than competitors'. This has led some economists to argue, on theoretical grounds, that innovation is maximised for intermediate levels of competition. Furthermore, a recent paper by Aghion et al. (2005)⁵⁷ claims to find evidence of such an inverted U-shape relationship. However, Aghion et al.'s result is based on a cross-industry comparison, leaving some uncertainty as to the existence of a causal relationship between competition and innovation⁵⁸. Other studies, comparing the same industries across countries and investigating the impact of different evolutions in the degree of competition, consistently find that competition stimulates innovation. For instance, technological innovation in the tobacco industry in the UK and the United States was more intense during more competitive periods (as opposed to periods when tobacco was subject to a national monopoly)⁵⁹.

68. Focusing on innovation only would however be short-sighted. Another potential impact of competition on firms' efficiency is through its impact on managerial incentives. The intuition that more intense competition induces managers to exert more efforts and eliminate slack (or "X-inefficiencies") has been reformulated by economic theory in terms of the provision of incentives to managers. Several mechanisms have been put forward⁶⁰. They are all related to the idea that the more competitive a market is, the easier it is for shareholders to accurately measure and monitor manager performance. For instance, in a highly competitive market, a firm's profitability depends mainly on the difference between its (quality-adjusted) costs and its rivals'. Conditioning pay on profits thus makes sense in such markets because it amounts to rewarding efforts rather than luck. In contrast, profits in weakly competitive markets are largely driven by sector-wide demand and cost shocks, which are independent of managers' actions. Also, competition facilitates benchmarking and thus the measurement of manager performance.

69. This positive relationship between competition and X-efficiency has received a striking empirical confirmation in some industries. For instance, Ng and Seabright (2001)⁶¹ study the airline industry in the United States and Europe between 1982 and 1995 and compare airlines' costs according to many factors, including the fraction of international routes on which they are in a monopoly or duopoly position. They find that an increase of 1% of this fraction is associated to a 2% increase in costs.

⁵⁷ Aghion P, Bloom N., Blundell R., Griffith R., Howitt P., "Competition and Innovation: An Inverted-U Relationship", *The Quarterly Journal of Economics*, vo. 120(2), 701-728, 2005.

⁵⁸ For a critical appraisal, see J. Baker, "Beyond Schumpeter vs. Arrow: How Innovation Fosters Innovation", American Antitrust Institute Working Paper No. 07-04, 2007.

⁵⁹ E. Zitzewitz, "Competition and Long-Run Productivity Growth in the U.K. and U.S. Tobacco Industries, 1879-1939", *Journal of Industrial Economics*, 2003.

⁶⁰ B.Holmstrom, "Moral hazard in teams", *Bell Journal of Economics* vol. 13(2), 324-340, 1982; B. Nalebuff and J. Stiglitz, "Information, Competition, and Markets", *American Economic Review*, vol. 73(2), 278-283, 1983.

⁶¹ C. Ng and P. Seabright, "Competition, Privatisation and Productive Efficiency: Evidence from the Airline Industry", *Economic Journal*, 2001.

70. Similarly, a study on Bulgaria highlights some mechanisms through which market pressures increase corporate efficiency: productivity is found to have increased more quickly in sectors that experienced rapid de-concentration after the introduction of market mechanisms⁶².

71. Finally, a comparison of the export performance of various Japanese industries in the 1980s reveals that the sectors in which domestic competition was more intense (as measured by market share instability) exported more than those in which competition was more muted⁶³. This directly contradicts one argument in favour of national champions, namely, the idea that shielding large firms from competition at home strengthens them globally. Ironically, this argument has often been backed by references to Japan, since the global success of many Japanese companies has often been attributed to the supposed lack of competition within Japan, which allowed national champions to prosper. The abovementioned evidence implies that this interpretation of the Japanese experience is probably incorrect.

72. All in all, when considering all dimensions of firms' efficiency, the available evidence consistently points towards a positive relationship between competition and efficiency. Also, since the reduction of X-inefficiencies seems to be an important part of the mechanism, there is no reason to consider that competition matters only for developed countries focusing on high-technology sectors, while developing countries should concentrate on catching up and applying pre-existing technologies, without competition being an important ingredient. On the contrary, competition seems to matter beyond innovation and high-technology sectors.

6. Conclusion: is there a conflict between industrial policy and competition policy?

73. In the light of the abovementioned evidence, many advocates of industrial policy agree on the features that industrial policy should not have: industrial policy should not favour incumbents but rather foster entry; it should not pick winners but create conditions for innovation to take place; it should even less reward losers, but it should rather include monitoring mechanisms taking market performance into account. In other words, while it is difficult to describe what a proper industrial policy should be, no advocate of an active industrial policy considers that it should be about creating and supporting national champions⁶⁴.

74. There is therefore probably less conflict between industrial policy and competition policy than is often believed. Competition policy is an efficient way to address many of the concerns that traditionally gave rise to interventionist industrial policies, and the tools needed to address the issues that competition policy cannot solve (such as taking into account sector-wide economies of scale and agglomeration externalities) do not, for the most part, conflict with competition policy.

75. However, one issue may leave room for some tension: the treatment of efficiency gains in merger controls. The focus of merger control policy on consumer welfare, in most countries, requires competition authorities to take into account merger-generated synergies only if they can be demonstrated with a high enough degree of confidence and they can be expected to be passed on to consumers to an extent sufficient to offset the potential price increases resulting from increased market power. In practice, this standard makes it almost impossible for firms to have a merger cleared on efficiency grounds. This may result into the prohibition of mergers that would generate large efficiencies, countering legitimate industrial policy

⁶² S. Djankov and B. Hoekman, "Market discipline and corporate efficiency: evidence from Bulgaria", *Canadian Journal of Economics*, vol. 33(1), 2000.

⁶³ Sakakibara, Mariko, and Michael E. Porter. "Competing at Home to Win Abroad: Evidence from Japanese History," *The Review of Economics and Statistics* vol. 83(2), 2001.

⁶⁴ See, e.g., Rodrik (2004).

concerns. However, this issue is relatively novel in most jurisdictions: for instance, in the European Union, synergies have taken into account only since 2004. On this front, there is therefore some room for competition policy to evolve and take into account industrial policy objectives.

SELECTED REFERENCES:

- Aghion P., Blundell R., Griffith R., Howitt P. et Prantl S., 2006, “The Effects of Entry on Incumbent Innovation and Productivity”, *NBER Working Paper*, 12027.
- Aghion P., Bloom N., Blundell R., Griffith R., Howitt P., 2005 “Competition and Innovation: An Inverted-U Relationship”, *The Quarterly Journal of Economics*
- Clift B. and Cornelia Woll 2008, “Economic Patriotism: The Limits of the European Market”, Warwick – Sciences Po Workshop Series
- Cowling, Keith, 2000, “Industrial Policy in Europe: Theoretical Perspectives and Practical Proposals”, London, Routledge.
- Encaoua D., and Guesnerie R., 2006, “Politiques de la concurrence, rapport du Conseil d’analyse économique”, n° 60, Paris, La Documentation française.
- Evenett S., 2007, “Does the Return of Industrial Policy Pose a Threat to Competition Law?”, Forthcoming Dhall V. (dir.), *Competition Law, New Delhi*, Oxford University Press.
- Geradin D. and Nicolas Petit, “La politique industrielle sous les tirs croisés de la mondialisation et du droit communautaire de la concurrence”, working paper available at http://www.droit.ulg.ac.be/ieje/fileadmin/IEJE/Pdf/Mondialisation_politique_industrielle_e_.pdf
- Geroski, Paul, March 8, 2005, “Competition Policy and National Champions,” available at http://www.competitioncommission.org.uk/our_peop/members/chair_speeches/pdf/geroski_wifo_vienna_080305.pdf.
- Geroski, Paul, March 8, 2005, “Competition Policy and National Champions,” available at http://www.competitioncommission.org.uk/our_peop/members/chair_speeches/pdf/geroski_wifo_vienna_080305.pdf.
- Sven Gustafson, Sept. 22, 2008, “Dow’s Liveris: Nation Needs an Industrial Policy,” *Tri-Cities Business Review*, available at http://www.mlive.com/businessreview/tricities/index.ssf/2008/09/dows_liveris_nation_needs_an_i.html.
- Kim, W. Chan, and Renee Mauborgne, 2005, “Blue Ocean Strategy: How to Create Uncontested Market Space and Make Competition Irrelevant”, Cambridge, MA: Harvard Business School Press.
- Ibs, Jean and Romain Wacziarg, “Stages of Diversification,” *American Economic Review*, March 2003, available at: <http://www.stanford.edu/~wacziarg/downloads/stages.pdf>.

- Maclean, Mairi, 2002, "Economic Management and French Business: From DeGalle to Chirac", NY: Palgrave Macmillan.
- McKenzie, Richard, "Industrial Policy," *Concise Encyclopedia of Economics*, available at: <http://www.econlib.org/Library/Enc/IndustrialPolicy.html>.
- Monopolkommission (Monopolies Commission) Competition Policy under Shadow of "National Champions", The Fifteenth Biennial Report 2002/2003 available at www.monopolkommission.de/haupt_15/sum_h15_en.pdf
- Porter, Michael, 1998, "Competitive Advantage: Creating and Sustaining Superior Performance", NY, Free Press.
- Rodrik, Dani, 2004, "Industrial Policy for the Twenty-First Century", Faculty Research Working Papers Series, John F. Kennedy School of Government, Harvard University
- Rodrik, Dani, 2007 "Normalizing Industrial Policy," available at http://ksghome.harvard.edu/~drodrik/industrial%20policy%20growth%20commission_.pdf
- Scott Andrew 2006, "National Champions and the Two-Thirds Rule in EC Merger Control", ESRC Centre for Competition Policy & The Norwich Law School, University of East Anglia, CCP Working Paper 06-6.
- Shapiro, Helen, 2007, "Industrial Policy and Growth," DESA Working Paper No. 53, available at http://www.un.org/esa/desa/papers/2007/wp53_2007.pdf.
- White Lawrence J., 2008, "Antitrust Policy and Industrial Policy: A View from the U.S.", New York University School of Law, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1091244
- William Watson, 1983, "A Primer on the Economics of Industrial Policy", Toronto: Economic Council.
- World Bank, K4D Program, <http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/KFDLP/0,,contentMDK:20750690~isCURL:Y~pagePK:64156158~piPK:64152884~theSitePK:461198,00.html> and <http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/KFDLP/0,,contentMDK:20753860~isCURL:Y~pagePK:64156158~piPK:64152884~theSitePK:461198,00.html>