Chapter 4
On the Question of Industrial Policy

This chapter discusses why an industrial policy may be an important component of any industrialisation strategy. Section I discusses the various ways in which the term industrial policy has been used and defines the sense in which it is being used in the present discussion. Section II discusses why markets may fail as ex ante coordination mechanisms, and therefore, the necessity of an industrial policy. Section III analyses industrial policy in the context of technological accumulation and looks at the related issue of infant industry protection. Section IV, which is sub-divided into two subsections, argues that an industrial policy is of particular relevance to economies undergoing a transition. Section IV.i deals with industrial policy as a mechanism for overcoming uncertainty related problems and why private property rights may be an inadequate institutional mechanism to cope with these. Section IV.ii discusses the need for an industrial policy in the specific context of the macroeconomic impact of stabilisation and structural adjustment programmes. Finally, Section V situates the issue of industrial policy in the context of the nature of the state and its relationship with industrial and financial capital. This section is merely meant to flag important issues which arise in the context of an effective industrial policy, with a more detailed discussion being kept for later chapters.

I. Industrial policy: origins and meaning

The foregoing analysis of technology and government failure paves the way for a discussion of state intervention in actively directing the trajectory of economic growth. One of the most contentious areas of state intervention has been the use of industrial policy, both in the context of developed and developing countries. At the heart of the industrial policy debate has been the importance of the manufacturing sector in the growth process.

From a developing economy point of view, the importance of the manufacturing sector was brought centrestage when Prebisch (1950) and Singer (1950) put forward the hypothesis of secularly declining international terms of trade faced by most of these economies on account of the fact that primary commodities constituted the bulk of their exports. Somewhat simply put, the Prebisch-Singer hypothesis argued that developing economies, faced with high income elasticity of demand for
imports and low income elasticity of demand for their exports, would eventually have their rate of growth of GDP constrained by a lack of foreign exchange.

One way out of this trap was to develop an indigenous manufacturing sector, sheltered behind tariff walls if necessary, so that domestic production could substitute for imports, and eventually the economies could diversify away from primary commodities to manufactured goods exports. Prebisch (1980) himself was very clear that the reason for substituting for imports lay not just in the inequity of international trade but also because manufacturing production was characterised by externalities, lending it a central role in the developmental process. Therefore, in Prebisch's view, industrialisation was an unavoidable prerequisite for development. Thus the strategy of import substituting industrialisation was born. The manufacturing sector was to be nurtured through a proactive trade policy, which in turn was to be a part of an overall industrial policy where particular segments of industry were earmarked for preferential treatment (e.g. access to subsidised credit or foreign exchange) or sometimes explicitly reserved for the state. It is important to note that the focus was on generalised industrial protection rather than selective industrial protection where specific segments within industry were targeted.

In the context of this discussion what is important to note is that industrial policy was seen as an essential tool for creating a vibrant and diversified manufacturing sector (as in, including elements of consumer, intermediate and capital goods in its structure) without which the economy would stagnate at a low level equilibrium. That is, an industrial policy, by building up a manufacturing sector, was seen not only as counteracting the perverse dynamics of the market (reversing the secular decline in terms of trade) but also getting around the market failure problem which was seen to characterise developing economies.

The coming of the Reagan-Thatcher era; the Latin American debt debacle; the rise to

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1 The Prebisch-Singer hypothesis gave the policy of import substituting industrialisation a theoretical rationale and coherence. It is in this sense that a strategy was born. As a matter of practical policy, import substitution was used by most Latin American economies in the 1930s, in the wake of debt default, the Great Depression and the chaos in international currency arrangements. But import substitution then was driven more by necessity rather than as a part of some conscious developmental strategy.
dominance of neoliberal economics; as well as the fact that growth in some economies using import substitution as a development strategy had stagnated; meant that in mainstream academia and multilateral lending agencies, import substituting industrialisation as a strategy for development (with its dirigiste state) was replaced in favour of more market friendly policies with a minimalist state. Industrial policy, because it was seen to interfere with the working of the market, was also consequently discredited². Paradoxically enough, in the 1980s the industrial policy debate resurfaced, but this time in the context of developed economies.

This debate was sparked off by observations that industrial policy has played a major role in Japan's successful restructuring from a low-wage, low-skill economy to a high-wage high-skill economy [see Magaziner and Hout (1980); Johnson (1984)]. The role of industrial policy in the successful restructuring of the Japanese manufacturing sector took on added significance because around the late 1970s and early 1980s, developed economies were restructuring towards becoming service-oriented economies - services accounted for the bulk of the GDP and the share of manufacturing (at current prices) was declining. This lead to fears of 'hollowing out' and deindustrialisation. It was in this context that industrial policy was discussed as means of halting or reversing this process.

Proponents [e.g. Cohen and Zysman (1987)] of industrial policy argued that the declining share of manufacturing in output and employment was a symptom of industrial decline and would ultimately affect the competitiveness of the economies in question. Those who argued against the use of industrial policy [e.g. Bhagwati (1988)] suggested that the shift towards service-oriented

² As has been pointed out earlier, most neoliberal economists refused to accept the fact that industrial policy has a major role to play in the success stories of E. Asia. In fact industrial policy and import substitution were implicitly made synonymous so that hosannas could be sung of export oriented growth and the market. The recent World Bank study on East Asian industrialisation is interesting in this regard. The study is interesting because it is an attempt by the World Bank to take on board the fact that there was extensive state intervention in these economies [see World Bank (1993)]. The study argues that the intervention of the state through industrial policy was limited and for the rest, it did what the markets would in any case have done. But as Singh (1994) has argued, this assessment by the World Bank rests on a very narrow definition of industry policy, which furthermore assesses the effectiveness of constituent parts of the policy rather than view it as an organic whole and assess it on that basis. For a critical analysis of other aspects of this study see Amsden (1994).
economies was the logical culmination of a market dictated growth process, where demand for services increases with rising levels of per capita income\(^3\). To try and change this outcome would be to interfere with the natural working of market forces and hence lead to a misallocation of resources.

Rowthorn and Wells (1987) suggested that both proponents of the deindustrialisation hypothesis and those who argued against it may have missed the point. First, the rising share of services in the national income had less to do with changing demand patterns and more to do with lagging productivity growth in the service sector, which meant that cost inflation in services (relative to the manufacturing sector) was higher. Second, if by deindustrialisation is meant a fall in manufacturing's share of total employment and of total output (measured at current prices), then this was an inevitable consequence of the differential productivity growth rates mentioned earlier and was not necessarily a sign of industrial decline. They however suggested that manufacturing was important in as much as services were largely non-tradeable or had a large non-tradeable component, and hence as the share of services in national income rose, compensating increases in manufacturing productivity were required if national income levels were to be maintained without running up against balance-of-payments problems. Industrial policy was therefore seen as an efficient and effective means of maintaining and raising the productivity levels of the manufacturing sector.

It should be noted, however, that the notions of industrial policy used in the two formulations cited above are quite different. Whereas in the Prebisch-Singer schema, industrial policy was meant for the manufacturing sector as a whole, that is, it was a generalised industrial policy, in the latter case the use of industrial policy is far more specific, with particular industries or firms\(^4\) being targeted. This comes from the explicit focus on raising productivity levels. Therefore, firms or industries to be

\(^3\) Rising levels of per capita income would positively affect the demand for consumer services. As the division of labour in the economy increased, producer services would be positively affected as activities which were performed by in-house departments of a firm (e.g. financial auditing) now get sub-contracted out.

\(^4\) If within an industry, the leverage of the state across firms varies (say, the banking industry is state-owned and some firms borrow from banks while others do not) and the state uses this leverage to implement industrial policy then it is important to make an analytical distinction between an industry and firms within it. Also if technological accumulation is firm-specific then it becomes important to make this distinction.
nurtured are those with the potential of raising (their) levels of productivity (what is called the policy of picking winners') or those which need to be rationalised (where too many firms may have entered, given the size of the market or are 'sunset' industries)\(^5\).

As the above makes clear, the term industrial policy is used in many different senses and it would be useful to define the sense in which it is being used here. At the outset it should be pointed out that industrial policy does not form a part of macroeconomic policy. To put it differently, it seeks to change (not in an \textit{ad hoc} manner, but in line with some clearly enunciated national objectives) the behaviour of firms and industries, a behaviour which in the first place is parametrised by a given set of macroeconomic policies. To give an example, if in a situation of a tight credit policy, firms or industries are given access to subsidised credit, it would be construed as an instance of industrial policy. Part of the confusion in the literature stems from the fact that observers tend to conflate the two and then go on to judge the impact of the policy in terms of variables which should not have been there in the first instance.

Even a normally careful observer like Johnson (1984) falls prey to this. In an otherwise lucid definition of industrial policy ("a summary term for activities of governments that are intended to develop or retrench various industries in the national economy in order to maintain global competitiveness")\(^6\), he includes macroeconomic policies like government incentives for private saving.

\(^5\) The policy of rationalisation here refers to output adjustments which firms may be forced to undertake. This may on occasion include state-induced exit, but is much broader than that. For example, a state-organised recession cartel or a state-monitored scrapping of capacity would fall under the ambit of rationalisation policies. This will be studied in greater detail in Section II below.

\(^6\) It is important to point out, though, that the notion of competitiveness needs to be handled with care. That is to say, whereas it makes sense to use the concept at the level of the firm, its use at the economy-wide level is far more dubious, and comes uncomfortably close to being mercantilist. For firms competing for the same market, growth may be a zero-sum game. But, as Ricardo pointed out, at the level of economies it is comparative advantage that drives trade and that trade could be a win-win proposition. Admittedly one has moved away from Ricardo's static world and it is now accepted that dynamic rather than static advantages are important in the context of growth. And when governments use industrial policy to affect the competitiveness and efficiency of firms it is dynamic comparative advantage of an economy which is being changed with consequent effects on growth. Which is why terms such as "global competitiveness" or "the competitive advantage of nations" (a la Porter) can be misleading.
etc. Chang (1991), whose definition is the one to be followed here, essentially builds on Johnson's definition but adds an element which helps focus it better. He defines it as any policy aimed to affect particular industries to achieve outcomes which are perceived by the state to be efficient for the economy as a whole. He also suggests that should there be a clash between the efficiency objective of the industry or the profitability objective of the firm and that of the national economy, it is the latter's interest which will dominate.\footnote{The sticking point in negotiations between the US and Japan during 1995 on the lowering of Japanese non-tariff barriers to imports is an excellent example of this. The stumbling block was Motorola's complaint that its Japanese collaborator was not doing enough to create a market for Motorola's mobile telephone. The Japanese position was that the matter was a private issue involving Motorola and its collaborator and the Japanese government was powerless to influence the actions of the firm in question. In reality, what had happened was the in the prior round of negotiations, after considerable US pressure was brought to bear to open up the mobile telephone market, the Japanese government arm-twisted the firm in question to sign a collaboration with Motorola. The Japanese firm already had in existing agreement with NTT to market the latter's mobile phones and not surprisingly chose to favour NTT over Motorola. This is only the latest but by no means an isolated instance. MITI has in the past, in many instances, been known to 'persuade' firms to accept unattractive collaboration agreements because it helps MITI achieve some broader goal.}

Chang's definition highlights the fact that for industrial policy to be successful, not only must the state have a clearly defined 'objective function' which it seeks to pursue, but also that it must have the required leverage to ensure that, in the case of a conflict of interest, it is the state's objectives (on the balance)\footnote{There certainly would be instances when the state may be unable to push through its agenda. For example the MITI's celebrated (it is quoted by everybody who argues against the effectiveness of Japanese industrial policy) failure in restructuring the Japanese automobile industry because of non-cooperation of the industry. Or, again MITI's inability to rationalise the textile industry. Though, in this instance, it should be pointed out that this was due, not to the industry's obdurateness but to flawed policy design and intractable politics [see Dore (1986)].} which dominate. This immediately brings to the fore questions about the nature of the state. More specifically, the issue of leverage will be determined by the relationship between industrial capital, financial capital and the state. It would seem that the most crucial element in exercising this leverage is the nature of the state's control over financial capital.\footnote{In pointing out the criticality of the control of financial capital in exercising leverage, it is important to point out that one is in the realm of necessary and not sufficient conditions. The political economy, as opposed to the economics, of industrial change and restructuring is a complex interplay of institutional and conjunctural factors and it would be foolhardy to try and predict...}
much greater detail when financial liberalisation and related issues are discussed. Here it suffices to note that the question of leverage cannot be studied without understanding the relationships mentioned above.10

II. Industrial policy as a coordinating mechanism

In the way that it has been set out above, industrial policy, among other things, becomes a mechanism for affecting firm-level entry and exit choices. In other words, it functions as an ex ante coordination mechanism. But why does ex ante coordination become necessary? In the real world ex ante coordination becomes necessary because in a variety of instances firm-level actions are interdependent. That is, firm-level actions and strategies are not only constrained by market structures and technologies chosen, but these choices also impinge upon other firms in the industry.

Neoclassical theory of the firm assumes away the problem by looking at perfectly competitive markets where firms use diminishing returns to scale technology. Perfectly competitive markets mean that no one firm's actions affect other firms in the industry. The assumption of diminishing returns to scale ensures that, in the long run, both industry output and number of firm in an industry are determinable. It is now accepted, even within mainstream economic theory, that even with constant returns to scale technology, let alone increasing returns, the issue of interdependence cannot be wished away. Industrial organisation theory was born partly out of dissatisfaction with this largely unrealistic theoretical paradigm and takes on board the impact of different market structures and outcomes. For example the Indian state's control over the financial sector was as complete as that of S. Korea's, yet the latter has been far more successful in running an effective industrial policy. On the other hand, without the control of financial capital and the leverage exerted thereby, effective industrial policy, in all likelihood, would have been a non-starter.

10 Some observers tend to confuse the issue of leverage with that of the 'soft' versus the 'hard' state. Whereas the East Asian NICs have been hard states, a hard state is neither a necessary nor a sufficient condition for the success of industrial policy. This is substantiated by the fact that neither Japan nor France, both of whom used industrial policies with some measure of success, qualify as hard states (Japan may culturally be a highly regimented society, but that does not make it a hard state). In Japan, in fact even though the financial sector is privately owned and therefore not under the direct control of the state, the state effectively used credit policy and the control over the market for financial instruments to ensure that credit was allocated along lines desired by it [see Zysman (1985)]. The ability of the state to control financial capital will be studied in greater detail below.
technologies on firm-level strategies. But in doing so, the theory also recognises that neither entry nor exit is automatic [for example, see the discussion on entry deterrence in Tirole (1988)]

In a world where firm-level decisions are interdependent and entry and exit are not automatic, the market adjustment process loses an important regulatory mechanism. In theory it is the ease of entry and exit which allows firm to respond to changes in relative prices and if this mechanism does not work then the market's claim to allocative efficiency is open to question. But if entry and exit are not automatic what does happen? If entry deterrence is successful then the market structure would

11 It is perhaps worthwhile quoting Tirole (1988) on this. After a discussion of the impact of asymmetric information and capital market imperfections on firm-level strategies, he notes: "[l]ed many economists to reject the simplistic "Chicago view" of the world that price cuts are always natural responses to cost and demand shocks or to increased competitive pressure.

An established firm has the incentive to manipulate the information possessed by prospective entrants or established firms in each of its markets. Although there are exceptions, a sensible strategy is to charge low prices to deter entry or induce exit, and to charge high prices to promote collusion when accommodating entry.

[T]he welfare analysis of this manipulation of rivals information is ambiguous. [T]he "long purse" story relies on financial imperfection...states that insufficient retained earnings, stemming in part from rivals' predatory behaviour, may prevent young and financially constrained firms from expanding or renewing their equipment. Furthermore, the prospect of tough entry barriers from established firms may reduce entry. The welfare consequences of capital market imperfections in oligopoly may be serious"[p 380]

It is worth noting that not only may entry and exit not be automatic, when entry or exit does take place its efficiency consequences may remain ambiguous (e.g., when exit is induced by manipulating information).

12 Actually, entry and exit of firms is not necessary for an efficient response to relative price changes, if resources move between industries (and sectors) in response to these signals. But eventually, resource shifts should lead to changes in industry composition unless one assumes (somewhat unrealistically) infinite elasticity of firm size to changes in the size of the market, i.e., the infinite capability of firms to grow or shrink as market size changes.

13 It should be pointed out that, at least in theory, successful entry deterrence by itself need not have negative efficiency consequences. Baumol, Panzar and Willig (1982) postulated a theory of contestable markets, where the mere threat of entry is enough to discipline incumbent firms.

A market is contestable if a monopolist is forced to produce on its average cost curve. Then, assuming costless entry and exit and perfect information, entry would not take place because it would not be profitable to produce below the industry price. On the other hand, the monopolist would not charge a price higher than average variable cost because this would allow a firm to enter and make positive profits.
be (or remain) imperfect with ambiguous results for allocative efficiency. On the other hand, if entry is possible then it may lead to wars of attrition before exit takes place\textsuperscript{14}. Not only are price wars wasteful ways of settling the issue of which firm(s) remains in the industry, but also notice that in a world where not only capital but increasingly labour is incompletely fungible, exit would necessarily entail waste of resources.

In sum, then, reliance on market competition as a regulatory mechanism may lead to situations where resources are both inefficiently and wastefully used. This then provides the rationale for the use of industrial policy as an \textit{ex ante} coordinating mechanism.

Not only can industrial policy, functioning as a mechanism of \textit{ex ante} coordination, minimise waste (from a societal point of view) arising due to excessive competition\textsuperscript{15}, but under certain conditions, it could also function as a mechanism for investment coordination. Notice that in an industry characterised by increasing returns to scale there is a very high probability of over investment (say firms believe that they have the required staying power to last out a price war) or underinvestment (say firms believe that too many firms will enter and hence stay out). In such instances licensing of entry and regulation of capacity could be used as coordination devices. The Japanese used licensing and capacity regulation extensively as a coordination device, e.g. in steel, vinyl chloride, synthetic fibers, pulp, paper, cement, petroleum, petro-chemicals, cars, machine tools

Besides uncomfortable assumptions like costless entry and perfect information, a major lacuna in these kind of models is that for the incumbent, price is frozen, i.e. price cannot be used as a strategic variable in case entry occurs. This makes the theory of limited usefulness.

\textsuperscript{14} It has been argued in the literature that wars of attrition may not be such a bad thing after all. Borrowing the concept of "evolutionary stable strategies" which was developed by Maynard Smith (1982) to explain the Darwinian notion of the survival of the fittest in the evolution of species, it is suggested that it is possible to look at the interaction of firms within imperfect market structures in a similar light. The market then becomes the natural selection mechanism for the most efficient (fittest) firm. As Tirole (1988) notes, this by itself is not sufficient to guarantee efficiency, as firms may leave far too slowly or much too fast from the welfare point of view. More importantly, if the long purse kind of scenario obtains, there is little reason to, \textit{a priori}, assume that it is the inefficient firm which is financially constrained. If that is not the case, then the end of this expensive war may result in the efficient firm exiting.

\textsuperscript{15} Policy makers in many late industrialisers seem to have been cognisant of this problem (see Section II.ii, Chapter 3).
and some branches of electronics [see Dore (1986); (1986)].

Ex ante coordination by the state has been extensively used by a large number of late industrialisers to help domestic firms cope with downturns in demand or adverse supply shocks. These output adjustment strategies have ranged from production cutbacks in the face of temporary demand shocks to capacity scrapping, exits and mergers and in some instances a swapping of markets in response to more permanent changes in output. The use of these various mechanisms of output adjustment has depended, inter alia, on the nature of the shock which is being responded to and industry- and firm-level characteristics. The following briefly discusses some of these mechanisms.

Whereas, in the face of a temporary demand downturn, from the point of view of an industry as a whole it makes sense to limit production, individual firms may have little incentive to do so because of the ubiquitous collective action problem. The temptation then would be to try and protect market share by cutting prices. The classic prisoners dilemma problem where non-cooperation leaves all players decidedly worse off. Again, as Dore (1986) points out, the Japanese used state-led recession cartels in all manner of industries, rather than using prices as the adjustment variable. That is, in response to a temporary demand shock, it was output which bore the brunt of adjustment, with the involvement of the state helping overcome the free-rider problem.

In the face of a more permanent demand downturn (e.g., in the case of sunset industries) the costs of recession cartels (deadweight losses of transferring consumer surplus to producers and of unused capacity) begins to outweigh benefits from avoidance of internecine competition. Ex ante coordination then allows for adjustment by orderly exit or capacity scrapping rather than use some variant of the survival of the fittest strategy (see fn.14 for an explanation) with its somewhat dubious benefits.16

Firms (in conjunction with the state as a facilitator, for example to overcome collective action problems) can and have used a variety of strategies to make orderly transitions when faced with

16 Notice that whatever be the adjustment mechanism being used, either ex ante or market led, a firm which has consciously mastered its core technology (see Section III, Chapter 2 for a discussion on the notion of core technology) would have an additional degree of freedom in adjusting, as in switching into a new activity would be simpler. For example, in Japan some firms in the brewing and food processing industries moved into bio-technology when faced with a demand downturn.
permanent demand downturns. These include exits, mergers, capacity scrapping, swapping of markets (or of segments within the same market). In the case of the Japanese textile industry, the state oversaw the rationalisation of industry composition with a mechanism of direct compensation (from producers who remained in the industry) and some subsidy [see Dore (1986a)]. The French used state-induced mergers as a rationalisation strategy extensively, for example, in steel, textiles and chemicals [Zysman (1985); Hall (1987)]17.

In South Korea, where chaebols with stakes in multiple markets are important players, industry rationalisation, on occasion, took the form of swapping markets, both, between products within an industry as well as between products across industries. For example, the state forced Daewoo to quit the diesel engine industry and specialise in some segment of the electronic switching system industry, in return for being allowed to stay in the passenger car industry. Similarly, Hyundai was prevailed upon to exit from diesel engines and heavy electrical machinery and was allowed to remain in the passenger car industry as a quid pro quo [see Chang (1991)]. The South Koreans also used a strategy of getting firms to specialise in different segments of a market. In the early 1990s,

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17 The extensive use of mergers as a rationalisation strategy by the French state (in comparison with the S. Korean or the Japanese) points to the role which history (or what economists are fond of calling the initial endowment) plays in dictating the choice of instrument. Compared with her European or US counterparts, France after World War II started out with a much smaller average firm size. Beyond a point the smallness of a firm put fetters on productivity growth and efficiency (due to both organisational and technological reasons). The French could have opted for a market driven rationalisation strategy by opening up the economy to foreign competition and run the risk of not only adverse employment consequences, but also of domestic firms being wiped out from significant segments of French industry. An excellent example of how the French state nurtured an industry to being globally competitive, is automobiles, leading to such players as Renault and Peugeot. The British, who chose the market-led route ultimately ensured the demise of the domestic automobile industry [see Reich (1989)]. Of course, it may be argued that the ownership (domestic or foreign) is not important but efficiency is. But medium term growth prospects of an economy are critically dependent upon the nature of the coalition the state knits together, and in this scenario domestic firms (whose existence in a substantive sense is contingent upon the existence of the nation state) would be far more amenable to being a part of a national economic agenda than multinational firms. Furthermore, as has been demonstrated time and time again, it is possible to induce firms to be competitive without recourse to laissez faire policies. Consequently, a recurrent theme through French industrial policy has been the -transformation of the industrial structure from one populated by a large number of small firms to one where the modal firm is large and modern [see Zysman (1985)].
faced with serious problems of over capacity, incumbent firms in the electronic switching industry were forced to specialise in different products [see Chang (1991)].

It is not the case that exit and mergers are the only strategies used to rationalise industry structure. The Japanese used the negotiated capacity scrapping mechanism quite extensively, where no firm exits but all firms in an industry cut capacity.\(^\text{18}\) For example, it was used in aluminum, textiles, ship building and steel [see Dore (1986); (1986)]. In Japanese shipbuilding, to take a specific example, there was disagreement not only among firms (the larger firms thought that the smaller ones should quit and the latter felt that the former should take the entire burden of capacity cuts) but also among bureaucrats as to what the best strategy would be. Ultimately, it was decided that no exit would take place but all firms would cut capacity. Capacity reduction was graduated between forty per cent for the seven largest firms and fifteen per cent for the twenty one smallest firms.

An interesting variant of the capacity reduction strategy is that of 'mothballing', where equipment is not scrapped but decommissioned, allowing firms to bring them back into use should demand conditions change. Mothballing is, of course, an expensive strategy but less drastic than capacity cutting and allows firms some flexibility when the nature of a demand downturn is uncertain. Also it is superior to a production cutback strategy under a cartel like arrangement, because mothballing has a precommitment value which does away with the free rider problem associated with production cutbacks. The Koreans and the Japanese used this, for example in the Japanese aluminum smelting industry [see Dore (1986)].

III. Industrial policy in the context of technological accumulation and learning

\(^{18}\) Notice that in an industry characterised by firms of various sizes and different vintages of capital, negotiating exit (even when side payments from firms which remain or from the government are thrown in) may be difficult. In such a situation the state may find it simpler to push through a capacity cutting agreement instead. There is probably another reason why capacity scrapping may be a more superior adjustment mechanism. In the dynamic context of growth where the ability of firms to innovate and adapt is critical, diversity in industry composition probably gives an economy more flexibility, as in firms of different sizes may specialise in different capabilities all of which are useful in the context of growth (analogous to role of diversity in species in the Darwinian theory of biological evolution which is \textit{au courant} in industrial organisation theory today).
Thus far, the discussion on industrial policy and its necessity has taken place in the static context of an efficient use of a given amount of resources. Perhaps equally, if not more, important is its necessity in the dynamic context of growth and changing comparative advantage. Central to both growth and dynamic comparative advantage is the acquisition, absorption and ultimately the production of newer and more superior technology\(^\text{19}\).

Recall the fairly detailed discussion in Chapter 2 on nature of technical change and in that context, the centrality of technological capabilities and technological learning (both of the latter two terms have specific meanings which have been defined in the Chapter 2) to the growth process. The nub of that discussion was as follows. First, technological learning (and hence the accumulation of technological capabilities) is an incremental process, as well as being firm-and industry-specific. Second, firms do not learn across diverse technological and organisational dimensions and learning tends to be path-dependent (as in past actions influence current learning). Hence, technological capabilities to not change rapidly. Third, given the nature of technological learning, it can no longer be considered an adjunct of the production process and needs to be explicitly targeted and invested in. Fourth, technological learning is characterised by appropriability problems, making underinvestment in it highly probable. Fifth, factor endowment induced relative price changes are not the only determinants of technical change. Technical change is also influenced by and responds to the nature of investment at the macro level and the development of core technologies\(^\text{20}\) at the level of the firm.

Sixth, in the current global context, increasing specialisation and vertical disintegration has meant that the interaction between production capability and technological accumulation (which was characteristic of the early industrialisers) has broken down. Finally, even though the international

\(^{19}\) It should be noted that in giving centrality to acquisition and adaptation of technology, demand patterns associated with a particular technology need not also be acquired or adopted. The nature of final demand in an economy is determined by a complex interplay of a number of forces, but is in the final analysis amenable to being shaped and it is the nature of final demand which determines the use of any particular technology. But whatever be the use of particular technologies their upgradation is central to both growth and competitiveness.

\(^{20}\) Core technology has been defined in Section III, Chapter 2.
market for technology is today a buyers market, technology itself has become so complex that acquiring and internalising it has become very difficult. In most successful cases, far more important than FDI as a route for technology transfer has been reverse engineering and imitative research, both of which are predicated upon reasonably sophisticated technological capabilities. Even in the context of maximising the full potential of FDI related technology transfer, reasonably sophisticated indigenous technological capabilities are a necessary condition.

The above highly condensed story about technical change and technological accumulation essentially points to one thing i.e., technological progress is not about a smooth, linear, monotonic relationship between firms and relative prices. The nature of learning itself introduces rigidities at the level of the firm, not only in terms of time and resources expended but also in terms of the range of activities across which a firm can learn. These introduce path-dependence. Macroeconomic policy by changing the implicit cost of acquiring technological capabilities may aid or hinder the process. Leaving aside the world of relative scarcities and comparative advantage as signalling devices, with deliberate, conscious and cooperative effort it is possible to change technological trajectories. But given the 'bounded rationality' of firm (to borrow Simon's phrase coined in the context of human agents), the nature of the learning process and the associated problems of uncertainty and appropriability, this conscious, cooperative activity needs the state not only to coordinate but also to underwrite (or perhaps socialise is a better word) some of the risk involved. And in the context of today's developing countries, the sheer rapidity of technological change (both in scale and complexity) over the last half-a-century has meant that they are relatively more skill- and capital-scarce than the early set of late industrialisers (e.g., Germany), making the catching up process that much more difficult.

The above then forms the rationale for industrial policy in the dynamic context of growth. It is a recognition on the part of the state that real world economies and the behaviour of agents within them have inherent rigidities and imperfections. Industrial policy then provides the context and the environment within which new firms (and through them new activities) can be nurtured and existing firms be allowed to change track, while at the same time economising on the wastes of competition, which would be the alternative route to achieving this end. Successful industrial policy then performs
two broad tasks. First, it provides a flexibility to firm-level responses to exogenous changes. Second, it provides the stability of environment within which to work through the results of changes endogenous to the firm. This is of critical importance especially when the catching up process itself has to be shortened (partly as a response to rapid technological change).

Some aspects of the desirability, indeed the necessity, of the state underwriting the costs of technological learning has been addressed in the literature as the 'infant industry' argument for protection of industries which have the potential for dynamic learning effects. The argument has a distinguished lineage, having been first made in the eighteenth [Hamilton (1791)] and nineteenth century [List (1841); Mill (1848)]. It has been subsequently reworked and refined considerably as a part of modern mainstream economics [see for example, Viner (1937); Corden (1974), (1984)]. The best known variant of the infant industry argument is one where learning effects are external to the firm but internal to the industry leading to possibilities of underinvestment in such an industry. In such a situation, mainstream economics allows for production subsidies (as the first-best) or protective tariffs (as the second-best option) for developing such industries.21

According to Corden (1984), dynamic learning effects internal to the firm (the sort that has been the focus of much of the preceding discussion on technology) do not create any problems if one assumes perfect capital markets.22 That is to say, raising the resources required to fund investment necessary to capture these dynamic learning effects would not be a problem. But if capital markets

21 The argument, for a complete statement, would need to be qualified in terms of the period over which protection is to be granted (i.e., it cannot be infinite). Additionally, the present value of expected benefits must equal the cost of protection. The above would merely delimit the scope but does not affect the essence of the argument.

22 Implicit in the argument that learning effects internal to the firm do not create appropriability problems is the assumption that all learning is either embodied (e.g., improved equipment) or codifiable. But if learning is either disembodied or tacit, then even when learning effects are internal to the firm, appropriability problems may remain, leading to underinvestment. Not only is there an incentive problem for firms, but if the skill or knowledge in question is firm-specific (that is, not replicable outside the firm), then workers may have little incentive to invest in the upgrading of skills. One way out of this problem is for capital (or rather the owner of) and labour to enter into implicit long term contracts (e.g., life time employment). In which case, however, the market as a disciplining device (which is what the market-related efficiency argument essentially is) loses much of its teeth (at least in the short run).
are imperfect (say because investment in learning produces intangibles which are difficult to price and hence the market is biased against them or say investors are myopic\textsuperscript{23}) then even when learning is internal to the firm, sufficient investment may not take place, necessitating some kind of state intervention. Corden (1984) then argues that the best strategy would be to intervene in the capital market and try to remove some of these imperfections, failing which he suggests a hierarchy of subsidies and tariffs.

Apropos the kinds of issues which Corden (1984) raises there are two points to be noted. First, improving capital markets to take account of the kinds of imperfections pointed out above will mean essentially some mechanism of socialization of risk and therefore would require state control (at least \textit{de facto}) over financial flows, if not markets. Second, as pointed out above, the distinction between externalities which are internal and those which are external to the firm in terms of ease of appropriability is not well founded. That is, with both kinds of externalities the problem of underinvestment due to the lack of appropriability can surface. If this be correct, then intervening in the capital market while necessary would clearly not be sufficient. The above essentially broadens the scope of the infant industry argument.

But there is a crucial difference between the two which should be kept in mind when formulating a policy of protection. When learning effects are internal to the firm, it becomes important that policy formulation should target the firm as a decision making unit. That is, in such a situation industry level protection (such as a protective tariffs or subsidies) may not be enough to achieve the desired result - i.e., the firm (or the entrepreneur) actually undertakes technological accumulation [see Baldwin (1969)]. In these circumstances, what would be required is direct and selective targeting of protection to firms of the kind that has been discussed above in the nature and definition of industrial policy.

But the infant industry argument, even with the broadened interpretation which has been used here, captures but only one aspect of the problems which firms and industries face in coping with change. As has been mentioned earlier, but is worth emphasizing, both in the static and dynamic

\textsuperscript{23} Note that both the examples cited have nothing to do with underdeveloped capital markets, such as those which characterise developing economies and are said to constrain saving and investment.
dimensions, firm-level behaviour is characterised by a number of rigidities which not only affects the coping capability of firms but also hinders the use of competition as an adjustment mechanism (say when entry and exit are difficult). It is this view of the firm - i.e., rigidities characterise both economic processes internal to the firm as well as those which result from an interaction with the economic environment outside it - which necessitates the use of industrial policy in the sense in which it has been defined here.

IV. Industrial policy in the context of economies undergoing transitions

Thus far, the necessity for an industrial policy has been argued in the context of the normal behaviour of a capitalist economy. That is to say, the stresses and strains affecting firms which have been noted above, and need to be taken into account, are those which arise in the context of a normally functioning capitalist economy. Is there a specific argument(s) to be made for industrial policy in the context of economies which undergo 'IMF-World Bank' type stabilization and adjustment programmes? The answer, I think, is in the affirmative.

It will be recalled that (see Sections II and III, Chapter 1) a central element of this adjustment package is changing the set of relative prices which an economy faces to one which reflects more accurately its relative scarcities or relative prices in the world market. Given that the exchange rate is seen as an important element in determining the relationship between domestic and world prices, a market determined exchange rate becomes a key price in this package, in the context of an open (or vastly liberalized) trade regime. The adjustment in relative prices is often fairly steep and drastic. The supply side of the economy is seen to adjust relatively smoothly to this new set of prices and in doing so, kick-start the process of efficient growth.

IV.1 Uncertainty, investment hold-ups, private property rights and industrial policy

Such a drastic change in relative prices in conjunction with a fairly thorough overhaul of the rules of the game (deregulation, trade liberalization etc.) introduces serious elements of volatility and
uncertainty. Uncertainty is heightened in the system due to two reasons. First, if prices are volatile then agents in the economy would find it difficult to form reasonable hypotheses about price behaviour on which to base economic decisions. This uncertainty might lead them to wait for more stable economic conditions. Second, if the credibility of the government is not very high, agents may believe that the reforms are not sustainable and decide to wait until the 'rules of the game' are seen to be established (see Section III, Chapter 1 for a discussion on credibility related issues in the stabilisation and adjustment process). Both of these may lead to investment hold-ups and therefore log-jam the growth process.

Notice that it is not only in times of transition that price may be an uncertain guide to inter-temporal decisions. As Williamson (1985) points out, once asset-specific investments have been made, there is a lock-in effect and market determined prices are no longer a good guide to the opportunity cost of investment (or the returns thereof). If it were possible to write a complete set of long term contracts specifying the action of agents (those related to the asset-specific investment)

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24 That increased price volatility is a reasonable stylisation is clear from the behaviour of inflation in (most, if not all) economies which have undergone stabilization programmes [see e.g., Frenkel, Fanneli and Rozenwurcel (1993)]. It is to be noted that inflation by itself, need not introduce volatility into the system. But if sectors are differentiated by structural characteristics (say some sectors are fix-price whereas others are flex-price) and consequently their response to shocks differ, then an inflationary process may be characterised by volatility [see Taylor (1988) for an analysis of the nature of complications that could arise].

25 Bernanke (1983) has modeled how uncertainty may lead to investment hold-ups even when the price signals are right (what he calls the waiting period). Dornbusch (1991) adapts Bernanke's model to suggest that in situations of uncertainty (say lack of credibility in reforms) flight capital may not return even if relative returns are higher in the domestic economy, leading to a greater "front-loading" of incentives to compensate for the risk, say of reversal. Of course, it is not necessary that even if flight capital returns it would get translated into investment in physical capital, which is ultimately what must happen if the economy has to start growing.

26 In the extreme instance asset-specificity would imply that the asset in question has no value outside the specific purpose for which it is to be used. That is it has no resale value or rental market. The exact opposite of the asset-specificity assumption would be to assume that all physical assets have a resale value (based on depreciation) or have a rental market. Whereas asset-specificity of the extreme variety (e.g., a custom designed atom smasher) is uncommon, as Williamson points out, less extreme examples of asset-specificity are a fact of economic life. For empirical evidence on the importance of asset-specificity and related lock-in effects see Joskow (1988).
under every conceivable circumstance, the fact that prices no longer convey the relevant opportunity cost information would not be a problem. But given that these kinds of contracts would be prohibitively expensive to write, economic decision making normally takes place in a world of incomplete long term contracts where the terms of trade get renegotiated in the light of changed circumstances.

According to Williamson (1985) the most important problem related to a lack of a complete set of long term contracts is that it may distort the incentive to invest. More specifically, if ex ante investment decisions do not guarantee some expected share of the ex post surplus, then investment may not take place or may lead to opportunistic behaviour. Agents have an incentive to underinvest (from the point of view of other contracting partners) because in case the original contract has to be renegotiated, then the actual share of the economic surplus may be lower than the expected.

Notice that the economic problem which Williamson points to is situations where, in a world of incomplete contracts, prices lose their informational value and hence cannot be used as the basis of inter-temporal decision making. Even though he sets out his analysis in terms of how the nature of a transaction (in this instance investment) affects the price which agents face thereafter, it is easy to see that the Williamson problem would also appear in economies where prices are volatile and the economic environment uncertain.

In situations such as these that, the property rights literature argues, a clearly demarcated set of private property rights takes care of the investment hold-up problem. The property rights literature defines ownership of an asset as the possession of residual rights of control over that asset. Or, as Hart (1989) elucidates, "[t]he owner has the right to use the asset in any way not inconsistent with

\[27\] For example, were it possible to write a complete set of contracts specifying the action of agents under every possible price configuration, then this problem would not arise.


\[29\] The property rights literature distinguishes between ownership defined as residual control and ownership as an entitlement to a firm's verifiable profit stream. The two normally go together but are analytically distinct [see Hart (1989) and Hart and Moore (1990)]. An example where ownership in the later sense holds but not in the former is the ownership of preferential shares.
a prior contract, custom or any law. Residual control rights (or what is the same thing, the right to
determine the use to which an asset will be put if initial conditions change) by affecting *ex post*
bargaining power, influence the share of the *ex post* surplus which accrues to agents who possess
them. Consequently, they help get around the problem of haziness of incentives (i.e., uncertainty
about what share of the *ex post* surplus would finally accrue) and therefore overcome investment
hold-ups which might occur on this score. In other words, residual control rights can be thought of
as the institutional mechanism which perform the task of filling in for contractual gaps which would
otherwise remain in a world of incomplete contracts.

It is therefore argued that, in economies undergoing a transition, instituting a secure set of private
property rights and a related programme of privatisation would constitute "the foundation of market
coordination forms" and help overcome volatility- and uncertainty-related investment hold-up
problems [see Kornai (1990)] by clarifying the structure of incentives. Privatisation by itself of course
would not help achieve efficiency because it merely takes care of the incentive problem, but in
conjunction with a well organised stock market (which would function as the disciplining mechanism),
would be sufficient to guarantee the efficient working of firms.

Whereas it is true that decisions such as investment are taken on the basis of some *ex ante* notion
of the *ex post* surplus which would accrue, and potential instability (say due to contract renegotiation)
in this share would adversely affect the decision to invest, it is possible to show that a secure set of
private property rights (in the sense of ownership of residual control rights) may be neither necessary
nor sufficient to ensure that investment hold-ups do not happen.

The residual control rights framework assumes that agents are risk-neutral\(^{30}\) and that ownership
and control rest in the same entity\(^{31}\). But even if, for the sake of discussion, the latter assumption and

\(^{30}\) Risk neutrality is a fairly standard assumption which is made in neo-classical literature when the
behavior of entrepreneurs is modeled. Entrepreneurs are assumed to be either risk-neutral or
risk-loving [e.g., see Kihlstrom and Laffont (1979)] as opposed to agents who prefer salaried
occupations who are seen to be risk averse. The literature on residual control rights recognises that
the results of the model would not go through if agents are risk-averse.

\(^{31}\) This assumption is seriously inadequate in terms of stylisation of real world phenomena. One
of the motivations behind the study of principal-agent and incentive compatibility problems was that
in modern day firms, in a significant number of instances, ownership and control are in the hands of
its associated problems are disregarded, the assumption of risk-neutrality along with clearly demarcated residual control rights is not sufficient to ensure that investment hold-ups will not happen in volatile economic conditions.

As has been noted before, in a world of incomplete contracts residual control rights, by affecting the nature of decisions that will be taken in uncontracted for situations, help bring *ex ante* and *ex post* surplus in line with each other. It, therefore, removes haziness of incentives for the owner of these rights in situations where prices lose their informational value due to asset-specific investment. Prices, as has already been pointed out, also lose their informational value if the transition path is marked by economic volatility. But there is a crucial difference between the two instances. In the former (i.e., asset-specific investment) it is an action taken by an economic agent which affects the nature of prices and in the latter, it is the environment in which the agent operates (and presumably over which he or she has little control) which is uncertain and/or volatile.

Notice that whereas in the first instance, agents have a clear *ex ante* notion of the surplus that would accrue (it is haziness of the *ex post* share which creates the problem), in the second, it may be difficult, if not impossible, to form these *ex ante* notions. And there is little reason why investment will be undertaken if, *ex ante*, it is unclear what the returns will be. If this is so then the nature of residual control rights make little difference in ameliorating the economic problem at hand.

It is not just increased economic uncertainty which may cause investment hold-ups to occur. Even if one assumes that macroeconomic stabilization has been reasonably successful and the economic environment which agents face is less uncertain, a sudden increase in the level of competition in the economy (which is what is entailed by a policy of trade liberalization and deregulation) would almost necessarily change the risk perception of agents, making investment decisions more risky than before. Under such circumstances, the assumption of risk-neutrality would hardly suffice. For, whereas, a different agents who may not share the same objective function due to asymmetric access to information [e.g., see Hart and Holmstrom (1987)]. In the model it turns out as optimal because along with risk-neutrality, it is assumed that managers are not budget constrained should they wish to buy an asset [see Hart and Moore (1990)]. This then ensures that managers and owners would behave in exactly the same fashion. But it then becomes unclear why any managers (as a separate category) should exist at all.
risk-neutral agent may be indifferent between a certain outcome and a lottery, she may still prefers a less risky to a more risky lottery. Therefore, if the probability of failure (and hence riskiness) increases, the agent may prefer investing in some portfolio of financial assets rather than in physical capital. Again in this instance, risk-neutral agents owning residual control rights may still decide not to invest in physical capital.

Indeed it would appear that as far as investment is concerned, ownership defined as entitlement to a verifiable profit stream is more important than entitlements of residual control. And what industrial policy does (by controlling levels of competition or socializing some of the risks of investment) is to provide a more stable environment within which firms operate and thereby affect the profit stream which accrues from any investment decision. That is not to say that residual control rights are not important but that guaranteeing the surplus which accrues from investing is probably more so. To be more precise, the state need not guarantee a surplus, but what a successful industrial policy may do is reduce the variance associated with an expected profit stream (the static case) and actually makes possible new avenues of surplus appropriation (the dynamic case). And in return for this, successful industrial policy in fact requires that some part residual control rights be ceded to the state. For example, in instances which have been quoted above, when the S. Korean state forced chaebols to swap markets, their residual control rights were clearly compromised.

Perhaps one of the most dramatic instances in recent times of the use of industrial policy and the ceding of residual control rights to the state happened in the unlikely case of the privatisation of the industrial enterprises of the former GDR. Successful privatisation could occur only in the context of creation of decision making bodies comprising both private investors and governmental representatives, where some residual control rights were clearly ceded to the latter [see Griffin (1994)].

IV ii Stabilisation and structural adjustment, indiscriminate exit and industrial policy

There is yet another reason why it makes good sense to use industrial policy specially during periods of transition. In a market-led adjustment process drastic changes in the rules game (say rapid trade liberalization) inevitably lead to a change in the firm structure of industries producing
importables, as a result of the exit of firms which are 'uncompetitive' at the new set of relative prices. But in a world where neither attaining rated capacity nor technological learning are automatic or costless (see Section II, Chapter 2), widespread exits reduce the flexibility of economies to change course or make corrections.

To take a hypothetical example, suppose the import penetration of an economy increases dramatically as a result of trade liberalization and existing firms in the these industry segments are forced to quit. Again assume that the increase import penetration leads to an unsustainable trade imbalance and the government wants to use devaluation as an expenditure switching policy. But despite the improved profitability (after devaluation) of producing importables the economy would be hampered because of the lack of domestic firms to take advantage of the changed circumstances.

The example is something of a caricature but helps highlight the fact that indiscriminate exit ultimately affects economy-wide flexibility. Industrial policy by moderating the impact of competition would, at least potentially, allow the space for some firms to successfully make the transition to a new set of relative prices, achieving both efficiency and flexibility.

It should be noted that the impact of adjustment programmes on the industry structure of the economy discussed above, is different from what Cooper (1992) calls the "economic retrenchment" impact of stabilization programmes, though both stem from the inflexibility of the import structure of the economy. In the first place, what Cooper points to is the short run impact on output of a cutback on imports, in a scenario where most imports are directly linked to the productive structure of the economy and hence can be deemed in some sense necessary.

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32 The experience of the S. Korean shipbuilding industry in 1993 is a good case in point. In the first couple of years of the 1990s the S. Korean shipbuilding industry was saddled with massive excess capacity and, in terms of cost (at the prevalent exchange rate), were out-competed by the more efficient Japanese ship builders. Had it not been for state organised rationalisation programmes most of these firms would have had to quit the industry. But as the yen was slowly revalued against the dollar to reach historical highs, the relative prices swung sharply in favour of the South Koreans and the industry quickly moved from a situation of excess capacity to overfull capacity. Had the Korean state allowed the firms to exit, there simply would have been no capacity with which to take advantage of the changed circumstance.

33 Say successful import substitution has taken place in consumer durables but is still underway in intermediate and capital goods.
On the other hand, the indiscriminate exit of firms, which has been discussed above, affects the medium term flexibility of an economy to respond to changes in relative prices. It entails losses on two counts. In the first instance is the economic loss due to the fact that both, physical capital and labour of exiting firms may be incompletely fungible. Second, is the loss in potential output of the economy because the earlier destruction of capacity (coupled with the fact that setting up new capacity may be an expensive and time consuming affair) means that it is no longer in a position to take advantage of fresh opportunities.

It may be argued, however, that to obviate the possibility of overburdening the adjustment capability of domestic firms, in an ideal world, trade liberalisation ought to be accompanied by a sharp enough devaluation so as to afford domestic firms some modicum of protection [see e.g., Dornbusch et al. (1995)]. The net result of such a policy on the relative price faced by firms would then depend upon the pace of trade liberalisation and whether a nominal devaluation translates into a real devaluation. For if a nominal devaluation, through cost push effects, sparks of a fresh round of inflation, then the protection afforded by the devaluation may soon get eroded as inflation results in an appreciating real exchange rate. If, as a result, the economy is forced into a devaluation-inflation-devaluation cycle then the uncertainty effects mentioned earlier may dominate. As a result, import liberalisation may yet result in the exit of firms and what is more, firms which remain may not invest. Again a sensibly crafted industrial policy may help smooth the adjustment process.

Finally, the deleterious impact of the indiscriminate exit of firms on the economy is particularly important in the context of what are called 'heterodox' stabilisation programmes, or the use of incomes policies to stabilise economies. Such programmes may be nominally anchored on the nominal exchange rate and the appreciation of the real exchange rate becomes an important element in the ensuing disinflation. If economies choose, say because of the existence of credibility problems, to follow the 'big bang' approach and stabilisation and structural reform are carried out simultaneously, then domestic firms producing importables are doubly disadvantaged. The lowering of trade barriers as a part of trade liberalisation leads to heightened competition from imports. Additionally, the appreciating real exchange rate amounts to subsidising imports, which further disadvantages the domestic producers of importables. Under such a scenario, the indiscriminate exit of domestic
producers is highly probable, seriously affecting, as noted above, the technological flexibility of an economy. If the nature of the macroeconomic imbalance leaves no other course open but the use of an exchange-rate-based stabilisation programme, then, in my judgement, the use of an industrial policy becomes imperative.

In sum, then, industrial policies become essential because of rigidities (inherent in the nature of the firm itself) in firm-level behaviour, externalities in production, capital market imperfections and constraints on the risk-bearing capacity of individual agents in an economy. Some of these elements may get exacerbated when transition processes tend to be dramatic and abrupt. But outside of these, adjustment processes of the Fund-Bank variety introduce at least two elements which are problematic. First, the process itself is marked by heightened uncertainty and increased risk and there is no underlying market mechanism (or more specifically, complementary set of institutions) to help cope with these and the consequent deleterious effects on investment. Second, the working of the stabilisation and adjustment process may lead to indiscriminate exit of firms, which ultimately affects the flexibility of the economy. Appropriately designed industrial policy will help cope with both of these problems, minimizing economic waste and at the same time introducing flexibility in response patterns.

V. A concluding note on the issue of industrial policy, leverage and financial systems

What has been discussed above has been the general rationale for an industrial policy. The specific nature of policies (or what is prior, the nature of the industrial strategy) which individual countries need to adopt would obviously be determined by a host of country characteristics, or what Shapiro and Taylor (1990) call "boundary conditions" [also see Taylor (1993)]. Among the boundary conditions which they have suggested are the following: size (in terms of population) of an economy - a large economy may find it feasible to follow import-substitute-then-export strategies, while small

34 Though it is not the case that small economies cannot, or have not, used protection as a part of their growth arsenal. Historically, most of the small European states of today have used protective tariffs to shelter domestic industry in the early part of their growth process and it is only now that they maintain undistorted trade regimes. Additionally, as Katzenstein (1985) points out, the political economy of the early growth process ensured that private initiative (and consequent losses) was
economies may opt for niche-market-oriented export strategies; the size and diversification of the manufacturing sector; the nature of labour skills; the pattern of income distribution and its evolution over the growth horizon; industrial heritage; and access to technology. As this diverse set of conditions would make clear, successful industrial strategy is parametrised by a complex interplay of a number of factors as a result of which it is difficult to have generalisable propositions about it. At best one can only point to necessary conditions.

But even perceptive commentators like Shapiro and Taylor fail to point out that one of the most important necessary conditions for the successful use of industrial policy is the existence of state leverage over firms. Analytically, it will be recalled from the earlier discussion on rent seeking (see Section II.ii, Chapter 3), the 'award' of market-created rents is contingent upon success, whereas state-created rents have necessarily to be \textit{ex ante} to the fulfillment of the state's policy objective. This leaves the state with an enforcement problem, i.e., if the state lacks the leverage with which to ensure that its policy objective is met, it may distort incentives and thereby lead to efficiency problems. And since all of industrial policy involves the creation of rents, unless the state has the ability to make these rents contingent, the policy will almost certainly fail.

Perhaps the most ubiquitous route to leverage which states using an aggressive industrial policy have adopted is the control of a credit-based financial system. Zysman (1985) was perhaps one of the earliest to point out that states which have successfully used industrial policy have also used a state-controlled (notice, not necessarily owned) credit-based financial system as an incentive and disciplining mechanism in the implementation of industrial policy. Subsequently, a host of observers have noted that states have used control of the financial system to further industrial policy ends [see Amsden (1989); Wade (1990); and Chang (1991) among others]. It is therefore somewhat surprising that analytically it has not been recognized as a necessary condition.

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effectively cushioned by public safety nets and a close intertwining of firms, unions and the state. This reduced the number of players involved in growth-related bargaining (as also the nature of the bargaining process itself) to a smaller, more manageable number with binding commitment of side-payments. See Chang (1991) on how a small number or game with side payments gets around the collective action problem. On the growth strategies adopted by small countries also see Morris and Adelman (1989).
Be that as it may, control of a bank-based financial system has been one of the most effective means of making a state-created rent contingent. For example, in the 1960s when the French government was attempting to rationalize the structure of the textile industry, it made commercial credit for reinvestment in the industry contingent upon the industry agreeing to the rationalisation plan. This it could do because it had complete control over the allocation of credit in the economy [see Zysman (1985)]. In a somewhat more striking instance of the use of credit as a disciplining device, in the late 1980s the South Korean state bankrupted the seventh largest conglomerate (Kukje group) of the country by ordering major lending banks not to honour Kukje cheques35 [see Chang (1991)]. Equally important, is Zysman's (1985) discussion on how British policy makers was constrained by a capital-market-based financial system in exercising leverage over firms in the pursuit of industrial policy goals.

If credit-based financial systems potentially allow the state to exercise leverage, then the logical question which follows is what is it about such systems which allows for this possibility? And is this potential source of leverage available to all states functioning in economies with credit-based financial systems? Equally importantly, why is this potential not available to the state in capital-market-based financial systems? These issues bring the relationship of the state with financial capital centrestage and subsequent chapters hope to address this relationship as well as the other issues mentioned above. Here it suffices to note that one of the most important factors determining the effectiveness or otherwise of an industrial policy is the issue of leverage which the state has vis-a-vis industrial capital (or groups therein) and in addressing this issue one has necessarily to confront the nature of the state.

35 It will be remembered that Korean banks at least nominally were not owned by the state, but were for all that effectively completely controlled by it. On the other had, in Taiwan where the state also used the banks as a disciplining device, they were state owned. Which is why, in certain context, the issue of private versus public ownership is far too overdrawn. Analytically, the important issue is one of control and in that sense nominal ownership does not matter (nominal ownership, of course, makes a difference to who appropriates the surplus, but that is a different issue).