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Industrial Policy in High-Income Economies

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New Industrial Policy and the Trade System

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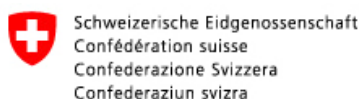
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ABSTRACT

This paper charts trends in industrial policy in high-income economies in the post-1945 period. Three distinct phases are identified. The first covers the post-war reconstruction period and extends to the end of the 1970s. Here, a number of governments took major initiatives in funding or supporting new or dynamic activities with the aim of catching up with the US in terms of productivity levels or in easing the adjustment of declining sectors. The second is from the start of the 1980s to around the mid-2000s. The more interventionist version of IP was abandoned in favour of policies of privatization, market liberalization, and competition. Support for enterprises was largely, but not exclusively, on a horizontal basis, with an emphasis on incentives for research and development, and training, and opening markets to foreign competition. In the last ten years, attitudes have shifted. The current model in high-income economies at or close to the technology frontier is based on the premise that growth must be innovation-driven as this provides the basis for long-term competitiveness. Policy is based on a combination of horizontal measures relating to the business environment, infrastructure provision, support for cluster development, training, and improvements to financial intermediation combined with specific measures to support innovation, including state funding for research and credit for higher-risk innovative investment. In many countries, there are tentative moves to go beyond general horizontal support to highlight priority areas for innovation initiatives.

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LIST OF ABBREVIATIONS

ASCM	Agreement on Subsidies and Countervailing Measures
EU	European Union
FDI	foreign direct investment
GDP	gross domestic product
IDA	Industrial Development Authority
IP	industrial policy
MFA	Multi Fibre Arrangement
R&D	research and development
SMEs	small and medium enterprises
UK	United Kingdom
US	United States
WTO	World Trade Organization

INTRODUCTION

This note considers current issues related to industrial policy (IP) and their implications for World Trade Organization (WTO) regulations in the context of high-income economies. Using a simple definition of IP as the pursuit of interventions by governments that will alter the allocation of resources, it is clear that a version of IP has always been—and continues to be—practiced by all governments. However the emphasis placed on IP and the interventions used have varied considerably across countries and time. Broadly speaking, for high-income countries in the post-1945 period, three distinct phases are normally identified in discussions of IP (for useful surveys, see Warwick 2013; Ciuriak and Curtis 2013; Owen 2012). The first covers the post-war reconstruction period and extends up to the end of the 1970s. During this period, a number of governments took major initiatives in funding or supporting new or dynamic activities (for example, in the United Kingdom [UK], France, Japan, and Korea, where the aim was to catch up with the United States [US] in terms of productivity levels), or in easing the adjustment of sectors such as steel, shipbuilding, and textiles, which were facing strong foreign competition or a lack of demand. At this stage, the ownership of enterprises was deemed important and the notion of governments supporting their “national champions” was highly influential. The second phase is from the start of the 1980s to around the mid-2000s. Here, the more interventionist version of IP was abandoned in favour of policies of privatization, market liberalization, and competition. Support for enterprises was largely, but not exclusively, on a “horizontal” basis, with an emphasis on incentives for research and development (R&D), and training, and opening markets to foreign competition. In the European Union (EU), for example, the old state aid model was restricted by European Commission rules, and the competitive pressure of a single European market combined with limited financial support for innovation to form the basis for IP. In the last ten years or so, attitudes have shifted and a third phase can be detected with many governments thinking through the implications of a declining manufacturing sector in the globalized world economy. Much of the previous focus on horizontal policies is now combined with efforts to stimulate innovation and the growth of small and medium enterprises (SMEs), while a number of countries have support packages for sectors facing declining demand after the financial crisis of 2008–09.

The reasons for the success or failure of IP in different contexts have been widely debated. Suggestions for explaining its success include the creation of “first mover” advantages in niche markets, either through local-based innovation, foreign investment, or technology transfer; the ability to keep policy insulated from vested interests; and a focus on activities, which while new, are not too distant from the existing capabilities of producers in the economy.

The current re-appraisal of the case for and scope of IP is normally explained by a combination of factors.

- A concern that with a declining share of manufacturing, economies can become “unbalanced” with serious implications for employment creation, innovation, and productivity growth.
- An awareness of increasing competition from emerging economies, particularly China, which has been moving into higher value manufactured goods to add to its strong market position in simple labour-intensive products.
- A wish to counter the deflationary effects of the financial crisis by stimulating demand for key sectors and supporting the supply-side of the economy.

For whatever reason, IP is back on the policy agenda in many countries, even the US where officially it has never been accepted. This is despite the fact that many observers argue that the research budget of the Department of Defense has created many important commercial spin-offs for private companies, including the first generation of integrated circuits from what went on to become Intel (Mazzucato 2013). Recent initiatives that fall under the heading of IP include the financial rescue of the automobile sector with funding for General Motors (GM) and Chrysler and a national strategy to support innovation.

CATEGORISATION OF IP IN HIGH-INCOME ECONOMIES

Generalising about this experience is difficult given the range of motives and policy instruments applied, and that high-income countries are not homogenous in their level of competitiveness and distance from the international best practice technology frontier. Here, we use a three-fold classification that attempts to reflect some of these differences. The categories are not mutually exclusive and policies reflecting each can be found contemporaneously in the same economy, but they can have different implications for international trade rules.

- Defensive IP
- Catch-up IP
- Innovation-based IP

DEFENSIVE IP

This refers to situations where governments address the problems of declining sectors, or more generally of lagging regions or areas where the declining activities are based. In terms of economic efficiency, the objective should be an orderly adjustment of a declining activity, restructuring, and re-equipping where it is deemed there is long-run potential, and re-training workers where long-term jobs cannot be assured. Structural change is inevitable as economies evolve, so historically this has been an important plank of IP in many countries. Examples include the support for shipbuilding, coal mining, and automobiles in the UK in the 1970s, and the recent bailouts in the US, although the UK examples are judged to have focused on support at the expense of restructuring. In addition, most governments have at various times operated regional programmes with tax incentives and funding to support investment in poor areas. The EU Cohesion Funds are a well-known example of a regional policy to support backward regions in the EU to raise income levels to support the further expansion of the internal market. While not earmarked explicitly as industrial support, they can finance infrastructure and a part of these funds will end up aiding the retraining of workers or the restructuring of assets. How far such programmes make sense economically depends on factors such as the size of subsidies on offer, and the potential for competitiveness of the new activities that they are to induce. Location decisions simply driven by high subsidies are unlikely to create sustained competitive jobs. There is some evidence from the EU to suggest that support for industry is most effective where it is allocated to relatively less concentrated and more competitive sectors (Aghion et al. 2011).

Defensive IP is likely to impinge on the trade system in several ways. Although high-income economies are by and large now open to foreign trade with low applied tariffs, temporary import restrictions have been imposed where domestic market disruption is threatened, the most obvious example being US and EU restrictions on Chinese clothing and textiles after the ending of the quota system under the Multi Fibre Arrangement (MFA). In addition, anti-dumping measures, typically against emerging economy exports, often have a defensive motivation. Subsidies of various types are inherent in a defensive IP strategy since the aim is to give differential benefits to declining sectors or activities. Where these can be shown to be specific to sectors or firms, there is clearly potential for a challenge under the Agreement on Subsidies and Countervailing Measures (ASCM), although whether this right would be exercised by trading partners depends on the scale of the effect of the subsidy on competitors.

The defensive form of IP has a role to play since orderly adjustment of a sector whose cost and productivity levels make it vulnerable to international competition is important. However, the appropriate role is in easing a transition to

a lower level of output and employment and in helping resources freed by this downsizing to find productive employment elsewhere in the economy, not in protecting an activity whose long-term prospects for competitiveness are poor.

CATCH-UP IP

Another version of IP that has been important for high-income economies not yet at the technology frontier can be described as catch-up IP, with policies designed to raise productivity to the levels of global market leaders. The expectation is that newly competitive activities will sell to the world market, so this broadly corresponds to the IP category of "export-oriented industrialisation" highlighted by Low and Tijaja (2013). In the 1960s and 1970s, important examples of this were the "national champion" policies adopted in the UK, France, Japan, and Korea to create enterprises large enough to compete with US firms. The instruments used varied and included direct state investment, tax incentives, subsidized funding, encouragement of mergers, selective use of government procurement contracts, support for basic research, and restrictions on foreign inward investment in the domestic market. Industries that received heavy government support included aeronautics, computers, nuclear power, and automobiles in the UK and France, and engineering, electronics, chemicals, and automobiles in Korea and Japan. Judgments on the effectiveness of these policies vary, but the broad consensus is that they were largely ineffective in Europe, with the exception of support for Airbus and telecommunications (which saw the modernization of the telephone system in France), both driven by publicly funded research (Owen 2012). In East Asia, on the other hand, the impact of IP at this time is generally viewed much more favourably, in part because the economies concerned were further behind in the catch-up process and could raise productivity levels rapidly by drawing on and adapting imported technology, rather than by developing their own (Weiss 1986; Chang 1994).

More recent experiences with this type of policy are found in some of the less well-off EU member states, which used foreign investment to introduce best practice technology and management and thus modernize their industrial sectors. In Ireland, and to a lesser extent the Czech Republic and Spain, for example, foreign direct investment (FDI) has proved a major driver of industrialisation, and a major plank of IP has been based on incentives to attract and influence FDI (Devlin and Moguillansky 2011: 56). Success in Ireland in transforming the production structure through FDI has been significant, although the reputation of the Celtic Tiger has been badly damaged by the recent financial crisis there, despite the fact that this was due to problems in the banking sector and not in manufacturing.

The Irish government had a clear view that it wished to upgrade the production structure, and since the 1970s, the Industrial Development Authority (IDA) has operated an aggressive promotional policy aimed at attracting FDI into new sub-sectors, principally electronics, software, and pharmaceuticals. The fiscal incentives on offer combined automatic and discretionary incentives. The automatic feature was a low rate of profits tax, initially at 10% and now at 12.5%, which is the lowest rate in the EU and has been found to have been highly influential in international firms' location decision (Ruane and Gorg 1997). This low tax rate was combined with a series of double-taxation agreements to maximize the benefits to investing firms. However, in addition, particular firms were targeted and offered discretionary packages. The IDA could negotiate upfront grants to cover a variable proportion of the planned investment, with the grant conditional on the firm creating an agreed number of jobs. Ceilings on levels of grant per job were applied, but the IDA had discretion in negotiations within that range. The relatively low technological depth of this inward investment, as measured by R&D expenditure to sales, remains a concern. This is an issue for a later stage of IP because if the focus is on relatively low-skill operations, the investments become considerably more footloose and could move to lower-wage or lower-tax locations.

The earlier versions of catch-up IP were focussed predominantly on domestic markets, and in the 1960s and 1970s involved relatively high rates of import tariff protection, particularly in East Asia. The more recent experiences based on FDI, on the other hand, have been predominantly export-oriented. Therefore the policy required ready access to imported inputs, as far as possible at free trade prices, and a competitive real exchange rate. Subsidies, either the provision of upfront grants or tax concessions, offered to specific firms on the basis of a unique negotiated package appear to contravene the ASCM. Subsidies available to all who meet an objectively defined criteria such as a grant per job created, or a profits tax rate below the EU average, are non-specific and therefore non-actionable. However, in principle, the package approach applied in the past in Ireland and elsewhere appears to be an actionable subsidy under the ASCM. Action against such measures could be taken under the ASCM if they cause adverse effects to the interests of other Members (Article 5).

INNOVATION-BASED IP

The current IP model in high-income economies at or close to the technology frontier corresponds broadly to what Low and Tijaja (2013) term "industrialisation through innovation." It is based on the premise that growth for high-income economies must be innovation-driven as this provides the basis for long-term competitiveness. Slightly different variants exist in different countries but the basic model is a combination of horizontal measures relating to the business environment, infrastructure provision, support for cluster development,

training, and improvements to financial intermediation combined with specific measures to support innovation, including state funding for research as well as credit for higher risk-innovative investment. In many countries, there are tentative moves to go beyond general horizontal support to highlight priority areas for innovation initiatives.

A relatively recent communiqué from the European Commission, for example, talks of the need for ongoing structural reform in the member states based around improvements to the business environment, modernisation of public administration, support for innovation, and improvements in energy efficiency. Co-operation between firms in different member countries is strongly encouraged, particularly through regulatory reform and the removal of legal and fiscal barriers. The limitation of national governments' ability to subsidize their producers is seen as critical to avoiding distortion in the single market. Allowable subsidies by governments relate to training, R&D and innovation, and support for risk capital. State aid to industrial enterprises within the EU as a bloc is large in absolute terms but is now only a small proportion of gross domestic product (GDP) (less than 0.5% in 2011). Joint technology initiatives have been set up to further European-level research in areas of high potential, European technology platforms have been created to bring industry stakeholders together to develop common policies, and specific initiatives have been launched in relation to green technology (European Commission 2010). However, the vast majority of public funding to support technology and R&D comes from national governments, not the Commission.

France under the Nicolas Sarkozy presidency took a major initiative with the launch of a Strategic Investment Fund in 2008, which allowed the government to provide funding to dynamic activities in need of capital. This was combined with a grand loan scheme of €35 billion focusing on commercial spin-offs from research, with the priorities identified as the digital economy, nano and bio-technology, renewable energy, low carbon vehicles, and innovative SMEs. Similarly, the UK, Japan, and Korea have identified priorities within the sphere of innovative technologies (Warwick 2013: 8). The UK created a Technology Strategy Board (now renamed Innovate UK) in 2007 to support innovation and the commercialisation of research, particularly in small companies. It provides seed funding, encourages high-tech cluster development, funds feasibility studies, and supports partnerships both between firms and between firms and academia. The concept of such a board has been praised but its funding (total expenditure was £572 million in 2012–13) remains modest and is likely to be too small to have a major impact (Mazzucato 2013). As noted, the US does not acknowledge any formal IP, but there has been widespread debate over the consequences of offshoring so much of US manufacturing. In recognition of the need to keep at the frontier of technological development, a national innovation strategy was launched in 2011, which includes a number of horizontal measures and a series of technology priority areas covering clean energy, bio and nano-technology, space, and advanced manufacturing.

Definitive overall assessments of the impact of this recent wave of innovation-driven IP are not available, but there are examples of both successes and failures, which is to be expected given the high-risk nature of work on the technology frontier. In terms of the restrictions imposed by the WTO, all high-income countries now operate in an open trading environment and the use of import tariffs or quotas is not an issue. The question of specific subsidies is again relevant since it makes sense to prioritize between sectors or activities to focus funding and support on activities where the potential for innovation is greatest, as appears to be happening in many countries. The UK government, for example, has provided grant finance to commercialize a specific product, an electric car, developed by a specific firm, Nissan. Public sector procurement is being used increasingly to encourage innovation. For example, this is seen where innovation criteria are incorporated in technical specifications or where public sector demand is used as a catalyst for products at the early stage of development, such as electric cars. The model used extensively in the US involves the government purchasing the underlying R&D design for products that do not yet exist on the market, and incorporating this design in government programmes. The experience of the US Defense Advanced Research Projects Agency is widely cited as stimulating a range of technologies through such procurement. WTO restrictions on government procurement are relatively weak and allow governments to apply local content conditions and implicitly allow discrimination in favour of domestic producers. Thus an active application of procurement policy to support local innovation seems feasible within WTO rules (Singh 2014: 46–47).

CONCLUSIONS

In instances where IP causes adverse effects to other members, there is a potential for challenge at the WTO, though de facto it appears that many applications go unchallenged. The key conflict between IP and WTO rules relates to specific subsidy issues since all vertical applications of IP will somehow differentiate between activities. There is the well-established theoretical point that much of the rationale for tax/subsidy interventions implies differential rates between activities as externalities and learning effects will not be uniform among them. WTO rules based on a level-playing-field notion are therefore out of line with standard welfare theory. The objection has always been a practical one relating to how to quantify “optimal” differentiated tax or subsidy rates. The problem is where (a) the subsidy does not lead to competitive production as it will lower not raise income in the original country, and (b) where the subsidy is used as a part of a predatory pricing strategy to generate market share and raise prices in the longer term when competitors have been pushed out of the market.

WTO rules initially allowed three exemptions to the specific subsidy ruling relating to R&D, regional development, and environmental issues. These exemptions expired at the end of 1999 and have not been renewed. As part of the renewed interest in IP, there is a strong case for reviving these exemptions with the R&D and environmental exemptions relevant for the innovation-based model of IP and regional development exemptions for the defensive version.

TABLE 1:

Industrial Policy in High Income Economies

Category	Examples	Policy instruments	Implications for WTO rules
Defensive IP	Adjustments to oil shock in the early 1970s and to the 2008–09 financial crisis (UK, France, US, Japan)	Provision of credit, training grants, demand stimulus, temporary import restrictions	Potential challenge where specific subsidies, or export subsidies exist
Catch-up IP	National Champion policies in the 1960s and 1970s (UK, France, Japan, Korea)	Provision of credit, seed funding, and tax incentives for R&D, merger policy	Potential challenge under specific subsidies in relation to differential incentives
	Foreign investment promotion (Ireland, Czech Republic, Spain)	Tax incentives, investment grants, package of support measures	
Innovation-based IP	Innovation and competitiveness policies (EU, UK, France, US, Japan)	Finance for basic research and its commercial application, R&D tax credits, procurement policy, higher education policy	Potential challenge under specific subsidies to innovation

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