This brief review of "precursors and parallels" is not designed as an intellectual history or prehistory of the developmental state concept. The point is broader. All of the major proponents of the developmental state – and particularly Amsden – noted that the problematic of late development has a long lineage. These ideas include in the first instance the centrality of industrialization to growth and learning and the fact that laissez-faire policies might be inappropriate for latecomers.

Yet on one crucial issue we see nuanced internal disagreements among these latecomer theories, with some advocating virtually autarkic policies and others grappling with the risks of rent-seeking. In this regard, the flying geese model stands out as a quite distinctive way of thinking about late development, one in which the state has an important role but in the context of an export-oriented strategy. The power of this model was not simply intellectual: it gained force precisely because it conformed so clearly and closely to a successful follower, namely Japan. It is to how the developmental state "worked" that I now turn.

3 Sources of Growth: Industrial Policy in the Developmental States

As in our discussion of the heterodox canon more generally, the developmental state literature posed itself as an alternative to an emerging neoclassical consensus in development economics. Prior to the appearance of Johnson's (1982) book, a succession of highly influential studies by Little, Skitovsky, and Scott (1970), Krueger (1978) and Bhagwati (1978), and Balassa (1981) offered up a classic liberal interpretation of economic growth, relying heavily on the success of East Asian cases to make the argument. This work emphasized the significance of stable macroeconomic policies and the importance of other complementary market-oriented reforms. But trade and exchange rate policies were clearly the central focus. In dialectical fashion, this new orthodoxy was aimed directly at the body of postwar development thinking outlined in Section 2.

The grounds on which trade liberalization – broadly conceived – would lead not only to a one-off increase in the growth rate but a higher equilibrium growth path are by no means obvious. In the standard neoclassical growth model by Solow (1956), the sources of economic growth are to be found in the growth in inputs to production (capital, labor, and land), improvements in the efficiency of allocation of inputs across activities, and innovation of altogether new products and processes. The latter is typically identified with technological change and increases in the productivity of inputs (and treated as a residual to the growth accounting based on the role of factor inputs).[10] To the extent that the drivers of such models are exogenously determined increases in factor inputs, neoclassical models had the perverse implication that policy should have no effect on the steady-state rate of growth.

Yet as Bhagwati and Srinivasan (2001) argue in their spirited defense of the neoclassical interpretation, greater openness to trade can have effects on all components of the standard model, from increasing inputs to improving allocative efficiency and innovation. This is particularly true where the assumption is dropped that the marginal return to capital ineluctably trends toward zero, a point that was emphasized – ironically – in the Keynesian progenitors as well.

The force of this work did not rest on new theory, however. Nor did it attempt cross-national empirical modeling, as an outpouring of econometric studies on the trade–growth relationship did over the 1980s with somewhat mixed results (see Edwards 1993 for a review of the contemporaneous generation of such studies, and see Rodrik and Rodriguez 1999 for an influential critique). Rather, the influence of this early work came from detailed case studies of liberalization episodes. These included an early assessment of the experience of Korea and Taiwan by Little, Skitovsky, and Scott (1970) and a succession of studies of the East Asian

[10] These theories returned to the discussion on East Asia in a second generation of work that reinterpreted the growth of the developmental states as led by investment rather than exports; we take up this issue Section 3.2 and in Section 4 as well.

newly industrializing countries – including Hong Kong and Singapore – by Balassa (1981), Hughes (1988), and a myriad of others over the course of the 1970s and 1980s. In the ten-volume Bhagwati-Krueger project, cases included Chile, Colombia, Egypt, India, the Philippines, and Turkey, but Korea once again played a particularly important role.

In these studies, trade and exchange rate policy reforms appeared to have both macroeconomic (Krueger 1978, 268–274) and microeconomic consequences (Krueger 1978, 246–268): increasing exports, alleviating balance-of-payments constraints, and eliminating a myriad of distortions and inefficiencies in product and factor markets. Above all, reform episodes were followed not only by an expansion of trade but transitions to higher growth as well.

The implications of this advocacy of what came to be known – somewhat misleadingly – as "export-led growth" are hard to overestimate. The new orthodoxy about liberalization provided the key empirical referent for what economist John Williamson in 1989 called "the Washington consensus": a condensed checklist of ten policy reforms that gained currency as a result of the conservative turn in the major advanced industrial states marked by the elections of Margaret Thatcher (1979), Ronald Reagan (1980) and Helmut Kohl (1982). Given the larger political climate, neoclassical prescriptions moved quickly and seamlessly from academia into the development policy community and the international financial institutions.[11]

3.1 Johnson's MITI and the Japanese Miracle

Written a decade prior to the collapse of the Soviet Union, *MITI and the Japanese Miracle* was not responding directly to these

[11] When the World Bank (1993) finally did its own review of the East Asian miracle – at Japan's urging – the report downplayed the role of industrial policy, setting off a heated debate over both the substance of the report and the process through which it was written (Amsden 1994; Wade 1996; Aoki, Kim, and Okuno-Fujiwara 1996).

developments in the economics profession, although Johnson's followers decidedly were. But Johnson *was* responding to an earlier version of this debate about Japan.[12] Economists such as Patrick and Rosovsky (1976) played the orthodox foil, and Johnson took sharp aim at their interpretations in his introduction. He framed *MITI and the Japanese Miracle* in terms of a distinction between the plan-ideological systems of state socialism and two varieties of contemporary capitalism: market-rational and plan-rational systems. The fundamental difference between the latter two was that market-rational economies took a regulatory approach to economic activity while the plan-rational or developmental state was purposive and goal-directed. The developmental state sought to achieve high growth not through an arm's-length or parametric approach to policy but by influencing the allocation of resources to designated economic activities, a process subsequently known as "targeted" industrial policy.[13]

In a later reflection on the book, Johnson (1999, 56–58) agrees with a critic that the precise meaning of state leadership requires caution. He notes that Japan went through a progression of several distinct institutional and policy configurations. Self- or private control referred to a set of arrangements in which the state allows and even organizes private cartels; he sees this system prevailing through the 1930s when Japanese *zaibatsu* appeared to reign supreme. More direct state control followed during the war and in its immediate aftermath with the "imposition of state institutions onto the private economy, displacing private cartels, private

[12] Johnson (1999) himself reflects on the "odyssey" of the developmental state; the following paragraphs draws not only on his book but on that reflection. See also Johnson 1995. Johnson of course was not alone in seeing the role of the state and business–government relations as pivotal. See for example Lockwood (1954) and the body of work by Ronald Dore culminating in his *Flexible Rigidities* (1986). On the role of the business–government alliance on the politics of growth, see Pempel (1978).

[13] Throughout its life, the developmental state literature has been accused of tautology: that developmental states were little more than those that grew rapidly. But Johnson was rightly cautious on this point, arguing that whether such efforts were successful is not assumed.

ownership, private labor organizations with so-called control associations (*toseikei*) during the war and public corporations during the occupation and after" (see also Johnson 1978).

The equilibrium for the postwar period was neither of these systems but rather what he calls "cooperative management schemes" between the public and private sector. As we will see, this theme of coordination is a consistent one in the developmental state literature that followed. But it also became an ongoing point of contention in the analysis of Japan, as Johnson's challengers sought to place more weight on the role of the private sector and politicians.[14]

The core empirical finding of the book is that Japanese planners came to believe, through trial and error, that economic development required both "industrial rationalization" and "industrial structure" policies (27). The former referred to measures designed to solve problems of backwardness at the firm level: rationalizing enterprises and the environments they faced, but also rationalizing whole industries through "the creation of a framework for all enterprises in an industry in which each can compete fairly or in which they can cooperate in a cartellike arrangement of mutual assistance" (27).

The truly distinctive feature of the Japanese miracle, however, were MITI's "industrial structure" policies, which sought to actively change the *composition* of investment and output by targeting particular sectors along a dynamically efficient frontier. A central point of the book is that these policies were not a postwar

[14] Virtually anyone writing on the political economy of Japan in the two decades following Johnson was responding to his book in one way or the other. I take up the politics of the developmental state in Section 4, but among those that were cautious about the role of industrial policy are Samuels' (1987) study of energy markets; Friedman's (1988) study of the machine tool industry, with its emphasis on the growth of flexible manufacturing strategies among smaller firms; and Calder's (1993) emphasis on the role of financial institutions in Japanese growth. Studies of MITI's involvement in high-tech industries that extended but modified the MITI-led model included Okimoto's (1989) *Between MITI and the Market*, Anchourdougy's (1989) study of the computer industry, and Noble's (1998) comparative study of Japan and Taiwan.

phenomenon, but had their origins in indigenous Keynesian efforts – prior to Keynes' *General Theory* – to pull Japan out of the depression. These became evident according to Johnson as early as the second half of the 1920s. The initial ideas evolved through a complex process of learning by doing (103–105) and – quite controversially – were stamped powerfully by Japanese militarism; indeed, MITI's immediate predecessor was none other than the Ministry of Munitions.

Wartime controls provided the postwar planners with an unusual array of instruments for influencing industry, despite the American occupation: "control over all foreign exchange and imports of technology, which gave them the power to choose industries for development; the ability to dispense preferential financing, tax breaks, and protection from foreign competition, which gave them the power to lower the costs of the chosen industries; and the authority to order the creation of cartels and bank-based industrial conglomerates ... which gave them the power to supervise competition" (199). In addition, Johnson details the concept of "administrative guidance" (265–266). Johnson argues that bureaucratic dirigisme played a central role in industrial structure policies into the 1970s and was even of significance with respect to Japan's move into more technology-intensive industries (see also Okimoto 1989; Anchourdougy 1989; Noble 1998; Pekkanen 2003).

Johnson was not an economist and was cautious in making causal claims with respect to industrial policy. When he summarized the four crucial components of the developmental state model at the end of the book – and only then at the insistence of his editor (Johnson 1999, 39) – "market-conforming methods of state intervention" was third on the list. The other elements were all political: an elite state bureaucracy, a pilot agency like MITI, and a political system capable of delegating to these entities. It is also worth underscoring that although Johnson's book is associated with industrial policy, it does not generally descend to the level of particular industries, focusing much more centrally on the plans – the intentions – of the

bureaucracy.[15] Rather, Johnson's method was to show in extraordinary detail what the Japanese planners were actually doing and why, with a particular focus on the organizational evolution of MITI and its pursuit of industrial policy. It was simply self-evident to Johnson that the structural changes that took place in Japan during the 1950s and the long boom of the 1960s – "the operative mechanism of the economic miracle" (31) – were causally related to what the state was doing.

3.2 *Theory and Method in the Analysis of Industrial Policy*

In contrast to Johnson's study, Wade's analysis of Taiwan, *Governing the Market: Economic Theory and the Role of Government in East Asian Industrialization* (1990, 2nd edition 2004), and the studies of Korea by Amsden (*Asian's Next Giant,* 1989) and Chang (*The Political Economy of Industrial Policy*, 1994) were more frontally engaged with the neoclassical canon on East Asian growth. As a result, they were more preoccupied with identifying the causal links between policy choices and growth than they were with the evolution and consequences of political and bureaucratic institutions.

Wade can be taken as a general introduction to the main themes, although the three books differed in important points of emphasis.[16] What Wade called the "governed market" or GM theory "emphasizes capital accumulation as the principal general force for growth, and interprets superior East Asian performance

[15] At one point early in the book, Johnson goes so far as to say that he could not "prove that a particular Japanese industry would not or could not have grown and developed at all without the government's industrial policy" (30) leaving that task to others. Industry analysis features much more prominently in a succession of studies of Japan that followed in his wake and sought to confirm, modify, or overturn altogether the central role of MITI and the state more generally.

[16] For example, Amsden was more preoccupied with the problem of technology transfer and learning; Chang was more intent on engaging prevailing theoretical literature on the role of the state.

as the result of a *level* and *composition* of investment different from what FM [free market] ... policies would have produced, and different, too, from what the 'interventionist' economic policies pursued by many other LDCs would have produced" (29, emphasis added).

Wade thus suggested that the existence of strong, developmental states helps explain the mobilization of savings and investment that undergirded all of the East Asian miracles. The theory was thus at least partially consistent with a line of argument that capital accumulation – rather than either liberalizing reforms or industrial policies – was at the core of the East Asian miracle. Grounded in studies by Kim and Lau (1994) and Young (1992; 1995), this approach was popularized by Krugman's (1994) widely read essay "The Myth of Asia's Miracle." Rather than a miracle, East Asia got high growth from exactly what Solow-style growth models predicted: that growth was a function of inputs, and by the growth in the capital stock in particular.

But sheer accumulation was clearly not at the heart of the developmental state story, which rested more fundamentally on the *allocation* of resources and state action to address market failures (Wade, 1990, 11–14, 350–58; Amsden 2001 139–155). Chang (1994, 61–78), more than any of the other theorists of the developmental state, sought to align the developmental state approach with the new institutional economics.[17] Chang justified state intervention on straightforward market failure grounds. But he also argued that informational asymmetries and transaction costs hindered the ability of governments to reach efficient policy decisions. As a result, the state had to effectively organize decision making in the presence of multiple agents with potentially conflicting interests and information. Institutions mattered for solving these problems, most notably consultative mechanisms between the state and the private sector. But Chang argued that the state could

[17] A full discussion of the new institutional economics is beyond the scope of this essay, but as we will see, it comes up in a second generation of cognate work. See, for example, Doner 2009, 64–94.

achieve these objectives not only by organizing its relations with private actors but by organizing the actors themselves, by serving as a focal point for private expectations and even through ideology or values around which expectations could converge (Chang 1994, 52–53).

Before turning to the precise nature of those coordination problems and some examples from canonical cases, it is important to say something about method. A surprisingly common research design in the literature on industrial policy is to pick a successful (or unsuccessful) industry, demonstrate that policy support existed, and conclude that the case for the significance of industrial policy is made (or rejected). Such an approach is hardly satisfying, suffering from quite obvious selection problems.

It would seem that a more standard approach would be readily available: to examine industry-level data within a given country to determine if those that received policy support surpassed those that did not on some metric, such as total factor productivity (TFP), exports, or profitability. The World Bank *Miracle* report (1993) purports to conduct some tests along these lines, although they are hard to follow (Amsden 1994). Lee (1996) provides another often-cited example of such econometric work, and Noland and Pack (2003) and Pack and Saggi (2006) both draw broadly skeptical conclusions about state intervention from the surprisingly small number of econometric studies in this vein.

Yet as Wade (2004, 29–33, 71–72, 109) points out, the task is much harder than it appears and requires a more complex counterfactual method. First, sector-specific policies must not only be plausibly associated with the success of the industry in question but must yield outcomes equal or superior to a more market-conforming policy counterfactual. Moreover, Wade goes farther by arguing that intervention must not be the result of private sector demands (what Wade calls "followership"); if they were, then the investments in question might have taken place anyway. Rather, intervention must reflect "leadership" by the state that puts the industrial structure or a particular industry on a different path than it would have otherwise taken.

Rodrik (2007) outlines clearly why standard econometric efforts do not escape the fundamental dilemmas of the counterfactual analysis undertaken by Wade:

> The almost insurmountable flaw in this [econometric] literature is that the key estimated coefficient [on industrial policy] ... cannot discriminate between two radically different views of the world: (a) the government uses industrial policy for political or other inappropriate ends, and its support ends up going to losers rather than winners; (b) the government optimally targets the sectors that are the most deserving of support, and does its job as well as it possibly can in a second-best policy environment. Under (a) governments should commit to a hands-off policy. Under (b) a hands-off approach would leave the economy worse off ... The empirical analysis leaves us no better informed than when we started. (17–18)

Other reviews also admit as much (Pack and Saggi 2006).

These problems help account for why much of the developmental state literature – including Johnson – has taken a macro-comparative historical form by looking at growth trajectories at the national level. Why did Japan, Korea, and Taiwan grow so rapidly? To what extent did reforms such as those isolated in the neoclassical account as opposed to industrial policies of various sorts help account for the timing of observed growth accelerations? What role did institutional reforms play in these processes?

Yet given the focus on particular coordination problems, the developmental state literature has always had an affinity with analysis at the industry level, where we can observe not only the operation of policy but also the institutional and political context in which it works. A failing of neoclassical interpretations was that they did not provide an underlying political economy of why countries might end up on good or bad equilibrium paths, beyond genuflection to the fact that they avoided the insidious effects of rent-seeking.[18] In this regard, the developmental state literature

[18] This failing is somewhat ironic as Krueger (1974) and Bhagwati (1982) – major proponents of the neoclassical explanation for East Asia's growth – both made

differs quite fundamentally not only from neoclassical accounts but even from those of heterodox economists primarily focused solely on the causal nexus between policy and economic outcomes. Johnson and his followers, particularly the political scientists, were not simply interested in the effects of policies but in the institutional and political arrangements that produce and implement them in the first place.

In Section 3.3, I provide an overview of three particular coordination problems: those that arise in moving from agriculture to industry and the somewhat different problems of moving into international markets and upgrading; those associated with financial markets; and issues surrounding the transfer and adoption of technology and innovation, which are particularly germane to the revival of the developmental state concept in the twenty-first century. In each case, I begin with the underlying theory and efforts to model coordination problems. I then provide examples of canonical industry cases from those writing explicitly in the developmental state and heterodox traditions, mostly from Northeast Asia but with some Southeast Asian followers included as well.

As will be seen, the timing of these examples differs somewhat depending on the country and industry in question and on what Richard Doner (2009) calls the particular "tasks" at hand. For Japan, the high developmental state period begins in the 1950s, in Korea and Taiwan from the early 1960s, and in the Southeast Asian countries from the later 1960s and 1970s. But the timeline extends into the 1980s and the move into more technology-intensive activities as well, most notably with respect to the electronics complex.

3.3 Solving Coordination Problems in the Growth Process

3.3.1 The Real Economy

Wade's dominant line of argument parallels Johnson's account of Japanese policy, as well as the thinking of a group of prominent

significant contributions to the literature on rent-seeking or what Bhagwati called "directly unproductive profit-seeking (DUP) activities" (Bhagwati 1982).

Japanese analysts (for example, Aoki, Kim, and Okuno-Fujiwara 1996), in focusing on coordination problems in the industrial sector. Efficient investment can be deterred by small market size and the absence of complementary suppliers or customers, as Gerschenkron (1962) had also pointed out. Rodrik (1995) outlines a basic two-sector model of such coordination problems that is tailored to the particularities of the Korea and Taiwan cases. Rodrik's model consists of a traditional sector and a capital-intensive modern sector. The modern sector yields higher returns on all factors when up and running, but relies on an array of specialized inputs, including not only capital and intermediate goods but skilled labor and technology. These inputs have several features that generate coordination problems, most notably that they exhibit increasing returns and – more controversially – they are not perfectly traded. For example, they may not conform adequately to local conditions or require specialized skills to utilize.

The model is characterized by good and bad equilibria, with high returns if and only if adequate investment is forthcoming in producing the specialized inputs. Rodrik states the coordination problem clearly:

> From the perspective of an individual investor it will not pay to invest in the modern sector unless others are doing so as well. The profitability of the modern sector depends on the simultaneous presence of the specialized inputs; but the profitability of producing these inputs in turn depends on the presence of demand from a pre-existing modern sector. It is this interdependence of production and investment decisions that creates the coordination problem. (1995, 79–80)

The implication for policy is clear: current market prices will not adequately convey information about future growth, and countries thus forego investments that would lower production costs through larger plant size and learning effects. In Amsden's (1989) infamous dictum, the East Asian countries succeeded not by "getting prices right" – as neoclassical interpretations claimed – but by "getting prices wrong." Interventions such as protection,

subsidies, and rents more generally (Khan and Sundaram 2000) can overcome these collective action problems and externalities and thus push an economy from a bad to a good equilibrium. Among the more specific measures that might assist in this regard are the coordination of complementary investments across sectors, as envisioned by both Gerschenkron and theorists of the "big push"; policies to assure scale economies such as state-orchestrated mergers or financing conditional on achieving adequate scale; the coordination of potentially competing investments through entry regulation, including by foreign investors; local content and indigenization requirements; and investment cartels. For declining industries with such characteristics, the coordination problems shift to controlling investment, reducing surplus capacity, negotiating exit and sectoral as opposed to simply corporate restructuring.

Yet these purely economic arguments do not convey the institutional context required to effectively pursue such policies. As Gerschenkron noted, such problems first arise in the heavy and intermediate sectors such as steel and petrochemicals, where there are increasing returns and capital investments are large and lumpy. The challenges in these sectors center on coordinating across sectors with strong input–output linkages, reaching credible agreements and monitoring their implementation. It is thus instructive to start with a contribution by a Japanese economist, Tetsuji Okazaki (1997), in a prominent collection (Aoki, Kim, and Okuno-Fujiwara 1997) that sought to thread its way between neoclassical and developmental state interpretations.

Okazaki notes that coordination problems rapidly became evident in the 1949 meetings of the Planning Committee for Economic Reconstruction, the first general deliberative council on industrial policy in postwar Japan. Foreign exchange constraints played a critical role and exports of textiles were blocked by the closure of the Chinese and Indian markets. The findings of these early reports and complementary work carried out by the Japan Federation of Industries could not more closely mirror the Rodrik model: potential exporters of machinery, as well as the auto and

shipbuilding industries, pointed to the high price of steel as a barrier to their growth. "Another aspect of interdependence," according to Okazaki, "can be seen in the fact that the production or investment level of one industry affected another industry's production level through market size, which in turn affected cost through economies of scale" (1997, 79). In the absence of coordination, linked industries would have faced a "vicious cycle" of lost competitiveness.

The outcome of these early deliberations was the formation of the Council for Industrial Rationalization as an advisory body to MITI, with no fewer than twenty-nine sectoral branches made up of industry representatives as well as bureaucrats and academic experts. Per Johnson, the objectives of these committees were not only the rationalization of production *within* each sector, but a consideration of the broader interdependence *among* them that arose through input–output linkages. Okazaki hones in on the choke point created by the relationship between the coal and steel industries: that downstream consumers of steel needed to achieve competitive prices if they were to export, but the price of steel depended on the price of coal and other upstream inputs. He details the negotiations on the prices and investments needed to permit competitiveness and the transitional subsidies and lending that would be required to meet these objectives. In these negotiations, Okazaki shows that state actors were far from passive respondents to industry demands, using policy instruments not only to corral compliance but to limit costs as well. These agreements, in turn, found their way into the investment plans of the major steel companies, supported by loans from aid counterpart funds and later by the Japan Development Bank and private lenders on the basis of information provided by MITI.

This effort clearly does not conform to the caricature of a directive state picking winners from on high. Rather, Okazaki details a complex set of negotiations, structured by both the government and the private sector within established institutions, that permitted the revelation of information around particular plans at the sector and firm level. These in turn were backed by the

instruments to implement and monitor them. To be sure, these plans subsequently faced a second round of coordination problems associated with excessive investment that generated new coordination efforts to rationalize the steel sector, not all of them successful. But Okazaki's conclusions are unambiguous: in the absence of coordination, investment and output in steel would not have taken place.

Coordination problems were by no means limited to classic import-substituting industries, and as the Japanese steel case demonstrates questions of international competitiveness were evident in those discussions as well. They also arise in the initial reorientation of industrial activity toward world markets, Akamatsu's problematic. In his PhD dissertation, sociologist Thomas Gold (1980) documented how the government in Taiwan coordinated complementary investments in the textile industry during a brief phase of import-substitution in the 1950s, assuring that investments in spinning and weaving were adequate to supply the burgeoning garment sector.

Both Gold and Kuo's (1995, 95–111) detailed treatment of the industry also identifies coordination problems in the early export drive as well. The textile industry in Taiwan faced a variety of constraints at the end of the 1950s, including domestic price wars following deregulation of the industry, a strong Japanese presence in international markets, and rising protectionism abroad. From 1961, producers started to collude in a formal Contract of Cooperation that involved restraints on production, commitments to export, collective purchases and price setting of cotton, support from an industry-wide fund and even an internal arbitration committee. But this edifice of collusion was effectively state sanctioned. Kuo notes that many of the industry's requests to the government were for supporting infrastructure and a reduction of red tape that amounted to liberalization: "revisions of expansion and entry requirements, bonded factory systems, tax rebates, tariff reductions [on inputs], loan applications, administrative fees and export inspections" (107). Yet these liberalizing actions went hand in hand with a parallel set of industry requests that took a quite

different form: "trade protection, restriction on foreign direct investment, low-interest loans, contract enforcement, quota negotiation and the collection of foreign market information" (107). The apparent contradiction between these two policy trends conforms with Amsden's observations about getting prices wrong. Increased market orientation during this transition phase was generally limited to the export sector, with domestic producers exempted from duties on imported inputs. But rents were generated for those venturing into export markets by protecting the domestic market, forcing consumers to subsidize producers.[19]

Among the tasks that involved coordination were unifying inspection criteria so that exported product did not face quality lapses and distributing textile quota (see also Wade 1990, 144–147). In the Korean case, the role of the state in coordinating the initial export drive in the early 1960s was even more apparent, with sectoral committees under the Ministry of Commerce and Industry linking to state-sanctioned sectoral export associations under the Korea Traders Association. These institutions set indicative targets, orchestrated incentives, and coordinated a variety of services from quality control to the collection of market information and forging linkages with buyers (Haggard, Kim, and Moon 1991). They also assured that incentives were only extended to those firms that met performance criteria, a crucial point addressed in more detail in Section 4.

Finally, it is worth noting an example of coordination in the process of upgrading and the move into altogether new technology-intensive manufacturing sectors. Gregory Noble's outstanding *Collective Action in East Asia* (1998) is of interest in this regard because it notes that such coordination does not always occur. In a deeply researched case study on the video industry, Noble identifies a clear coordination problem associated with entering a new segment: the setting of standards and even basic format. However, he shows that rather than leading, the government

[19] Similar points were made in the strategic trade policy literature that is addressed in Section 5.1.1.

lacked detailed knowledge of the industry and tended to simply support the industry mainstream. That task was complicated, however, when both independent "mavericks" and incumbents bucked the consensus. Noble argues that the epic VCR battle between Sony's Beta format and JVC's VHS ended up producing an optimal level of competition that actually strengthened the Japanese industry compared to the weakly coordinated American one. But "the struggle was hardly consistent with the rosier picture of Japanese as a neatly cooperative 'network society'" (120–121) and could not be attributed to successful coordination.

Noble's analysis of the consumer electronics industry provides a fitting conclusion to the discussion of coordination problems in the real economy. The plethora of industry studies in the developmental state literature focus not only on the initial big push in heavy industry – Gerschenkron's paradigmatic case – but in the transition to export markets and to technology-intensive activities as well.

Such studies look not only at policies, but identify the public and private institutions associated with solving specific coordination problems as well as the implementation and monitoring required for them to work. In this regard, it is important to underscore that not all work in the developmental state literature was simply "picking winners," the classic *post hoc ergo propter hoc* pitfall. Rather, studies such as Noble's show that the success of industrial policy efforts was conditional on institutional arrangements. In the Japanese steel case, MITI was at the peak of its powers, with a bevy of instruments at its disposal vis-à-vis heavy industries starved for capital. In Noble's case, the powers of the Japanese government had waned as technology outran ministerial capability to monitor and implement policy vis-à-vis a rapidly evolving industry. The private sector also exhibited greater political independence than it had in the early postwar period. In Korea, the power of the state to command was extraordinarily direct because of the authoritarian nature of the political system, the state-corporatist organization of business, and direct state control over finance. In Taiwan, by contrast, the garment industry was already

strongly organized and the state role somewhat lighter. Moreover, political relationships between the Kuomintang (KMT) and Taiwanese capital were more arm's-length as we will see. Clearly, as Johnson emphasized, political as well as economic parameters were at stake in allowing industrial coordination to work.

3.3.2 The Role of the Financial Sector

A second theoretical rationale for intervention centers on failures in capital markets and provides one area where heterodox economists – including Nobel Laureate Joseph Stiglitz (Hellman, Murdock, and Stiglitz 1996) – entered the debate. Financial systems were central to Gerschenkron's analysis of nineteenth-century European industrialization and played a prominent role in accounts of postwar European industrial policy as well (for example, Zysman 1984).

Amsden (2001) notes that failures in financial markets were fairly straightforward: banking systems were wholly inadequate to the task of mobilizing the funds required for moving into basic industries and states routinely took on the role through the founding of development banks. At one point, she even goes so far as to identify development banking as one of the defining features of the developmental state, along with local content requirements, selective liberalization, and building national champions (pp. 125 ff.).

Hellman, Murdock, and Stiglitz (1996) provide a nuanced theoretical rationale for the complex regimes of "financial constraint" that typified both Japan and a number of the East Asian followers, even where banking was not in state hands. Financial restraint self-consciously seeks to create rents in the financial sector, for example by setting deposit rates below their competitive equilibrium level and by regulating entry and controlling competition. Yet rents in the financial sector – and the corresponding rents in industry from the ability to borrow on favorable terms – can have positive effects on investment. For example, such subsidies can increase equity stakes, making firms behave in a more proprietary way and induce investments that might not otherwise occur because of a divergence between social and private rates of return.

The role of the financial system in the success of the developmental states is somewhat contentious as it varies quite substantially across the three canonical cases. With respect to Japan, for example, Kent Calder's *Strategic Capitalism* (1993) purported to show that MITI was weak. Rather, the Industrial Bank of Japan (IBJ), the commercial banks, and bankers' associations were the locus of coordination on industrial policy. In explicit contrast to Johnson, Calder's analysis bears closer resemblance to Gerschenkron's account: financial institutions play the key institutional role; private interests dominate public ones; and the state's role is demoted (see Johnson 1999, 57–59 for a rejoinder; Cheng 1993 on Taiwan).

Korea, however, was a completely different story, and the central role of the financial sector in that case is the subject of Meredith Woo-Cumings' (1991) *Race to the Swift*.[20] The study takes a specifically contrarian view to neoclassical accounts by showing how the purportedly liberalizing reforms in the early 1960s – including in the financial sector – were preceded by the complete nationalization of the commercial banking sector by the Park Chung Hee junta. Woo-Cumings shows throughout her book how control over the financial sector, including foreign borrowing, allowed the government to mobilize savings and steer investment. More importantly, it also allowed the regime to exercise political control over the private sector, at least through the 1970s when the growing power of the *chaebol* yielded a more balanced relationship (for example, Kim 1997; Kang 2002). Drawing explicit parallels to Gerschenkron (1962, Woo 130), she focuses particular attention on the Heavy and Chemical Industry Plan (HCIP) of the 1970s, during which a set of six heavy industries – steel, chemical, metal, machine-building, ship-building, and electronics – were targeted not only for a round of deepening through import substitution but for entry onto global markets through exports as well.

[20] Taiwan presents an interesting anomaly, as the state controlled the financial system but generally used it during the high-growth phase to finance state-owned enterprises rather than private ones.

Banks were not themselves the coordinating mechanism for this effort; to the contrary, they were arguably only instruments. However Woo-Cumings and others have detailed how newly created bureaucratic structures were created by the president to direct the broader effort, "bypassing and sometimes dictating to the Economic Planning Board and the Ministry of Finance" and creating consultative mechanisms with the private sector (Woo-Cumings 1991, 129; Rhee 1994, 59–64). Nonetheless, financing mobilized through a massive National Investment Fund, preferential financing through state-owned banks, and control over foreign borrowing (while restricting FDI) were undoubtedly the key government policy tool in these efforts.

Was state financing not only effective but efficient? In one of the few studies to evaluate the success of industrial policy through a cost–benefit analysis, Stern et al. (1995, 111–112) reach mixed results. The HCIP probably changed the industrial structure of the country from what it would have otherwise been and none of the projects reviewed in detail were outright disasters. But Stern et al. claim that none exhibited evidence of truly successful industrial policy as Wade defines it: having low internal rates of return at base-year prices and a rate of return exceeding the cost of capital at current prices. We know that the planning process was followed by bouts of surplus capacity in the early 1980s that necessitated the state's stepping back in through an altogether different coordination function: reducing surplus capacity, providing financial bailouts, and reallocating investments among the major enterprises, all with obvious social costs. Rhee (1994) argues that the power to coordinate had eroded by this point, and the "too big to fail" problem severely limited the capacity of the state to rationalize heavy and chemical industry investments. Yet the success of a number of the larger *chaebol* that grew up during this era suggests that the question of the dynamic effects of state intervention through the financial sector remain open. These obvious success cases include not only private sector behemoths like Samsung but state-owned enterprises such as POSCO.

3.3.3 Technology and Learning

A third rationale for state intervention in support of industry centers on technology, the development of indigenous capabilities, and learning. Among those writing explicitly within the developmental state framework, Amsden (1989, 1991, 2001; Amsden and Chu (2003)) and Evans (1995) were most preoccupied with these issues. In recapitulating the theory of state intervention with respect to technology, intellectual lines blur because a variety of heterodox approaches to economic growth have focused on the issue.[21] Rather than review these various strands, it is best to stand aside and let Amsden speak, as she deepened thinking about what developmental states do by placing particular emphasis on learning.

In *The Rise of "the Rest"* (2001, 2), Amsden defines economic development as "a process of moving from a set of assets based on primary products, exploited by unskilled labor, to a set of assets based on knowledge, exploited by skilled labor." Explicitly following Gerschenkron and the progenitors discussed in Section 2, she places this process in an international context.

Amsden frontally attacked the neoclassical idea that latecomers can successfully borrow from first movers by focusing on comparative advantage in labor-intensive industries alone. A poor country's lower wages may still leave it uncompetitive in any given industry when coming up against a rich country's higher productivity. As a result, specialization on the basis of comparative advantage in low-technology industries – achieved through liberalization – does not necessarily work (and by implication, was not what the successful Asian latecomers actually did). The only alternative to allowing real wages to fall via a depreciating exchange rate was to subsidize learning.

[21] These include Nelson and Winter's (1982) *An Evolutionary Theory of Economic Change* and subsequent work on national innovation systems (Nelson 1993), the influential work of Sanjaya Lall (for example, 1996), and endogenous growth theory's efforts to explicitly incorporate technical change (Romer 1986). A distinctive feature of this new wave of endogenous growth models – and also central to heterodox ones – is the absence of diminishing returns to capital.

The justification for such measures draws on well-known imperfections in markets for technology. As Dahlman, Ross-Larson, and Pursell (1987, 762) point out, "when firms choose technology, they choose more than a method for making something at expected costs, benefits and engineering norms. They also choose the capabilities they can acquire from experience with the technology – capabilities that would enable them to move on to new activities." But developing country firms lack full information on technological alternatives, function with imperfect information on the technologies they do acquire, and are subject to variable, unpredictable, and highly path-dependent learning processes. Incomplete appropriability leads to underinvestment in research and development (R&D), foregoing the many externalities that arise around R&D activities.

Amsden's account is not one that is limited to information asymmetries, however, or constraints that might be overcome by investments in education or industry-neutral infrastructure alone. It goes to more fundamental questions of tacit knowledge and learning:

> Unlike information, which is factual, knowledge is conceptual; it involves combinations of facts that interact in intangible ways. Perfect information is conceivable – with enough time and money, a firm may learn all the extant facts pertaining to its business. Perfect knowledge is inconceivable because knowledge is firm-specific and kept proprietary as best as possible to earn technological rents. (3)

Firms play a central role in Amsden's entire corpus, and her book on Korea did not focus on the role of the state to the extent that is commonly thought. Rather, again following Gerschenkron, she was also interested in whether the internal organization of the Korean *chaebol* was conducive to the absorption and modification of technology and learning. For example, she emphasized the multidivisional structure of Korean groups, which allowed learning across related activities, and the heavy investment firms made in process engineering. Institutions mattered, but these included latecomer firms. Nonetheless, direct state investment in R&D, government requirements for licensing and technology transfer

in FDI, and a variety of other subsidies to learning were crucial to building up the national champions that were the locus of innovation, productivity, and learning.

Before turning to some examples, it is worthwhile to underline that Amsden's arguments comport with more mainstream theory and empirical work on several important points. Neoclassical growth theory allowed for the possibility that countries would not only move along a given production function as capital accumulated but could shift to more productive paths, including global best practice (see Pack 2001). Such moves were linked to sectoral shifts in output, as emphasized by the postwar progenitors discussed earlier, and ultimately to the growth of larger firms using modern technology (see Amsden and Chu 2003 on Taiwan).

The contested empirical evidence from growth accounting exercises also provided at least some support for the focus on learning. To be sure, these efforts did show that factor inputs played a key role in East Asian growth, perhaps accounting for as much as two-thirds of it over the 1960–1994 period. But this is not the relevant metric. As Pack points out, total factor productivity growth in East Asia was substantially higher than in other developing countries, suggesting that something distinctive was at work in the region.[22]

We can get a sense of these processes by summarizing some exemplary case studies, this time reaching into Southeast Asian examples. In no broad sector was the question of technology and learning more central than in the rapid evolution of the Asian electronics industry, on which a vast literature emerged.[23] Singapore is a particularly interesting case to consider as it did not traverse a flying geese path from import substitution to exports. Rather, the history of the country as an entrepôt guaranteed a relatively open economy

[22] Among the complementary policies that might accelerate learning were the investment in education, including in higher education and engineering fields; I return to the role of social policy Section 4.

[23] Much of this literature embraced heterodox presumptions, seeing the state role as significant in the evolution of national- and firm-level capabilities in the region. See for example Hobday 1995 and Lall 1996 on regional patterns and Linsu Kim 1997 on Korea.

from the start of its industrialization drive, with foreign investment dominating the city-state's manufacturing sector.

Nonetheless, a number of accounts either cast strong doubt on market-oriented interpretations of Singapore's economic growth or placed the country squarely in the broader developmental state framework (Lim 1983; Rodan 1989; Haggard 1990;Huff 1995; Chiu, Ho, and Liu 1997; Low 1998). Compared to the governments in Japan, Korea, and Taiwan, the government in Singapore did not significantly limit FDI nor initially intervene to structure foreign firm's local operations, for example by forcing joint ventures, technology transfer agreements or local sourcing. Rather MNCs initially came to establish their own assembly operations, generating early examples of the international production networks that subsequently spanned the region.

Yet an extraordinarily capable Economic Development Board continually urged investors to upgrade by bringing in new products and introducing more advanced manufacturing processes (Schein 1997). This upgrading process was facilitated by public research institutes and training programs that effectively subsidized both capital and labor by guaranteeing a supply of highly specialized inputs and workers with sector, segment, and even firm-specific skills (Wong 1994, Wong and Ng 2001). Early stages in this process focused on process engineering capabilities through the public Singapore Institute for Standards and Industrial Research (SISIR). More specialized training institutes subsequently supported these efforts in areas where local firms were entering as suppliers to multinationals in the emerging electronics cluster.

The government was not averse to providing direct subsidies to local firms, including a Research Incentives Scheme for Companies (RISC) and a Local Industry Upgrading Scheme (LIUP). An interesting feature of LIUP is that it encouraged multinationals to provide their own staff to directly assist local suppliers in upgrading their capabilities, a textbook case of coordination. Over time – in good Akamatsu fashion – these programs evolved from upgrading process technologies to collaboration between foreign and local firms on R&D, with new public research institutes continually

being devised around very particular sectoral needs. Again it is important to emphasize that these forms of coordination were not equivalent to picking winners from on high. Rather, they were more networklike: forging highly targeted capabilities by building institutions that connected the government, multinationals, and their suppliers around tasks identified by the industries themselves.

Related processes were visible in the emergence of an electronics cluster on the Malaysian island of Penang (Rasiah 1994, 1995, 2001). Rasiah's work focuses on the introduction of just-in-time production processes in the electronics sector, initially by Japanese firms. Of course, subcontracting relationships were one avenue through which these capabilities developed. But Rasiah concludes that "provision of collective goods and services" by the Penang state government and related institutions were an integral part of the process, most notably the Penang Development Corporation and the Penang Skills Development Center (PSDC). These initiatives included the formation of business councils aimed in part at "matchmaking" between foreign and local firms that reduced search costs. A well-known training effort through the PSDC cooperated with fifty-one member multinationals to provide industry-specific training to workers, the ultimate locus of learning. As Rasiah (2001, 185) concludes, "such institutional environments are most productive under public–private sector interactions through which information is widely diffused and industry-wide goods are transparently available in exchange for market-conforming performance."

3.4 A Theoretical Reprise

The developmental state literature sought to perform a difficult analytic trick: to explain particular episodes of high growth – a macroeconomic phenomenon – by invoking arguments that ultimately rested on coordination at the industry or microeconomic level. As we have seen, the methodological issues are nontrivial. There is evidence that the East Asian countries not only witnessed a rapid accumulation of capital but productivity growth

that outstripped that of other developing countries. It remains an issue of debate whether case-study evidence gathered at the sectoral level is convincing for explaining aggregate economic performance. This is particularly true where the exercise appears biased toward the selection of successful cases and foregoes the complex counterfactual analysis outlined by Wade.

But much depends on where the burden of proof is assumed to lie. Neoclassical accounts attempted to show that complex policy regimes characterized by a welter of offsetting interventions in fact corresponded, in aggregate, with a structure of incentives that permitted exploitation of the country's comparative advantage. Scholars in the developmental state vein have on their side granular historical narratives that suggest a whole series of additional – if perhaps complementary – interventions. Moreover, they advance a plausible theoretical story about the pervasive role of market failures and coordination problems in the development process.

The neoclassical account also remains particularly underwhelming in its political economy. How did these policy regimes arise politically, and how did they control rent-seeking? The cases outlined here show that policy is not simply a question of turning parametric dials, and certainly does not conform with an image of a state "picking winners" from on high. Rather, the model rested on coordination and communication with private actors and complex bureaucratic capabilities in policy implementation and monitoring. Such arrangements raise important questions of political economy, to which I now turn.

4 From Policy to Politics: Institutional, Coalitional, and Historical Foundations of Developmental States

The developmental state literature frontally challenged neoclassical economic orthodoxy. Yet it also developed lines of reasoning about economic growth that ran counter to prevailing and emerging political economy models as well. The dominant institutional model of growth in economics and political science focuses on property rights