

Chapter 5

The Role of Industrial Policy:

Lessons from Asia

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5.1 Introduction

In the second half of the twentieth century, a number of Asian countries achieved significant growth accelerations and began to rapidly catch up with advanced countries. Their success was based on their vigorous participation and competition in global markets, but it is now widely recognized that they were so successful in developing their competitiveness because of equally vigorous state support and industrial policies. Their experience demonstrated that competitiveness was not always exogenously determined by ‘comparative advantage’. Competitiveness could be developed and changed by deliberate policies, though obviously within limits set by what could feasibly be achieved given the initial conditions of different countries. While these successful Asian countries were rapidly industrializing, the emergence of a new market fundamentalism in advanced countries, and particularly in the UK and the US, led to an unconditional acceptance of an accelerated de-industrialization in these countries as a normal consequence of changing comparative advantage. Over the longer term, the important lesson from the East Asian success stories is surely that comparative advantage is not a ‘given’ and policy can influence comparative

advantage within broad limits. The policy question facing Britain is whether de-industrialization has proceeded too far and what if anything can be done about it.

The Asian experience is important for a number of reasons beyond establishing the importance of industrial policies. The Asian experience also shows that industrial policy was not uniformly successful. Many countries, including those in the Indian subcontinent, achieved much poorer results with their industrial policies in the 1960s and 1970s. These countries ended up protecting and subsidizing many infant industries that refused to become competitive despite decades of support. However, South Asia went through a realignment of its industrial policies in the 1980s and achieved much greater success as a result, with some of their most important competitive sectors emerging through new versions of industrial policies in a number of these countries. While Asian countries are still far away from European ones in terms of their levels of development, and therefore in the types of industrial policy challenges that they face, there are a number of general lessons from some of the diverse Asian experiences that could be relevant for policy discussions in the UK.

For an advanced country like the UK, industrial policy clearly has to support both innovation and the development of competitive production capabilities that can convert ideas and knowledge into marketable products. There is no question therefore that industrial policy must have a focus on supporting innovation and the development of new knowledge. This involves investment in public bodies such as universities as well as in networks linking public and private players engaged in innovation. Countries such as the UK still have a lead over most emerging Asian countries in the organization of innovation, though there may be particular strategies of financing or

organizing innovation that may be worth looking at. However, the second plank of any effective industrial policy has to be the development of competitive manufacturing capabilities so that good ideas and technologies can be converted into competitive products. Here the UK can learn a lot about the types of problems countries can face when they try to acquire (or, in the case of the UK, reacquire) firm-level competitive capabilities. Britain's gradual loss of manufacturing competitiveness after the Second World War was exacerbated after the 1980s in the context of its rapid de-industrialization. The country lost much of the tacit knowledge embedded in the organizational routines of manufacturing firms, and as a result fell even further behind in terms of its capacity to regain a broad base of competitive firms. The experience of Asian industrial policy shows that the achievement of competitiveness in new sectors and technologies can be a difficult problem to crack. The two planks of industrial policy are closely connected because without a broad base of firms that can organize production competitively, a successful innovation strategy will simply result in the offshoring of manufacturing somewhere else.

The rest of this chapter is organized as follows. Section 5.2 outlines a number of different dimensions of the industrial policy debate using the Asian experience as the backdrop. Industrial policies face a dual challenge: they have to identify and target the most important constraints facing a particular country, and they also have to address these problems in ways that can be implemented and enforced in the contexts of particular political and institutional contexts. The experience of success and failure in Asia shows the importance of designing policy so that it satisfies both these requirements. The implication of the second requirement in particular is that industrial policies have a high degree of country specificity and instruments that have been

effective in one context will not necessarily work in others. Section 5.3 outlines the range of different contracting failures that can constrain the emergence of a broad-based and competitive manufacturing sector. There are obviously a number of different theoretically plausible problems that can constrain the emergence of a diversified and competitive industrial sector. However, the most fundamental requirement of success is that emerging firms can acquire the *organizational and technological capabilities* to become competitive. If this problem is not effectively addressed, solving other constraints blocking the emergence of competitive firms is unlikely to deliver sustainable results. While the absence of a sufficient base of firm-level organizational capabilities used to be a problem primarily affecting developing countries, this is now just as likely to be a major constraint in advanced countries that have experienced rapid de-industrialization. Finally, Section 5.4 outlines the problem of designing policy solutions that are consistent with the enforcement capacities of the state, which in turn depends on national institutions and politics operating within the confines of global rules and power structures. It is therefore not only important to identify the relevant contracting failures and constraints correctly, it is equally important to design responses to these problems that will work given local implementation and enforcement capabilities. The comparative Asian experience shows that industrial policies can fail for either reason. An appropriate methodology of policy analysis can reduce the dangers of mistakes in policy design but a viable industrial policy strategy should also be ‘experimentalist’, so that different policy instruments can be trialled and policies redesigned and reformed in the light of experience. This too is an important lesson from the Asian experience.

5.2 Dimensions of Industrial Policy

Industrial policy in the broadest sense describes policies that aim to support the development and adoption of technologies and capabilities that raise social productivity. Industrial policies (or technology policies as they are sometimes referred to) are required when private contracting fails to organize potentially gainful investments that achieve these outcomes. The problems that could prevent organizations independently contracting to arrange these investments are variants of contracting failures that emerge because of high transacting and contracting costs. The most important variants of contracting problems that industrial policies have to address will be discussed briefly later. It is conceptually possible to distinguish investments in innovation that result in the generation of new technologies and products from investments in firm-level capability development that enable these technologies to be used to produce competitive products. The distinction can often be difficult to make in practice as firms are often simultaneously engaged in innovating and changing their production processes and internal management systems. But the conceptual distinction is easy to see when a country or a firm is attempting to competitively produce a product that is already being produced by some other firm. The latter is not necessarily an easier problem to solve; indeed it is probably the bigger challenge for an economy such as the UK as it attempts to re-enter the processes of manufacturing to a significant extent.

Industrial policy defined in this way is not necessarily restricted to the promotion of the industrial sector alone, though some proponents of industrial policy do indeed interpret it in the narrower sense on the grounds that technological progress and social

productivity are likely to rise faster if the industrial sector is prioritized (Greenwald and Stiglitz, 2006). In this chapter, industrial policy will be used in the broader sense to refer to technology policies generally, though the examples of applications that we look at primarily involve manufacturing. Industrial policies can be ‘horizontal’, if they seek to improve the general efficiency of markets and the provision of broadly defined public goods to facilitate greater private investment in innovation and capability development. Industrial policy can also be ‘vertical’ or targeted if it focuses on solving *particular* contracting failures affecting investments relevant for particular sectors or technologies (Khan and Blankenburg, 2009). There is greater political and policy resistance to targeted policies because they are seen as discriminatory as well as involving judgements about ‘picking winners’. In fact, the distinction between the two types of policies is not very sharp, and the real distinction is about effectiveness and relevance for solving particular problems.

In reality, policies always discriminate between individuals, sectors, or firms in some way or another. For instance, apparently non-discriminatory policies may be discriminatory in reality if firms or sectors face very different constraints, and horizontal policy ignores these differences. A policy that fails to recognize differences in the types and intensities of problems across sectors effectively discriminates against sectors with more severe problems. Conversely, policy that does identify priorities across sectors, regions, and so on, and then sequentially addresses them, may help to create a more level playing field over time. Obviously not all problems, whether they are general or particular, can be feasibly addressed by policy. The real question is whether the priorities identified by the policy are politically acceptable and whether the policy is effective in the sense of achieving the outcomes that are desired.

It is true that highly targeted policy responses that create rents and opportunities for a relatively small number of firms can be more susceptible to capture by sectional interests. Policy design has to ensure that the policy does not end up protecting uncompetitive activities and monopolistic privileges. That would indeed be a discriminatory outcome. The way to avoid such outcomes is through better policy design, and by avoiding policies that are more susceptible to this danger. The relevant point is that we do not necessarily achieve better outcomes by always selecting ‘horizontal’ policies that appear not to be targeting specific problems or sectors. The most neutral policies in these terms may sustain a very undesirable status quo.

The Asian experience suggests that the choice between horizontal and vertical industrial policies should be interpreted differently. Clearly some policies are more horizontal in the distribution of benefits across firms and sectors and others are more targeted. Truly horizontal policies that do not discriminate between firms and sectors in any way are unlikely to exist, and highly targeted strategies that benefit a very few firms are very likely to be captured and may in any case be strongly opposed by other interests in society. The relevant choices are always likely to be between policies located in the middle of the horizontal–vertical spectrum. When we look at this range, there are no compelling theoretical reasons why policies that are somewhat more horizontal will necessarily perform better in terms of social objectives. The Asian experience supports this expectation because the most successful high-impact strategies generally targeted specific technologies, regions, and contracting problems that were inevitably of greater interest and benefit to some sectors and firms in the first instance. These policies ranged from the sectorally targeted industrial policy instruments of South Korea and Taiwan in the 1960s and 1970s, to the region-specific

incentives and provincial competition in China in the 1980s and beyond (Wade, 1988; Amsden, 1989; Wade, 1990; World Bank, 1993; Qian and Weingast, 1997; Qian, 2003). The distinguishing characteristic of more successful policies was that they identified and targeted the most important problems, *and* the policy solutions were implementable and enforceable in particular political and institutional contexts.

The last sentence describes a combination of characteristics that is often not properly understood by policy-makers. Moreover, many widely shared interpretations of what is required for a successful industrial policy are actually misleading. An example is the common perception both amongst supporters and opponents of industrial policies that success requires a state with the vision and the capacity for ‘picking winners’. This metaphor is very unfortunate because it implies that successful industrial policy countries had wise bureaucrats whose vision of the future was particularly prescient. The implication is that if bureaucrats and politicians display few signs of such innate abilities, industrial policies of the Asian type are best avoided. The reality in Asia was very different. East Asian countries did not initially differ from South Asian ones (in the 1950s and 1960s) in the quality let alone the prescience of their bureaucrats. The difference was rather that the policy instruments that emerged in East Asia could be enforced or altered in their political contexts. But the South Asian industrial policy instruments, though they were very similar to the East Asian ones, were rapidly captured by powerful interests. With the benefit of hindsight, these instruments were inappropriate for the South Asian political settlements. The initial policy instruments emerged rather serendipitously in all these countries, but in East Asia the instruments created benefit streams (or rents) that could be effectively monitored and withdrawn, and their conditions of allocation changed in

the light of the results achieved. In South Asia the same rents could not be easily withdrawn or altered once they had been introduced. This was not at all a characteristic of the quality or capacities of the state but rather of the configuration of power between state agencies and rent-receiving firms given the types of rents that these policies created. What emerges as important is the ‘fit’ of particular policies within particular ‘political settlements’, defined as the distribution of organizational power in a society, which determined whether appropriate conditions could be defined and enforced for these policies.

The ability or otherwise of particular bureaucrats or politicians to pick the right winners *ex ante* obfuscates these issues. In fact, East Asian industrial policies frequently targeted the wrong firms and sectors to begin with. The difference was that mistakes were quickly corrected and policy design and sectoral choices evolved rapidly in the light of experience. Far from any mysterious capacity of some policy-makers to pick winners *ex ante*, industrial policy was successful here because the fit between initial policy design and the political and institutional conditions of the country allowed incremental policy evolution through the correction of mistakes. In contrast, in less successful countries such as those in South Asia, the initial policy design was inappropriate given the political settlement, and benefits were created for powerful organizations which had the ability to capture and protect their policy-induced rents regardless of performance. The result was policy stagnation and the failure to correct mistakes years or decades after it had become obvious to everyone that the wrong firms or sectors had been ‘picked’. The difference in outcomes had almost nothing to do with any capacity for ‘picking winners’ and a lot more to do with the complex mix of policy, institutional, and political characteristics that added up to

a capacity for ‘dropping losers’. But even this phrase can be misleading because it does not capture the complex set of conditions we want to highlight. The interdependence of policy design, political settlements, and implementation success is unfortunately not widely understood, even within Asian countries with their different experiences with industrial policy.

The implementation issue is at the heart of industrial policy success or failure. But it is obviously not the only factor determining the success of industrial policy. The significance of the implementation and enforcement issues can be better understood by separating them from other types of problems. First, industrial policies can fail simply because policy-makers have multiple objectives and are attempting to achieve too many goals with a limited set of instruments. For instance, a policy that aims to achieve productivity growth can be diluted and distorted if policy-makers also want to protect employment in the firms and sectors being targeted. Multiple objectives require packages of policies targeting different problems because of these types of trade-offs.

A second and more important problem emerges when a policy targets a discrete problem but the diagnosis of the problem is wrong. Many different types of contracting failures can constrain investments in innovation and learning, and policies that may have been appropriate if the problem was due to one set of problems may be insufficient or inappropriate if the real problem was something else. For instance, policies relevant for solving a problem of insufficient investments in skills may be irrelevant and wasteful in a context where the main problem was that firms lacked the organizational capability to achieve competitiveness. To make matters worse, if low

capability firms are surveyed, their managers are very likely to attribute their low competitiveness to poor worker skills or other constraints. But if low organizational capabilities were the more important problem, an expenditure of public resources in skills training may end up creating an additional problem of unemployed skilled labour on top of the already existing problem of uncompetitive firms. Policy-makers clearly need to have a careful analysis of the causes of low competitiveness, low investment or whatever the proximate problem appears to be, because superficial assessments and survey evidence may be misleading.

Finally, industrial policies can also fail even if the problems have been correctly identified because the particular instruments chosen to address these turn out to be ineffective in that political and social context. This problem has resulted in many failures in Asian industrial policy. A society always has a specific economic and political structure that can be described by the capabilities and the distribution of power across different types of organizations. The relative bargaining power of different types of firms, government agencies, and other stakeholders can vary greatly across countries given their initial conditions. We describe this distribution of organizational power as the political settlement within the country (Khan, 1995, 2010). Features of the political settlement matter for the enforcement of industrial policy because the latter typically provides explicit or implicit policy support (rents) to particular firms or sectors conditional on the achievement of desired outcomes. The results of industrial policy (or indeed of any policy in general) depends critically on how effectively the state can monitor the outcome that is desired, and change the allocation and terms of support in the light of emerging results. The historical evidence shows that the effectiveness of monitoring and enforcement depends only

partly on the technical and bureaucratic capabilities of state agencies and quite a bit on the political settlement defining the relative bargaining power of the different types of organizations receiving and managing these rents.

When policy-induced rents are captured without delivering results, the outcome is often referred to as a government or state failure. Conservative political economists have argued that intervention should in general be avoided because the costs of government failure are very often more significant than those of the market failures the policy attempted to address (Krueger, 1990). This debate is important because the causes of success or failure are usually not properly understood. The defeatism of conservative political economists is often countered by a ‘possibilistic’ progressive optimism based on an equally selective choice of examples. But just as conservative pessimism cannot explain the successes that were sometimes achieved through industrial policy, the optimism of progressives does not explain why there were frequent failures, and what needs to be done to avoid more failures in the future. The possibility of failure certainly does not imply that non-intervention or horizontal policies are the best response. Rather, the evidence from Asia shows that policy design that improves the compatibility of the policy’s enforcement requirements with the enforcement conditions possible under the prevailing political settlement can significantly reduce the chances of failure.

The challenge for policy-makers at the design stage is that they have to be able to imagine whether a particular policy, with feasible improvements in governance capabilities, can be well enough enforced in the existing political settlement to yield useful results. It is at this stage that an analysis of the policy-induced incentives and

compulsions facing different types of actors and their likely responses given their bargaining power can help to reduce the chances of a failure in policy design. Analysis of the likely contracting failures that are constraining policy and of international experiences in different contexts can contribute to this policy discussion. This thought process does not guarantee success, but it can reduce the chances of failure. The final component of the policy process is therefore an explicit commitment to experimentation. Here too, policy design is relevant, so that policies are constructed keeping in mind that they may need to be reversed or modified as evidence about outcomes comes in.

5.3 The Fundamental Constraint of Organizational Capabilities

One of the long-term effects of the rapid de-industrialization in advanced countries has been the loss of organizational capabilities as manufacturing firms were shut down. Their internal routines and the knowledge of how to organize production on which their competitiveness had been based in the past were in many cases entirely lost. This was an important contributor to the long-term hysteresis of the manufacturing sector in many advanced countries. As wages and exchange rates continue to rise in China, it may become increasingly viable to bring some outsourced manufacturing back to the UK. But the loss of firms with productive organizational capabilities means that this shift in production is no longer likely to happen without policy support, even in sectors that could be potentially competitive. The ‘knowledge’ on which firm competitiveness is based includes the internal routines and systems that sustain high levels of productivity, high standards in quality control, efficiency in

inventory management, low levels of input wastage and downtime, and so on. This is largely tacit knowledge that is essential for achieving competitiveness, and is often embedded in the routines of how things are done by different members of a complex team. The requisite tacit knowledge can be ‘learnt’ through a process of learning-by-doing, but the investments that enable learning-by-doing are also subject to significant contracting failures. This is therefore an important area of concern for industrial policy strategies.

Given the missing capabilities in manufacturing, it would be insufficient for an industrial policy programme in Britain just to support innovation. Industrial policy does of course have an important role in supporting innovation and that is well understood. There is a large literature, for instance, on the role of patent policy and the direct public funding of research. These policies create technology rents and their effectiveness raises issues such as the management of the length of protection and the conditions attached to patents, the institutional organization of the public funding of research, the structure of public-private networks, the competitiveness of the markets in which innovating firms operate, and so on (Dosi, 1988; Pelikan, 1988; Stiglitz, 1995; Khan, 2000a; Aghion et al., 2002; Stiglitz, 2007). As the importance of innovation is not in question in an advanced country, and as the Asian experience is more useful for understanding the second plank of industrial policy, we will focus on the policy support required to develop a broad base of competitive firms. Domestic innovation would be much more likely to translate into domestic production if many competitive firms already existed in the UK manufacturing sector. Otherwise, innovation would most likely find its way to production in some other country. Here there are important lessons to learn from the Asian experience of developing firm-

level competitiveness. In the rest of this section we will discuss the important contracting failures that can affect the development of competitiveness and the policy responses that are called for. This will take us to the next section where we discuss the problem of effectiveness of enforcement and implementation, which depends on the interface of policy solutions with the political settlement.

The common feature of all policies addressing contracting failures is that they create different types of rents for the supported firms and organizations. However, an accurate diagnosis of the underlying problem is important otherwise support may be provided for the wrong problem. Since production is normally carried out by organized groups of people, the capacity to organize a production team in an effective and efficient way is a necessary condition for the success of any productive enterprise. If there are contracting failures preventing the development of these missing organizational capabilities, then policies that only solve other problems are not likely to help the emergence of a productive sector. The empirical evidence shows that policy-induced rents can support learning-by-doing but only if very specific conditions are set for rent recipients to induce high levels of effort in experimentation and learning. Not surprisingly, policies that simply provide rents to firms facing a variety of contracting failures rarely achieve good results. In many cases, unconditional rent allocation to ‘infant industries’ can simply create perverse incentives and incentives to engage in rent-seeking activities to protect these rents. Thus, in the typical case where multiple problems exist, policy has to address each separately, but in most cases, the problem of missing organizational capabilities is the most basic constraint that has to be addressed.

The contracting problems that can constrain the development of firm-level competitiveness can include externality problems affecting investments in improving workforce skills, externalities facing first-mover investors in sectors that may or may not turn out to be competitive, a variety of coordination problems affecting investments across interdependent sectors, and, most importantly for us, the principal-agent problems facing investors investing in learning-by-doing processes (Khan, 2013a). If private contracting fails to find appropriate solutions to these and other problems, policy interventions are required. But policy is only likely to be effective if it targets the most relevant problem.

Developing countries have used a variety of instruments to address this mix of problems, but very often the design of the instruments was not differentiated enough to identify the most appropriate conditions to impose on supported sectors to ensure that particular problems were addressed. The rents created were usually broadly defined with loose conditions, and it is not surprising that in many cases the results achieved were not very dramatic. Results were only dramatic in contexts where the power relationships between rent-creating agencies and the rent-receiving firms allowed an evolution of the conditions attached to rents in the light of the results achieved. When this happened, policy rapidly evolved to define conditions for rent allocation that solved particular problems, and in these cases there were often very dramatic results. The challenge is to understand the mix of conditions that created these good results so that what happened serendipitously and over relatively long periods in a few countries can inform deliberate policy design more generally. The early instruments of industrial policy often created rents for targeted firms without too many conditions or with conditions that were not very carefully thought through.

Rent-creating policy instruments included the protection of domestic markets for infant industries, subsidizing technology acquisition through implicit or explicit subsidies such as low interest credit, and export subsidies and tax breaks for investing in new machinery. Each of these instruments provided rents which could in principle have addressed specific contracting failures but only if the rents were granted with the right performance conditions.

For instance, positive externalities can constrain investments in training because investors may fear a loss of their investment if trained workers leave to work in other firms or sectors. One policy response to positive externality problems is to reduce the risk and cost for firms investing in training by providing subsidies for these firms or to the workers undergoing training. But clearly, the subsidy would be insufficient on its own in many cases without arrangements for monitoring the content and quality of the training achieved. So the terms of the rent allocation would have to include credible withdrawal and penalty arrangements and the monitoring of training quality (Dosi, 1988; Khan, 2000a). In the same way, the externality problem associated with first-mover investments can also be dealt with using a subsidy, but now very different conditions need to be identified and enforced. The problem here refers to the possibility that the first investors in a sector have additional costs that later investors can free-ride on. An example is the possibility discussed by Hausmann and Rodrik (2003) that first movers may have to invest a lot in discovering areas in which a country has comparative advantage. As first movers may fail to capture sufficient returns on their investments, for instance because subsequent entry into the sector can reduce their profits by raising wages and input prices, investments in discovery and other first-mover investments may be constrained. Unlike new innovations, discovery

cannot be patented, and therefore the solution to this contracting failure may require temporary subsidies that encourage trials in new sectors. These rents need their own set of effective conditions: they have to be available for short periods, they should only be given for investments in ‘new’ sectors, and for no longer than is needed to set up the trials and discover the presence or absence of comparative advantage.

Coordination of investments across sectors may be important because of both demand and supply side complementarities. High transaction costs, information asymmetries, and the possibility of opportunistic behaviour by second movers may preclude private contracting solutions to solve coordination problems (Rosenstein-Rodan, 1943; Nurkse, 1953; Scitovsky, 1954; Williamson, 1985; Murphy et al., 1989). Government agencies charged with the implementation of coordination policies are in a position to provide rents to firms in promoted clusters. But here a complex set of conditions has to be enforced to ensure that the desired coordination comes about. The identification of the clusters to be supported and the complementary investments that private investors have to provide have to be agreed upon, monitored, and enforced. Coordination is a part of industrial policy that finds a lot of support amongst economists advising governments, largely because writing complex plans creates significant job opportunities. However, few countries have made significant progress in industrialization because of the quality of their coordinated planning. This is largely because the implementation of coordinated national investment plans faces significant enforcement problems. There can, however, be payoffs for the proper coordination of investments in industrial clusters, but this too requires high levels of capacity and the appropriate design of incentives, as the Chinese experience has shown. It is at this level that attention on coordination should initially be focused.

But the solutions to all these contracting failures assume that a more fundamental contracting failure has been addressed. Many countries find it difficult to absorb and use existing technologies even when their wages are low enough compared to their competitors and they have sufficient workers with the appropriate formal skills. The missing factor is often the *organizational capability* of the production team. Owners, managers, and supervisors often do not know how best to set up the factory, align the machinery, set up systems for quality control, reduce input wastage and product rejection, manage inventories, match order flows with production cycles, maintain after sales services, and approach a host of other internal team coordination and management issues that are essential for achieving competitiveness. Differences in these capabilities can result in very significant differences in labour, input, and capital productivity across countries (Khan, 2009, 2013a). As a result, a firm that is able to buy the same machinery as its competitors at international prices, and employ workers and managers at the same or lower wages than the most competitive country, may yet be unable to achieve competitiveness. This is a problem that developing countries face all the time, but is likely to be just as relevant for advanced countries that have de-industrialized.

Organizational capabilities of the type that we are discussing can only be learnt to a limited extent as *codified knowledge* or formal knowledge that can potentially be provided by training institutes. Organizational capabilities are largely based on *tacit knowledge* that is acquired through learning-by-doing, and moreover, it involves experimentation with and restructuring of the organization of a production team. The knowledge gained through this learning-by-doing is thus embedded in the routines

and practices of the team. To make matters more complicated, the most effective organization for the same production process can vary from country to country depending on the work patterns and habits of the workforce (Whitley, 1992). Once an effective organizational structure emerges for a particular sector in a country, it can be copied by other firms, but a new team will also require some time to experiment and come up with its own modifications and details to produce similar results. Firm organization can vary from firm to firm, but the closer the existing routines of a production team are to the routines and processes it is trying to emulate, the faster the learning-by-doing is likely to be. By definition, learning-by-doing requires opportunities for *doing*, and this requires periods of loss-financing when the firm is engaged in production but is unable to make sufficient or any profits. One of the classical justifications for infant industry protection was to allow infants to grow up in precisely this sense. However, here too, rents have to be delivered with appropriate conditions. Here ‘learning rents’ provide the opportunity for a production team to engage in production, but it also has to be under pressure to continuously experiment with new internal organizational arrangements to achieve the increases in productivity that justify the investment in learning (Khan, 2000a). Thus, the ‘doing’ is necessary but does not guarantee ‘learning’, unless there is some compulsion on the owners, managers, and supervisors to put in high levels of *effort* in the learning process (Khan, 2013a).

In theory, complex contingency contracts between the private parties involved could address these investment requirements. Essentially, private investors putting in their money in building firm-level competitiveness would need to have credible ways of penalizing non-performance and extracting their capital if the project fails. These

contracts are difficult to write and enforce, and the returns are not that high if the firm is attempting to achieve competitiveness in competitive sectors. The problem is that innovative sectors where there are high returns due to technology rents require underlying productive capacities that would also have been able to produce competitive products competitively. Otherwise, the production of even high rent products will migrate to countries where firm-level organizational capabilities are higher. A necessary condition for achieving the goal of organizational capability development is that conditions of rent allocation and withdrawal have to be clearly set out so that owners, managers, supervisors, and others feel the compulsion to put a high level of *effort* into the learning process. This problem usually cannot be solved by announcing the time period for support in advance. Unlike a trial that is supposed to *discover* comparative advantage (where reasonable time periods for trials can be pre-specified), here comparative advantage is being *created* through learning and the development of organizational capabilities. The creation of comparative advantage can take periods of time that differ from country to country, sector to sector, and perhaps even firm to firm. More complex monitoring and incentives are required here to induce the right kinds of effort.

Why is it necessary to impose conditions on firms to ensure that they put the requisite effort into the learning process? It may appear that the rational strategy for the leadership of a firm would be to ensure a high learning effort anyway. The prize for the firm would be to achieve competitiveness and become self-sustaining. This motivation can sometimes work, but the evidence suggests that this can by no means be taken for granted. Indeed, there are good reasons why this is not necessarily the only rational strategy for key stakeholders in the firm. Learning and experimentation

are costly exercises. Internal distributive conflicts have to be managed as hierarchies and responsibilities may have to be restructured frequently. In addition, the prize is not necessarily very attractive. The firm that puts a lot of effort into raising its productivity and achieves competitiveness through organizational learning is rewarded by losing its rent and the security that comes with it. In exchange it gains the dubious privilege of sinking or swimming in a competitive market. Without some degree of compulsion to do otherwise, the rational behaviour of many firm managers may well be to 'satisfice', in the sense described by Herbert Simon (1956, 1983), and put more effort into the political activity that preserves their rents.

Given these examples of very different problems that may constrain competitiveness, industrial policies clearly have to be formulated to address specific problems and issues. If an industrial policy strategy fails to identify the most important problems relevant for the sector or country, strategies of supporting emerging firms are likely to fail. In some countries, famously the East Asian ones, ambitious technology policies that provided support simultaneously for many firms and sectors resulted in accelerated technology acquisition and development. But when we look at these examples in detail, it was because very specific and unusual configurations of bargaining power allowed the development of policy conditions and targets in a pragmatic way. In many other countries, policies with a similar level of ambition resulted in the proliferation of subsidies to protected industries that refused to grow up. Subsidies kept growing and could not be withdrawn, despite the poor performance of the supported firms and sectors. Similarly, in some countries development banks played a dynamic role, while in others their low interest loans were not repaid and development banks eventually went bankrupt. In these less

dynamic cases, consumers and taxpayers often ended up paying the price for these failing policies till they were finally abandoned.

The identification of the most relevant contracting failures is therefore the necessary first stage of developing effective industrial policy solutions. The second stage is to investigate whether a policy with the requisite characteristics can be enforced given the configuration of power and capabilities across the organizations affected by the policy. Policy responses that worked in one country may not be implementable in another. On the other hand, there are typically multiple solutions to the same problem, and each solution implies a different allocation of rents and a somewhat different set of conditions for achieving desirable outcomes. This makes it more likely that effective solutions can be found despite differences in political settlements, as long as the relevant features of the political settlement are understood.

5.4 The Political Economy of Rent Management

There are in principle *many* ways in which a particular contracting failure can be addressed. Each solution involves different distributions of costs and benefits and requires different sets of conditions to be enforced on different organizations. Given the relative power and capability of different types of organizations in that society, some solutions may be more feasible to implement than others. Some theoretically feasible solutions may not be feasible in practice if their implementation requires the enforcement of conditions on very powerful or well-connected organizations. The attempt to enforce these policies may then result in ‘government failures’ as the policy gets distorted by the rent-seeking activities of powerful organizations. This

does not necessarily mean that this contracting problem cannot or should not be addressed. A different approach addressing the problem using different instruments or targeting different types of firms and technologies may enjoy greater success. Paradoxically, a second-best strategy that starts by assisting smaller firms or firms using less-developed technologies may be better in developing organizational capabilities or solving other contracting problems in political settlements where the bargaining power of the best firms is likely to result in unconditional rent capture. The political economy of enforcing a policy thus depends on three factors. First, it depends on the design of the policy that determines who gets the rents and the conditions that need to be imposed on the rent recipients to address the particular problem. Second, the outcome depends on the governance, monitoring, and enforcement capacities of the government agencies involved in monitoring the policy and its conditions. And last but not least, the outcome depends on the political settlement that describes the relative bargaining power of the different organizations affected by the policy. Clearly, the design of any policy is less likely to be wrong if it explicitly identifies the rent allocation conditions required to solve the problem in the different variants of policy design that are possible, and then selects the variant that is most likely to be implemented given the existing political settlement and feasible improvements in governance capacities.

The relevance of policy design can be illustrated with reference to the somewhat simpler contracting failures that can result in environmental externalities. Policy can respond to an externality problem using different instruments, including regulation, taxation, or subsidization. If we ignore the ‘transaction costs’ of monitoring and enforcement, all these instruments are theoretically equivalent. But in reality, the

effectiveness of these policy instruments can vary greatly because the costs of monitoring and enforcement are *not* the same given differences in the organizational structures of countries. For instance, if polluters are relatively weak and can be effectively monitored and taxed, the tax solution may work better than a subsidy solution as the latter typically faces greater problems of financing and monitoring. But if polluting firms are powerful and can successfully obstruct monitoring and enforcement, a tax solution may fail to achieve much, and regulatory or subsidy solutions may work *relatively* better in that context. This is in general why policies that work in one country can often perform much less well or fail entirely in others.

The dramatic success of industrial policies in East Asia largely reflected the ability of these countries to incrementally modify the design of their ambitious policy instruments in the light of experience. None of these countries began with a complete map of what needed to be done. Rather, trial and error resulted in the refinement of rent allocation conditions to achieve productivity-enhancing outcomes because these conditions proved to be implementable and provided greater and greater economic and political benefits to the top leadership. The emergence of effective conditions being imposed on broadly based industrial policy strategies reflected very specific political settlements in these countries, which were fairly untypical in the broader Asian context. The favourable configuration of holding power between the top political leadership, political groups, and factions at the intermediate levels of society and the emerging business sector allowed the evolution and enforcement of tough conditions on domestic firms receiving support (Khan, 2009; Khan and Blankenburg, 2009). The financing provided to the *chaebol* through low interest loans, protected domestic markets, and export subsidies was increasingly made conditional on the

achievement of particular outcomes, for instance meeting export targets. These conditions ensured high levels of effort because the enforcement of the conditions proved to be credible. The state could not only withdraw subsidies from particular *chaebol*; it could also reallocate entire plants from one *chaebol* to another if performance was poor. Not surprisingly, the imposition of these conditions on the *chaebol* created strong compulsions on them to accelerate their productivity growth through the rapid learning of organizational skills and technical capabilities.

Political settlements are effectively exogenous in the short term and cannot easily be changed through policy choices. The favourable political settlements in East Asia were clearly not the result of policy choices of the South Korean or Taiwanese states. Rather, these states inherited favourable configurations of relative power, which were outcomes of their histories and in particular of the social engineering carried out by the Japanese when they occupied these territories in the early part of the twentieth century. However, policy choices did play a role in East Asia. The choices of the East Asian state leaderships that mattered were the introduction of ambitious industrial policies, followed by their discovery that it was relatively easy to modify and refine the conditions associated with rent allocations to achieve productivity-enhancing outcomes.

The South Asian countries also introduced ambitious industrial policies in the 1950s but in the context of very different political settlements. In these conditions it proved to be virtually impossible for policy to evolve in the direction of imposing appropriate conditions on the rent-receiving firms. In the typical South Asian country power within the ruling coalition was much more fragmented, again because of long

historical processes including the nature of the colonial impact in these countries. As a result there were many powerful political organizations at the intermediate levels of society that were competing to capture rents, and these organizations could not always be overridden by the top leadership. When ambitious industrial policies began to create large rents for emerging business organizations, satisficing strategies for protecting rents could be easily implemented because there were many political organizations that could protect the rents of particular businesses in exchange for kickbacks. The result was that here policy could not plausibly evolve in the direction of imposing stricter conditions on rent-receiving firms or threaten to withdraw rents from non-performing firms (Khan, 2000b).

The failure of policy to evolve in these obvious directions in South Asia cannot be explained by the ignorance of bureaucrats and politicians in these countries. This was not just an oversight. The political and bureaucratic elites in these countries were perfectly aware of the problem at a very early stage, but they also knew that policy evolution in the direction of greater effectiveness and the withdrawal of rents from non-performers would not be enforceable. As long ago as the mid-1960s, the Dutt Committee set up by the government of India recognized that the licensing regime that was directing rents to infant industries was primarily helping a small group of large firms who were capturing these rents on their own terms (Government of India, 1969). But the politics of responding to this effectively was not simple. To the extent that responses were attempted, they were often blunt and counterproductive. Thus, in India, one response was Indira Gandhi's Monopolies and Restrictive Trade Practices Act (MRTP) of 1969, which set asset limits on the holdings of large business houses that were thought to have unduly prospered under the licensing regime. The new act

was largely punitive, was not properly enforced and had little effect on actual levels of concentration. Significantly, it did not seek to address the problem of rent management to achieve better outcomes. The state did not try to set new conditions for achieving competitiveness by changing the broad contours of the policy, including the choice of supported sectors and firms, even though the necessity of such changes was explicitly recognized by the Dutt Committee. In other words, the failure to move in the direction of better rent management, at least in India in the 1960s, cannot be attributed to ignorance. However, there may have been missed opportunities of a more complex sort. The political settlement could not be easily changed but policies could have been radically redesigned to be more credible in this context. The problem was that a policy design that allocated significant learning rents *ex ante* to broadly defined sectors made it difficult to exclude large business houses from these rents.

A general feature of the policies that both East Asian and South Asian countries were attempting in the 1960s and 1970s was that much of their rents for learning were allocated *ex ante*, before the firms in question had established their competitive organizational capabilities. These *ex ante* rents were also significant in their scope (in terms of the numbers of sectors and firms supported). Enforcing effective conditions on these financing instruments was clearly beyond the political capacity of the Indian state, and it did not even attempt to move in that direction. However, other financing instruments may have been more successful, and some insights into what may have worked became clearer with the experiences of the 1980s. A change in the design of the financing instrument could in principle ensure high levels of effort in learning even in countries where the political settlements precluded the enforcement of tough conditions on *ex ante* rent recipients. Monitoring requirements could be very different

if the rent was promised to the learning firm *ex post*, and delivered after success was established. The typical patent-based technology rent that creates incentives for innovation becomes available to successful innovators *ex post*. For rents allocated *ex post*, the public monitoring requirements are less demanding and the institutional requirement is mainly to determine the period of *ex post* rent protection, which primarily determines the magnitude of the prize allocated to successful innovators (Khan, 2000a). If rents are only available *ex post*, they can still help to make the financing of innovation or learning more viable, because innovators or firms engaged in learning can offer investors higher returns in the future, thereby getting access to longer periods of financing at a lower up-front cost.

In contrast to Schumpeterian rents, learning rents are typically provided *ex ante* (for instance through tariffs on imports or the provision of low cost credit). Unfortunately, as we have seen, there are demanding monitoring and enforcement requirements with *ex ante* rents if high-effort learning is to be achieved. If instead, the policy instrument allocated some of the rent *ex ante* but reserved significant rents as a prize *ex post*, conditional on the achievement of competitive success, these conditions can help to self-select firms that believed they could make the learning jump as well as creating strong compulsions and incentives for high levels of effort in learning. This is because these firms would be initially investing in the learning itself, in anticipation of a prize *ex post*. In addition, if the *ex post* rents were sufficiently large and credible, firms engaged in learning could also raise financing on viable terms from investors in the same way as innovators aiming for innovation rents can raise money for financing innovations.

In the 1980s a number of sectors in South Asian countries made significant progress in technology adoption and in developing organizational capabilities for competitive production by (serendipitously) adopting *ex post* rent allocation strategies. This period of rapid learning is often mistakenly attributed to ‘liberalization’, even though it is widely recognized in the South Asian literature that liberalization did not happen in any significant way until a decade later. Given their political settlements, the enforcement conditions were now a lot better for these types of strategies, and the results achieved were correspondingly dramatic. Examples include the financing of learning in the Indian automobile and pharmaceutical industries and the Bangladeshi garments and textiles industry (Khan, 2009, 2013a, 2013b). These examples differ significantly in the details of the financing strategies, but a brief look at the Indian automobile industry can provide a broad outline of the very different monitoring and enforcement requirements here.

In the 1980s India’s automobile industry was transformed from a protected sector with limited global competitiveness to a globally competitive sector that made the country one of the leading global automobile exporters in a very short span of time. The transformation began with a partnership between a public sector enterprise and the Japanese company Suzuki, which participated in a joint venture agreement signed in 1982. Suzuki was effectively offered an *ex post* learning rent in the form of access to the protected Indian automobile market, which still had tariffs in the region of 85 per cent. But to be able to sell in this protected market, Suzuki first had to make the Maruti-Suzuki car, which would have to have a high enough quality to carry the Suzuki name and reputation, and it would have to achieve a 60 per cent domestic content within five years. This combination of rewards and conditions meant Suzuki

had to make a significant investment in improving the organizational capabilities of an entire swathe of Indian Tier 1 and Tier 2 component producers to meet the domestic content target and yet produce a car that would be of a quality that could justify the Suzuki brand name. The design of the financing helped to address the contracting failure that would have otherwise constrained investment in learning. It provided Suzuki with significant additional incentives for financing the organizational learning of Indian producers. The significance of the policy design here was that Suzuki's effort no longer had to be monitored by the Indian state, as strong incentives were created for Suzuki to monitor itself and its Tier 1 and 2 partners, simply because it was investing first. The recovery of this investment and of the additional rent required rapid success in building not only the organizational capabilities in its own plant but also in the plants of its supplier chain. The achievement of global organizational capabilities and competitiveness in Indian-owned Tier 1 and 2 companies began in this way, and the Suzuki deal was replicated with other foreign automobile companies throughout the 1980s and 1990s. The result was a rapid growth in the capabilities and competitiveness of these suppliers, which eventually allowed the development of a diversified Indian automobile industry producing globally competitive Indian-branded cars.

Features of the political settlement in India are important for understanding the enforceability of the conditions associated with this industrial policy package. Suzuki as a Japanese company operating in India did not have the political links to renegotiate its contract if it failed to achieve the domestic content requirements that it had signed up to deliver. This was important for imposing credible compulsions on the company to achieve the domestic content agreed upon. The Indian Tier 1 and 2

companies that were getting assistance from Suzuki to build their organizational capabilities were not getting public funds, and these investments (which were effectively rents for learning for the supplier firms) could not be protected indefinitely through any rent-seeking activities of these firms. The only rational strategy for the supplier firms was to cooperate with Suzuki in a high-effort strategy to raise their competitiveness, as that was the only mechanism available for increasing their incomes over time. Thus, an examination of the terms and conditions of the financing strategy, keeping in mind the learning problem that had to be solved and the political context in which the conditions had to be enforced, shows that the unexpectedly rapid success that was achieved was not really surprising after all. While the other sectoral stories that we have referred to are different in detail, in every case these strategies offered part of the rent *ex post* and a combination of financing conditions that generated high effort in the learning process in the context of the political settlements of these countries.

These examples provide important methodological insights, even though the substantive details of how learning was financed and the conditions that were effective are not replicable. Even in India, the precise mechanisms are no longer available because after India joined the WTO, levels of tariff protection became much lower on average and domestic content requirements can no longer be imposed on foreign investors. The point, however, is not about the precise mechanisms of funding and the conditions that were used, but the more general one about the sequence of financing, the allocation of rents, and the credibility or otherwise of the conditions required for high-effort learning given the political settlement. The financing methods and conditions that may be appropriate for financing organizational capability

development in British manufacturing are likely to be different from both the East Asian and South Asian examples. However, the examples of successful and less successful industrial policy strategies demonstrate the importance of thinking through the rent allocation conditions and the feasibility of their enforcement in the relevant political settlement.

The policy discussion about industrial policy options for Britain could usefully look at some aspects of the Asian experience. The issues discussed here pointed to the importance of identifying the most important contracting failures that warrant industrial policy interventions. Surprising as it may seem, this is often not done, and all types of problems are sometimes jointly addressed with the same package of rents and conditions, which then achieves very little. The issue of organizational capability development is particularly important and is likely to be an important constraint for the UK. Addressing this problem requires very specific forms of assistance, with credible conditions that compel high levels of effort. We saw how instruments that were very similar to East Asian ones failed to create broad-based competitive sectors in South Asia but new types of financing instruments were more effective in the 1980s. The *ex post* rents that were used are particularly interesting to examine in detail, though the precise instruments are likely to be radically different in an advanced country context. However, to be effective, policies aiming to develop the competitiveness of firms will in general have to satisfy the dual requirement of creating the opportunity for companies to engage in learning-by-doing as well as creating credible compulsions for high levels of effort in learning organizational capabilities. This requires thinking through mechanisms of financing organizational

learning and conditions attached to that financing that are credible in the context of the contemporary British political settlement.

References

Aghion, P., Bloom, N., Blundell, R., Griffith, R., and Howitt, P. (2002). *Competition and Innovation: An Inverted U Relationship*, The Institute for Fiscal Studies Working Paper No. WP02/04.

Amsden, A. (1989). *Asia's Next Giant: South Korea and Late Industrialization*. Oxford: Oxford University Press.

Dosi, G. (1988). 'The Nature of the Innovative Process', in G. Dosi, C. Freeman, R. Nelson, G. Silverberg, and L. Soete (eds), *Technical Change and Economic Theory*, pp. 221–38. London: Pinter Publishers.

Government of India (1969). *Report of the Industrial Licensing Policy Inquiry Committee (Main Report)*. (Chairman Shri Subimal Dutt). Ministry of Industrial Development: New Delhi.

Greenwald, B. and Stiglitz, J. E. (2006). 'Helping Infant Economies Grow: Foundations of Trade Policies for Developing Countries', *American Economic Review* 96(2), 141–6.

Hausmann, R. and Rodrik, D. (2003). 'Economic Development as Self Discovery', *Journal of Development Economics* 72(2), 603–33.

Khan, M. H. (1995). 'State Failure in Weak States: A Critique of New Institutional Explanations', in J. Harriss, J. Hunter, and C. M. Lewis (eds), *The New Institutional Economics and Third World Development*, pp. 71–86. London: Routledge.

Khan, M. H. (2000a). 'Rents, Efficiency and Growth', in M. H. Khan and K. S. Jomo (eds), *Rents, Rent-Seeking and Economic Development: Theory and Evidence in Asia*, pp. 21–69. Cambridge: Cambridge University Press.

Khan, M. H. (2000b). 'Rent-Seeking as Process', in M. H. Khan and K. S. Jomo (eds), *Rents, Rent-Seeking and Economic Development: Theory and Evidence in Asia*, pp. 70–144. Cambridge: Cambridge University Press.

Khan, M. H. (2009). *Learning, Technology Acquisition and Governance Challenges in Developing Countries*. Research Paper Series on Governance for Growth. School of Oriental and African Studies, University of London: London, <<https://eprints.soas.ac.uk/9967>>.

Khan, M. H. (2010). *Political Settlements and the Governance of Growth-Enhancing Institutions*. Research Paper Series on Governance for Growth. School of Oriental and African Studies, University of London: London, <<http://eprints.soas.ac.uk/9968>>.

Khan, M. H. (2013a). 'Technology Policies and Learning with Imperfect Governance', in J. Stiglitz and J. Y. Lin (eds), *The Industrial Policy Revolution I: The Role of Government Beyond Ideology*, pp. 79–115. London: Palgrave.

Khan, M. H. (2013b). *The Political Settlement, Growth and Technical Progress in Bangladesh*, Danish Institute for International Studies, Copenhagen, DIIS Working Paper No. 2013:01, <<http://eprints.soas.ac.uk/13049>>.

Khan, M. H. and Blankenburg, S. (2009). 'The Political Economy of Industrial Policy in Asia and Latin America', in G. Dosi, M. Cimoli, and J. E. Stiglitz (eds), *Industrial Policy and Development: The Political Economy of Capabilities Accumulation*, pp. 336–77. Oxford: Oxford University Press.

Krueger, A. O. (1990). 'Government Failures in Development', *Journal of Economic Perspectives* 4(3), 9–23.

Murphy, K. M., Shleifer, A., and Vishny, R. W. (1989). 'Industrialization and the Big Push', *Journal of Political Economy* 97(5), 1003–26.

Nurkse, R. (1953). *Problems of Capital Formation in Underdeveloped Countries*. Oxford: Oxford University Press.

Pelikan, P. (1988). 'Can the Innovation System of Capitalism be Outperformed?', in G. Dosi, C. Freeman, R. R. Nelson, G. Silverberg, and L. Soete (eds), *Technical Change and Economic Theory*, pp. 370–97. London: Pinter Publishers.

Qian, Y. (2003). 'How Reform Worked in China', in D. Rodrik (ed.), *In Search of Prosperity: Analytical Narratives on Economic Growth*, pp. 297–333. Princeton NJ: Princeton University Press.

Qian, Y. and Weingast, B. R. (1997). 'Institutions, State Activism, and Economic Development: A Comparison of State-Owned and Township-Village Enterprises in China', in M. Aoki, H.-K. Kim, and M. Okuno-Fujiwara (eds), *The Role of Government in East Asian Economic Development: Comparative Institutional Analysis*, pp. 254–75. Oxford: Clarendon Press.

Rosenstein-Rodan, P. N. (1943). 'Problems of Industrialisation of Eastern and South-Eastern Europe', *The Economic Journal* 53(210/211), 202–11.

Scitovsky, T. (1954). 'Two Concepts of External Economies', *Journal of Political Economy* 62(2), 143–51.

Simon, H. (1956). 'Rational Choice and the Structure of the Environment', *Psychological Review* 63(2), 129–38.

Simon, H. (1983). *Reasons in Human Behavior*. Oxford: Basil Blackwell.

Stiglitz, J. E. (1995). 'Social Absorption Capability and Innovation', in B. H. Koo and D. H. Perkins (eds), *Social Capability and Long-Term Economic Growth*, pp. 48–81. London: Macmillan St. Martin's Press.

Stiglitz, J. E. (2007). *Making Globalization Work*. London: Penguin.

Wade, R. (1988). 'The Role of Government in Overcoming Market Failure: Taiwan, Republic of Korea and Japan', in H. Hughes (ed.), *Achieving Industrialization in East Asia*, pp. 129–63. Cambridge: Cambridge University Press.

Wade, R. (1990). *Governing the Market: Economic Theory and the Role of Government in East Asian Industrialization*. Princeton: Princeton University Press.

Whitley, R. (1992). *Business Systems in East Asia: Firms, Markets and Societies*. London: Sage.

Williamson, O. E. (1985). *The Economic Institutions of Capitalism*. New York: Free Press.

World Bank (1993). *The East Asian Miracle: Economic Growth and Public Policy*. Oxford University Press: Oxford.