Meeting of Experts on “FDI, Technology and Competitiveness”

A conference convened in honour of Sanjaya Lall

UNCTAD, Palais des Nations, Geneva
8-9 March 2007

Impatience and Incentives: Sanjaya Lall and the Possibility of Industrial Policy

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Conference in Memory of Sanjaya Lall, Geneva, March 8-9, 2007

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(This version: 1 February 2007)

1. Introduction: The Urgent Master

Almost exactly forty years ago a group of Alexander Gerschenkron’s students produced a collection of essays in his honor. Titled *Industrialization in Two Systems*, and edited by Henry Rosovsky, the book’s epigraph is a quote from the *Pirke Avot*, the Sayings of the Jewish Fathers: “The day is short, and the work is great, and the laborers are sluggish, and the reward is much, and the Master is urgent”. Mentioning this here seems apt because Gerschenkron was an influential thinker on development thanks to his studies of the potentially beneficial aspects of what he termed “economic backwardness”. The epigraph might also seem apt because it conveys a sense of great labors that have yet to be completed, of opportunities that are ready for the taking, of the need to get going, the need to impart momentum on a process that is necessary and desirable; in short, it conveys a sense of impatience. After its inception in the 1940s development economics became something of a young field in a hurry, concerning itself with “catching up”, with coordination, with mobilization, with “pushes”, big or otherwise, with growth and change. It concerned itself with the implications of backwardness and lateness which, inverted, become leadership, “forging ahead”, and being on time. It was an impatient field.

But the impatience alluded to in the epigraph related not only to the impatience of the community, or the impatience of its leaders, but to the impatience of an individual who perceives the need for action and feels the urge to make something happen – the “Master” of the epigraph. The occasion of this paper is more somber than that of the Gerschenkron volume since the honoree has departed – so our efforts are in memory of Sanjaya Lall as much as they are in celebration of his contributions to the study of development. But the epigraph of the “urgent Master” seems appropriate for our purpose: Sanjaya Lall was an impatient man, his scholarly and advisory activities were many and overlapping, his projects, his research and policy interests were wide-ranging, and there was always a
sense of urgency about him and his work. And, for a development economist, this was an altogether appropriate temper.

In this paper I want to both outline and evaluate Lall’s vision of the development process in “latecomer countries” by discussing both the positive aspects (the nature of technological knowledge and technological capabilities) and the normative aspects (the promotion of competitiveness) of his vision. I also try to better understand the importance of Lall’s contributions to the “impatient field” of development economics by evaluating his work in the context of two ongoing controversies surrounding these positive and normative aspects of Lall’s work: (1) the debate on the nature of knowledge and its implications in terms of market failure and, consequently, the necessity of industrial policy and (2) the debate on the political economy of industrial policy in terms of the costs of discretionary policy interventions and, consequently, the possibility of industrial policy. The paper argues that arguments in support of the necessity and/or the possibility of industrial policy are contentious in particular ways and that the broad validity and promise of Lall’s vision of late-industrializing development depends on establishing the grounds for both the positive dimensions (necessity) and the normative dimensions (possibility) of industrial policy in terms that are comprehensible to both sides of the debate.

2. Technology, Knowledge and Production in the Real World: Sanjaya Lall’s Positive Vision

In attempting to put together a coherent framework that would allow him to understand (and help promote) industrialization in latecomer countries, Lall drew on a wide variety of sources and approaches. The result was imaginative, eclectic and pragmatic rather than narrow, formalistic and dogmatic. It has become an important part of an emerging paradigm that might be called a “revisionist economics of late industrialization” within the broadly structuralist school of development thought. This paradigm’s toolkit of concepts and theoretical tools was the result of a quest for ingredients that might be assembled to enrich (and to counteract) what Lall and many others perceived to be an unhelpfully reductionist and policy-irrelevant approach to understanding development: what has been variously labeled “laissez-faire”, “free market”, “neoclassical” or “neoliberal” development economics. Either augmenting or altering this approach, which had experienced a return to the mainstream as part of a backlash against statist or planning-based ideas during the 1980s, was the project that Lall and others were engaged in. The debate lives and it could be argued that it continues because Lall and others provided both theoretical and policy-relevant ammunition defending the possibility of industrial policy, broadly defined, as an instrument of late industrialization and development. Some have gone so far as to characterize the resulting paradigm as “development economics” proper: “Development economics can, therefore, be seen as a

[1] The term “industrial policy” here includes technology policies. As Lall writes, “[t]echnology policy in developing countries should be seen as an inherent part of industrial development policy” [“Investment and Technology Policies for Competitiveness”, UNCTAD Technology for Development Series (2003), p.21]
field of study that refuses to yield to the metaphors from physics which portray the market as a mechanism creating automatic harmony”.  

The conceptualization and understanding of “technological capabilities” (TCs) constitute the keystone of Lall’s theoretical approach. The main driver behind the elaboration of TCs was the inability of, or lack of interest by, mainstream or neoclassical economics to provide an account of firm-level behavior in the real world, in particular the way in which firms choose technology and the ways in which they become competitive in domestic and international markets. The TC approach was therefore devoted (like other, more neoclassical, approaches pioneered by Ronald Coase or Oliver Williamson) to “opening the black box” of the firm - except that it focused on dynamic processes of learning and technology use rather than on the boundaries of the firm (Coase), or the structure and costs of intra-firm and inter-firm transactions (Williamson). Also, Lall’s approach is distinguished by a stronger emphasis on, firstly, uncertainty and imperfect knowledge and, secondly, on the continuous or dynamic evolution of firm-level capabilities, with less emphasis on the characterization of equilibrium states or outcomes.

To elaborate on the first aspect, the cognitive underpinnings of the TC approach are distinctly non-neoclassical, related as they are to evolutionary economics. A linchpin is provided by the concept of “tacit knowledge” (non-codifiable, idiosyncratic or “personal” knowledge) as introduced and elaborated by Michael Polanyi in *Personal Knowledge* and *The Tacit Dimension* (both 1967) and used widely in evolutionary approaches as different as Austrian and Schumpeterian economics. Lall and Teubal (1998) list this key ingredient at the top of their table of differences between neoclassical and evolutionary approaches. The fact that much knowledge is tacit implies that learning processes, rather than the purely mechanical transmission of information implied in neoclassical models, must take center stage in a dynamic model in which firms become competitive over time. Learning itself is uncertain in this setting, and dependent in part on learning elsewhere in the economy: it is, according to Lall, collective, cumulative, and path-dependent, and not automatic or predictable. Differential processes of learning under uncertainty and tacitness drive an economy composed of heterogeneous firms and non-firm institutions connected not only by competition (the standard neoclassical assumption) but by cooperation in partly collective processes. The dynamic process is path-dependent so “history matters” and there is no guarantee of convergence of productivities and firm-level performances. As argued below, these positive aspects of his vision establish, for Lall and others, the necessity of industrial policy.

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4 For an elaboration of features of technological learning in developing countries, see Lall, “Investment and Technology Policies for Competitiveness”, *UNCTAD Technology for Development Series* (2003), Box 10, p.8
5 For an elaboration of path-dependence and potential inefficiency when systems of knowledge or information display increasing returns, see Paul David, “Knowledge, Property and the System Dynamics of
3. Creating Competitiveness in the Real World: Sanjaya Lall’s Normative Vision

Lall’s positive vision is linked to a normative and policy-relevant vision by considering the nature of technology transfer, a key ingredient of “catching up” and a key aspect of the latecomer’s advantage. Lall considers technology transfer in the broader context of the ability of markets to coordinate individual choices and provide incentives for coordination through the price mechanism. If the positive vision outlined above is true then the puzzle of non-convergence, and the fact that the Gerschenkronian advantages of “backwardness” have materialized for only a small number of economies, is at least partly explained. Technology absorption cannot, on this view, be assumed to be automatic or simple. If processes of learning, and the achievement of competitiveness, are nonlinear, highly uncertain and partly collective, then markets will, by themselves, potentially fail to provide signals that embody all the information relevant for firm-level decision-makers. So the incentives embodied in market-generated price signals cannot be sufficient and there is potentially a role for what Lall calls “market-stimulating” policies (and non-market mechanisms) in the quest for industrialization and competitiveness. For Lall current relative prices, and therefore an assessment of comparative advantage based on them, cannot be a reliable guide to the allocation of resources in a dynamic and path-dependent world; comparative advantage is as much created as it is discovered, if not more so.

So, for Lall, the potential market-augmenting or market-stimulating role of government relates, broadly, to the creation of competitiveness. Lall’s normative vision is, importantly, market-friendly in that his view of competitiveness does not ask government to substitute for all private-sector decision-making. Instead, he sees the government’s role as enabling, active, and even leading. For Lall competitiveness should be understood within a broader appreciation of dynamic comparative advantage in a world where his positive vision holds true – a world of highly imperfect markets and uncertain learning. For Lall it is only in such a world that the concept of competitiveness has any meaning as a concern for firms or governments. But government policies aimed at improving competitiveness cannot, for Lall, be merely about “picking winners” and promoting or protecting them: industrial policy is more comprehensive and complex in that it helps “create winners” within a market environment guided and stimulated by a capable and visionary government that shares its vision with civil society and the private sector.

Therefore is can be argued that competitiveness linked to the nature of technology and learning (and therefore to the process of catching-up and late industrialization) may be a

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6 See Lall and Teubal (1998), p. 1382, “[T]he use of nonmarket mechanisms is complementary to, not a substitute for, market mechanisms”.

real concern for policymakers. And it can be argued that industrial policy, broadly
deﬁned as a set of policies (to include a variety of technology policies described by Lall
and others8) aimed at improving the competitiveness of ﬁrms, industries or sectors, is
prima facie necessary based on Lall’s positive vision of the nature of technological
knowledge and the market failures inherent in its production and transfer. But is
industrial policy also possible?

This distinction may appear moot but it points to an important and ongoing debate on the
political economy of industrial policy and the degree to which recent “late
industrialization” experiences might be replicated by others with less fortunate histories
of industrial policy and discretionary intervention. Analogously, and referring to a
different area of economics, Amartya Sen gave his 1998 Nobel Prize acceptance lecture
the title “The Possibility of Social Choice”.9 While the necessity of social choice had
long been established and argued, the contribution of Kenneth Arrow appeared to have
established its impossibility in a very general but highly abstract setting based on highly
restrictive assumptions concerning information and individual behavior.10 Lall’s project,
and that of others working in the same area, may be compared to Sen’s in that the highly
restrictive assumptions of neoclassical economics appear to rule out much of a role for
government in industry (except in the case of rather narrow interventions addressing
clearly deﬁned market failures). The possibility of industrial policy, in the sense of a
welfare-improving set of policy measures, must therefore be established in order to
counter a prevailing “impossibility theorem” expressed explicitly or implicitly in the
tenets of mainstream economics. For Lall and others this task is best undertaken by
studying cases of successful industrial policy in latecomer countries, particularly the
Asian newly industrializing countries (NICs) of the postwar period. Lall’s study of
industrialization in the East Asian NICs led him to the view that industrial policy is not
just necessary and possible but that its desirability is borne out by the historical evidence.
His view of industrial policy as both necessary and possible, though, contrasts with that
of other writers.

4. Industrial Policies and Late Industrialization: Three Views

(a) Industrial policy as necessary and possible

Lall frequently emphasizes that many experiments in industrial policy have failed and
that the role of government envisioned in (what I term) the revisionist economics of late
industrialization is different from that of the “high development economics” of the early
postwar period with its emphasis on government planning and government ownership

8 See Lall and Teubal (1998), and Lall, “Investment and Technology Policies for Competitiveness”,
9 See http://nobelprize.org/nobel_prizes/economics/laureates/1998/sen-lecture.html. Also reprinted in Sen,
10 Kenneth Arrow, Social Choice and Individual Values (1951)
and its neglect of the role of markets in development. For Lall, successful industrial policies (i.e. policies that have not been so costly in their direct effects, for example the costs of inefficient industries, and indirect effects, for example the costs of rent-seeking and directly unproductive activities, so as to overwhelm any positive impact the policies may have on technology, employment or demand) are not necessarily narrowly selective ("picking winners") nor are they narrowly functional (addressing market failures in a neoclassical sense). Successful policies are what Lall and Teubal call “horizontal” in that they “promote selected activities across sectors”, improve markets and may be targeted at particular sectors or industries. The composition or mix of policies will vary across countries but the most successful cases of what Lall terms “market stimulating technology policies” are, he argues, to be found in the East Asian economies, especially South Korea and Taiwan, where the results have included high rates of economic growth, diversification of manufacturing and successful capture of overseas market share. For Lall and others the link between industrial policy and economic performance is causal, and not simply a correlation. While not all industrial policies succeeded in all the Asian NICs, the configuration of private sector and public sector was such that it engendered high rates of investment, high rates of education, and high rates of growth. On the whole, industrial policies were widely seen as successful in enabling technology transfer and absorption, and were therefore a key ingredient in the catching-up by late industrializers. On this view industrial policy is both necessary (in that the positive vision outlined in section XX above holds true) and possible (in that it can be shown to have resulted in net increases in welfare). It is not held to be sufficient, though, in that other institutions (e.g. law and order) or policies (e.g. macroeconomic stability) will typically need to be in place for industrial policy to be effective since the overall policy calls for the augmentation of markets and not their replacement by state planning and public investment.

A recent exposition and development of the theoretical dimensions of this view is by Dani Rodrik. Drawing on a joint paper by Rodrik and Hausmann, Rodrik provides rationalizations for industrial policy in terms of the informational externalities provided by successful and unsuccessful entrepreneurs as they discover their comparative advantages in markets. Since these benefits are not captured by these entrepreneurs themselves the level of entrepreneurship in a developing economy would be suboptimal, providing a prima facie case for government intervention. Such intervention would have to be discretionary since it would have be responsive to changing circumstances and to the feedback from government policies.

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An even more enthusiastic defense of industrial policy as necessary and possible is advanced by Chang and Cheema.15 Employing the concept of “learning and innovation rents” they conclude that the externalities, market imperfections and coordination failures inherent in technology-driven development processes call for a broad set of interventions in support of late industrialization and catching-up in the form of subsidies to entrepreneurial activity.

(b) Skepticism about the necessity and possibility of industrial policy

An intermediate view of industrial policy is developed by Howard Pack and Marcus Noland.16 Pack had argued, on previous occasions, that, in general, Korea’s industrial policies had been successful in promoting industrialization without dissipating too many of the gains in efficiency losses.17 In this more recent contribution he revises that view, which had been more in accordance with that outlined in the previous paragraphs. While broadly favoring the support of technology institutions and other public goods that are also emphasized by Lall, Pack and Noland, after considering the empirical evidence on TFP growth rates and the externalities generated by high-growth sectors, are skeptical regarding the role of industrial policy in the “East Asian miracle”. They conclude instead that “[a] large part of the ‘Asian Miracle’ was attributable to nonmiraculous good macroeconomic policy, including limited government deficits, low rates of inflation, and very stable real exchange rates”.18 While there may have been “atmospheric” effects due to a credible commitment of the government to intervene, and inter-sectoral externalities may have been important, Noland and Pack find these factors hard or impossible to quantify. Pack (with Kamal Saggi, 2006) concludes, similarly, that recent experiences of growth and learning generated in private industries without assistance by governments suggest that “[o]verall, there appears to be little empirical evidence for an activist government policy even though market failures exist that can, in principle, justify the use of industrial policy”.19

In terms of the necessity/possibility criteria introduced earlier, this intermediate view is receptive or even supportive of the view that industrial policy may be necessary in that the positive features of knowledge and technological change reflected in Lall’s vision are likely true, and that markets are not guaranteed to find the best solutions to the challenges of late industrialization. In terms of Lall’s normative vision, though, the intermediate view is less sanguine in that it emphasizes both the shaky empirical basis supporting industrial policy, and the necessity to take the political economy of industrial policy more seriously, i.e. the possibility that potentially socially beneficial effects of such policies will be dissipated by rent-seeking and inefficiencies. Pack and others believe that development prospects in latecomer countries can be “pretty good” in that, although they

18 Noland and Pack (2003), p.100
might be improved *in principle* by judicious policy interventions, in practice free markets and macro stability do the job reasonably well and the political-economy costs of intervention are likely to be high or hard to contain in most environments.

(c) *Industrial policy is neither necessary nor possible*

Furthest from Lall’s positive and normative visions of development policy are the approaches exemplified, among others, by Parente and Prescott\(^{20}\) and by William Baumol\(^{21}\).

Parente and Prescott acknowledge the enormous advantages of latecomers but believe that policy should aim at the abolition of domestic and international barriers to importation and investment: “the efficient application of ideas developed elsewhere will require investments in physical and intangible capital. If barriers are absent, these investments will be made”.\(^{22}\) Government policy should furthermore support competition and free trade to help boost productivity and increase per capita output and incomes. In their view, successful development policy reduces the power of insiders and vested interests within the political economy, unleashing entrepreneurship in the private sector within favorable but largely passive framework policies.

Baumol emphasizes the “imperfect but substantial economic efficiency and growth under capitalism” within a broadly free-enterprise system.\(^{23}\) He explains and demonstrates the voluntary dissemination of proprietary technologies and the importance of “spillovers” which, according to old and new theories of growth, are a potential source of inefficiency and therefore constitute a rationale for government intervention. For Baumol they are the driving force of the “free market innovation machine”, and any static inefficiency due to uncompensated spillovers is more than compensated for by the overall social benefits generated by knowledge externalities and by private-sector attempts to capture these externalities in competitive markets for technology and goods – within a framework of well-developed and enforceable property rights that sets favorable conditions for private transactions.

What distinguishes this last set of views is that both their positive and the normative aspects are different from those embodied in Lall’s works. Both of the contributions just outlined note that, indeed, technology and knowledge as economic goods may have peculiar characteristics that are also acknowledged by the other two views. But Parente and Prescott, as well as Baumol, emphasize the evolving and dynamic ability of private actors and competitive markets to maximize the benefits and minimize the costs of these peculiar characteristics. In that sense they do not view industrial policy, or any form of selective and discretionary interventions, as necessary since the most appropriate incentives are embedded in a decentralized system that makes best use of local and diffuse knowledge. Furthermore, these writers do not view industrial policy as possible.

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\(^{22}\) Parent and Prescott (2000), p.5

\(^{23}\) Baumol (2002), p.5
in the sense that they are deeply skeptical of the ability of governments to structure selective interventions in such a way that they will generate net gains in welfare. This last assessment is based on political economy arguments regarding the tendency for insiders or special interests to capture policy and dissipate any gains from centralized coordination or guidance.

The three views were distinguished along two dimensions: the necessity of industrial policy and the possibility of industrial policy. In what follows I will elaborate on these two dimensions and explain them in more detail. This will help us to provide a clearer account of Lall’s vision of development policy for late industrializers, and to better characterize possible critiques and limitations of Lall’s vision.

5. The Necessity of Industrial Policy: The Role of Knowledge

This dimension of the debate on industrial policy is related to the positive aspects of Lall’s vision outlined in Section 2 above. Lall himself related the theoretical foundations of his approach to that of evolutionary economists, in particular Nelson, Winter, Dosi, and Freeman, as well as information economists such as Stiglitz. The evolutionary vision of a population of heterogeneous agents and firms interacting and evolving dynamically through processes of “mutation” (innovation) and “selection” (competition) was given coherence in the Schumpeterian models developed by Nelson and Winter in their pathbreaking 1982 contribution, An Evolutionary Theory of Economic Change (1982). Nelson and Winter’s assumptions about knowledge were in turn informed by Herbert Simon’s concept of “bounded rationality”. Nelson and Winter also refer to Michael Polanyi’s work on tacit knowledge, noting that “we know more than we can tell”, and that in may not be possible to fully articulate all production-relevant knowledge or the rules and routines that guide the functioning of firms. Nelson and Winter’s use of tacitness was influential and became a key ingredient of evolutionary models. Giovanni Dosi, in his “seven propositions on technical change, markets and institutions”, emphasizes the tacitness and idiosyncratic nature of knowledge and notes that this feature of technology may limit the degree to which firms or countries can imitate each others production processes, thereby reducing the potential advantages of latecomers in the development process.

The key role of “tacit knowledge” in evolutionary economics, in Lall’s vision, and its importance as a positive underpinning and possible rationale for government intervention, would make it establish a tight link between the positive and normative aspects of Lall’s vision. Such a tight link would lend support to a view of industrial policy as clearly necessary. This conclusion appears inevitable once it is emphasized that a neoclassical view of information and technology is being rejected. After all, once it is acknowledged

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24 See, for example, Lall (1990), Chapter 1.
that technological information and knowledge do not meet neoclassical requirements of perfection in terms of homogeneity and codifiability, market failure is likely to be ubiquitous: Stiglitz assumes as much when he writes that “markets for information/technology cannot work in the way that standard competitive markets […] work”. 27 *Ipso facto* there is a strong justification for corrective intervention on two counts: first, firms face considerable difficulty absorbing advanced technology due to the systemic and tacit nature of technological knowledge, and, second, firms are reluctant to invest in the absorption of technology due to its non-appropriability and the positive externalities generated by firm-level investments in technology. Furthermore, according to Lall and others, corrective intervention should not be merely “functional” (narrowly corrective in a neoclassical sense) but selective in a “horizontal” way because “because technologies differ inherently in their tacit features and externalities” and the learning process is highly technology-specific.28

These two counts in favor of the necessity of industrial policy face two possible criticisms: first, they are not necessarily compatible because tacitness could be argued to “cut both ways” since it implies that knowledge is naturally protected by its systemic and tacit nature, a fact that would at least partly counteract demands for subsidies or protections; second, due to the tacitness and local or idiosyncratic nature of knowledge its generation, absorption and use should be decided and allocated in a decentralized way rather than a centralized way.

The second point just made is important since it indicates a possible, and mostly unacknowledged, source of criticism of revisionist views of late industrialization such as those developed by Lall. In terms of intellectual history, Michael Polanyi’s elaboration of tacit or personal knowledge was accompanied by his philosophical writings on scientific, political and economic freedom collected in *The Logic of Liberty* (1951). There he argued that the self-organizing nature of scientific inquiry should serve as a model for economic organization. For Polanyi recognizing the universality of “personal knowledge” should lead one to embrace decentralized structures that would emerge and evolve to enable self-coordination.29 *In The Logic of Liberty* Polanyi argues against central direction and economic planning, and in favor of a “spontaneous order” that will allow tacit and local knowledge to be generated, transmitted and used by those who have the correct incentives. The importance of a decentralized economic order, flexible enough to allow for a wide number of transactions involving local or personal knowledge, is famously underscored in Friedrich von Hayek’s writings, especially his *Use of Knowledge in Society* (1945) and *Der Wettbewerb als Entdeckungsverfahren* (Competition as a Process of Discovery, 1968). Importantly, Hayek’s views, like Lall’s and those of other structuralist economists, involve a strong critique of neoclassical precepts and assumptions. In particular, Hayek believes that neoclassical economics trivializes problems involving production and information and therefore neglects the importance of

29 For an elaboration of this connection see Michael Polanyi, “The Republic of Science: Its Political and Economic Theory”, *Minerva*, 1 (1962)
competition in the economic process: “those who base their view of competition only on ideas expressed in modern [economics] textbooks have concluded that this kind of competition does not even exist”.  

This classical-liberal critique of the neoclassical view of competition and markets is broadly evolutionary, emphasizing process, uncertainty, and a behavioral emphasis on cognitive factors. This school has, in Polanyi (and, to a lesser extent, in Schumpeter), a “common ancestor” with the structuralist and developmentalist view embodied in Lall’s approach to technology and industrialization. Yet their respective views on the implications of tacit or local knowledge in terms of policy and political economy are very different.

Polanyi and Hayek see the “market process” as the mechanism most likely to solve allocative issues relating to information. The fact that markets do not meet the standard of perfection set out in neoclassical economics is an indication of cognitive limitations and behavioral factors that apply as much to individuals and organizations in government as they do to individuals and institutions in the private sector. Therefore, in this view, the neoclassical term “market failure” embodies far too narrow and static a view of markets and too mechanistic a view of possible governmental remedies or interventions. Instead of emphasizing “failures” Hayek would emphasize the imperfections and idiosyncrasies of market processes, noting that the benchmark of “perfect markets” is irrelevant, incoherent and misleading since a world of perfect markets would be unrecognizable and would not feature either real competition or innovation – or any endogenous economic change, for that matter.

Like Hayek, Lall criticizes the narrow and “functional” view of market failures expressed by neoclassical economist. But, unlike Hayek or Polanyi, Lall notes that a broader view of market failures is supported by the evolutionary approach, as is a broader view of the role of government in not only correcting these failures but providing leadership in doing so selectively and as a coordinating (or “collective action”) mechanism. For Lall and other structuralists the ubiquity of market failures provides an opening for a model of government-guided “late industrialization” in which the “perfect market” benchmark is rejected as being irrelevant to the needs of countries trying to make the most of backwardness. Lall, though, does not acknowledge Hayek’s work or that of any other “market process” thinker. A variant of Lall’s view is expressed by Stiglitz in his Whither Socialism? (1994): while acknowledging the importance of Hayek and the classical liberal or Austrian “market process” advocates Stiglitz also maintains (based on his pathbreaking Greenwald-Stiglitz Theorems) that, in general, there are necessary and possible Pareto-improving government interventions aimed at these ubiquitous market failures.

30 Hayek (1968), p. 3 (own translation)
31 But see Chang and Cheema (2002), p.373, who briefly discuss Austrian views of market dynamics in establishing the (for them, suitably circumscribed) role of markets in industrial development
In sum, the necessity of industrial policy cannot be established simply by emphasizing non-neoclassical features of information and knowledge. The implications of tacit knowledge are viewed in radically different ways by classical-liberal and structuralist economists. The former group views the decentralized market process as the superior mechanism for solving informational problems and place the burden of proof on those who would take a more interventionist view; the latter group views the market process as inadequate and makes a prima facie case for intervention and corrective action in the face informational challenges. Even so, many classical-liberal writers acknowledge that the case for non-minimal government intervention is partly empirical. Therefore, even if industrial policy is not, on the whole, viewed as necessary, classical-liberal writers have a strong presumption against its possibility. This presumption is based on a particular set of views about the nature of evolutionary processes, and of political economy.

6. The Possibility of Industrial Policy: The Role of Political Economy

Any broadly evolutionary approach (including Lall’s structuralist view and the classical-liberal vision of Hayek and Polanyi) has to confront the question whether evolutionary processes are goal-oriented. Models of biological evolution since Darwin have been non-teleological: the evolutionary process is understood as being unguided and driven by local processes of mutation and selection. “Market process” views of economic change and development (such as, broadly, the Austrian or classical-liberal variants) do not see the political economy, comprising the public and private sectors, as having a goal at all. In their view development is undirected change - but not change in a particular or aggregate direction, and only local criteria are used in evaluating the process, by local actors or agents (i.e. local optimality and adaptiveness). Developmentalist visions such as Lall’s emphasize the role of government in setting framework conditions that place parameters on market-based evolutionary processes in such a way as to increase the likelihood of welfare-improving structural change. In that sense development is directed change and it is necessary to use global criteria (i.e. global optimality, suitably defined) to evaluate the outcomes and the desirability of the process as a whole – especially when the process is one of catching-up in the context of late industrialization and the goals of economic development can be fairly clearly defined and pursued. The possibility of guiding evolutionary processes presumes that these processes should and ought to be guided and that the performance of a socio-economic system should not be left to the unintended consequences of local decisions.

Considering the differences between the classical-liberal and structuralist schools of thought in terms of the possible goals of evolutionary processes points to the contrast between extensive growth or development based on “catching up” in a number of well-defined industries, and the intensive growth and development of industrial leaders close to, or on, the technological frontier. Lall was most concerned about technology transfer and absorption in situations where technological mastery was fairly clearly defined, even if the process of building technological capabilities was potentially fraught with informational or cognitive challenges. In these situations development may have a more
clearly goal-oriented character with both governments and the private sector having relatively clear visions of, and criteria for, success (such as sustaining rapid economic growth, capturing export markets, or attracting foreign investment). Late industrialization, then, may reward the more static view of markets as “places” developed, among others, by Lall, compared to the more dynamic view of markets as “processes” emphasized by Hayek or Polanyi, since the relevant factors and goods are more clearly defined for industrial followers than for industrial leaders. Under conditions of late industrialization, therefore, broadly market-guiding policies correcting certain market failures may be more easily conceived and implemented. Such coordinating policies, if successful, may be a mark of the impatience of both rulers and the ruled. In that sense late industrialization reflects widespread impatience with backwardness and the costs of curtailing the self-organizing and dynamic market processes extolled by classical-liberal approaches may be outweighed by the benefits of rapid catch-up using more heavily guided or static market mechanisms – if the costs of discretionary policy interventions can be controlled.

The difference between the institutions and policies required for “catching up”, compared to those required for innovation or for the adoption of radically new technologies, is developed in a recent contribution by Barry Eichengreen, *The European Economy since 1945: Coordinated Capitalism and Beyond* (2006). Eichengreen analyzes the institutions (including bank-based finance and worker co-determination, what he calls “coordinated capitalism”) devised for European economic growth when growth implied the mobilization of investment by existing enterprises using relatively well-known technologies (i.e. enterprises operating in well-defined and relatively static markets). Eichengreen ascribes the relatively weak performance of these institutions after the 1970s to their lack of adaptability when technological change became more fast-paced and international competition increased. Weak European economic performance, in this view, is partly a function of the capture of these previously successful institutions by special-interest groups trying to avoid the exposure to new kinds of competition in markets that were more “process” than “place”. In political-economy terms, the European “relationship capitalism” of the postwar golden age, which provided security and insurance to insiders, did not appear to impose direct and indirect costs of significant relative magnitude (discussed below) until the system as a whole could no longer deliver high rates of economic growth.

So it appears that “coordinated capitalism” and “relationship capitalism” involve particular mechanisms of bargaining, incentives and enforcement that are the hallmarks of “impatient economies” bent on catching up with more innovative and dynamic leaders. Governments of late-industrializing economies are, potentially, the “urgent masters” of this article’s opening epigraph. In the best case relatively clearly defined developmental goals are achieved within an institutional environment characterized by relatively

33 Contrast this with Hayek’s view that the non-neoclassical role and innovative of the market process includes the dynamic discovery of “what things are goods” (“welche Dinge Güter sind”) in the first place, beyond the static role of neoclassical markets in allocating given types and amounts of goods [see Hayek (1968), p.7]

34 The term “relationship capitalism” is developed by Raghuram Rajan and Luis Zingales in *Saving Capitalism from the Capitalists* (2003); see esp. Chapter 11
exclusive bargains between governments and privileged private agents or insiders operating in guided and fairly static markets. As Hilton Root writes in the context of an exploration of East Asian growth, “governments placed emphasis on developing bureaucratic and executive capacity rather than on creating legal and judicial structures”\textsuperscript{35} – the former required to execute relatively well-defined development plans with fairly clear goals (what might be called “discretionary capacity”), the latter would more essential to unguided Hayekian market processes that self-organize in an open-ended way (what might be called “rule-enforcing capacity”). The East Asian system is broadly corporatist or neo-corporatist, as described, for example, by Robert Wade in the case of Taiwan: “only those economic interest groups sanctioned by the state get access to the state”.\textsuperscript{36} This system prevailed in the economies analyzed by Lall.

The classical-liberal ideal extols a minimal government providing law and judicial enforcement as truly public goods in an “open access” environment, creating framework conditions for private entrepreneurs to create value in competitive markets that are more “process” than “place”. The structuralist and developmentalist ideal sees government as providing coordination and a focal point for expectations, providing “good policies” and implicit insurance as private goods to selected parties, with widely spread benefits (what has been called “credibly shared growth”\textsuperscript{37}). In this view government is itself being an entrepreneurial force creating and stimulating markets – it underplays, relative to the first view, the role of private entrepreneurship.\textsuperscript{38} “Entrepreneurship” is defined here, with Arnold Kling, as someone who launches a new enterprise and “bears considerable risk and accountability relative to its success”.\textsuperscript{39} In contrast, a firm that operates in the corporatist world of relationship, or state-guided, capitalism is successful when granted implicit insurance through protection or subsidies, often via the government’s control of financial markets, and is therefore not “entrepreneurial” in the classical-liberal view.\textsuperscript{40} Firm-level entry or exit are controlled or guided by discretionary intervention rather than by rule-guided framework conditions, overriding the rule-based Schumpeterian “creative destruction” of classical-liberal market processes.

Entrepreneurial capitalism, defined in contrast with the state-guided varieties, allows the rates of growth and innovation to emerge from decentralized and largely self-organizing market processes. In this system, while individual entrepreneurs may be “impatient” there is no meaning to the concept of an “impatient economy” in the classical-liberal view - and no need to grant an “impatient government” the capacity and power to coordinate economic activity as part of a development strategy. This is simply because “the economy” is not endowed with any goal and non-teleological evolutionary view of the


\textsuperscript{36} Robert Wade, \textit{Governing the Market} (1990), p.294

\textsuperscript{37} See Jose Edgardo Campos and Hilton Root, \textit{The Key to the Asian Miracle} (1996)

\textsuperscript{38} The contrast between these two views as “state-guided capitalism” and “entrepreneurial capitalism” is developed by Carl Schramm and Robert Litan in “Capital Ideas”, \textit{American Interest} (September/October 2006), and in their forthcoming \textit{Good Capitalism, Bad Capitalism} (2007, with William Baumol).


\textsuperscript{40} Kling (2006) whimsically suggests the term “in-trepreneur” for the non-classical-liberal view.
economic process prevails. And because entrepreneurial activity in government is, on the whole, undesirable since it may imply discretionary interventions in areas outside of the classical-liberal public-goods domain.

On the whole, the classical-liberal view could be seen as being more relevant to an economy at the technological or industrial frontier, but being less appropriate for “developing countries” that lag far behind. In this sense proponents of state-guided and market-stimulating development policies such as Lall need not disagree with the classical-liberal vision in toto (at least not in relation to industrial policy, though possibly with regard to other policy interventions such as social security nets, broadly defined). Reciprocally, classical-liberal economists might agree that certain historical and institutional settings may allow for possible industrial policy. If this is true then both approaches should define the domain of their applicability more clearly.

Defining these domains more clearly requires making explicit assumptions about political economy, defined here as the study of how the allocation and use of power affects the allocation and use of resources. It is ultimately in the realm of political economy that the possibility of industrial policy is determined, once its necessity has been established.

The classical-liberal approach favors a small and rule-bound government for reasons of both economic efficiency (best use of local knowledge) and political liberty (economic and political freedoms seen as intertwined).41 In general, it does not see a necessity for industrial policy because its non-neoclassical assumptions about the nature of knowledge undermine, in its own view, the narrow neoclassical focus on market failures. Also, it does not see a possibility for industrial policy because its assumptions about the self-interested behavior of individuals in government lead to skepticism regarding the ability of private agents to control any discretionary power granted to rulers. In brief, the classical-liberal view does not so much see government intervention as impossible in principle (it may even be successful on occasion), or even as undesirable in specific cases, but instead it emphasizes the tendency for the total costs of discretionary (i.e. more-than-minimal) government intervention, suitably defined and accounted in terms of overall welfare, to outweigh its benefits over a relevant period of time.42 The relevance of these views should be seen as an empirical rather than an ideological matter; nevertheless, classical-liberal views create strong presumptions in favor of decentralization and place the burden of proof on those who would create significant spaces for discretionary government intervention. In this they differ from broadly structuralist or developmentalist views such as Lall’s that see a strong prima facie justification, and a potentially extensive space, for such interventions, on both historical and theoretical grounds.

41 The emphasis on both economic and political freedoms is not, of course, a purely classical-liberal attribute – see, for example, Amartya Sen’s emphasis on the process aspects and the opportunity aspects of markets in his “Markets and Freedoms”, Oxford Economic Papers, 45 (1993)
42 For a recent statement of classical liberal political philosophy that contrasts with “starker forms of libertarianism” and seeks to justify the use of state coercion in, for example, remedying externalities such as the creation of pollution, that are broadly viewed as forms of aggression, see Richard Epstein, Skepticism and Freedom: A Modern Case for Classical Liberalism (2003); see esp. pp. 5-8
Since industrial policy involves discretionary government intervention that moves beyond both the minimalist provision of pure “Smithian” public goods (such as law and order or judicial enforcement) and beyond the correction of narrowly defined, or neoclassical, market failures, the possibility of industrial policy (defined as its ability to be broadly welfare-enhancing) depends on the “ability” of an economy to control the potential costs of these discretionary interventions. Neither structuralist nor neoclassical approaches, though, typically describe or specify in any detail the various actual and potential costs of discretionary intervention in terms of a broad political economy framework. But estimating these total costs would have to account at least for the following five categories of costs: (1) the direct budget costs, including the budget opportunity costs, of a particular policy; (2) the deadweight costs imposed as a result of taxation (Harberger triangles); (3) the direct costs imposed by rent-seeking activities that are largely redistributive (as described by Tullock\(^{43}\)); (4) the opportunity costs of rent-seeking as potentially productive resources are drawn into unproductive activities (outlined by Cowen and Tabarrok\(^ {44}\)); and (5) what might be called “Schumpeterian costs”, an additional opportunity cost of rent-seeking due to foregone inventive and innovative activities that potentially increase an economy’s long-run growth rate. To use a physical or chemical analogy, the possibility of any set of discretionary interventions would depend crucially on the ability to control potentially “runaway reactions” that would dissipate their effectiveness.

Understanding and modeling, in terms of a particular configuration of economic, political and social institutions, the ability of an economy to control the costs of discretionary intervention has been one of the most important quests of development economics. In the context of the successful Asian economies analyzed by Lall, this institutional configuration has been variously described as “making shared growth credible”, “relationship capitalism”, “embedded autonomy”, “neo-corporatism”, “modulation of competitive pressures”, “reciprocal control mechanism”, “getting prices wrong” within the context of “disciplinary mechanisms” and “government entrepreneurship”, and “state promotion” creating “innovation rents”, to name a few. This quest is akin to the alchemical search for the philosophers’ stone and the carmot that would help transform base metal (underdevelopment) into precious metal (development) without simply creating worthless waste products. Understanding the different kinds of costs that discretionary policy may involve is important; it may help move the industrial policy debate beyond ideology. While “neoclassicals” or “neoliberals” have often been cavalier in their treatment of market failure and government failure, “structuralists” have often seemed similarly cavalier in their treatment of the limits of industrial policy. While Lall and others acknowledge that government capabilities are often weak in poor countries they may be viewed as overly optimistic regarding the possibility of improving this capacity, or regarding the possibility of controlling the costs of intervention through judicious design and implementation.

\(^{43}\) See, for example, Gordon Tullock, The Cost of Transfers, Kyklos, 24

7. Impatience: Social Capital and Political Bargaining

The quest for this “magic ingredient” (that will make industrial policy not just necessary but possible because the potential costs of discretionary interventions are controlled) has been, on the whole, elusive. But Lall’s work and that of others in the broadly structuralist tradition had helped us understand some of the processes involved. Suitably embedded within a broad political-economic framework Lall’s work can help demarcate the domain within which industrial policy might work.

Lall himself frequently noted that late industrialization involves a complex mix of government entrepreneurship and private enterprise and that the institutional demands on successful industrial policy are likely to be high (and possibly, in the short term, unachievable) by the poorest countries. He frequently decried the “bad old days of import substitution” and emphasized that successful industrial policies need to be designed and implemented within the specific institutional context of individual countries. He was well aware of the demanding institutional preconditions for successful industrial policy, noting that “where government capabilities are so weak that strategic policies would cause more harm than good, it may be better to leave resource allocation to market forces”.

He explored the possible limits of industrial policy more explicitly in two of his later contributions, in which he wrote, respectively, of Africa’s experiences and prospects, and of the role of “social capital” in late industrialization and economic development. Describing Africa’s poor economic performance, Lall writes that Africa has a strong need “for comprehensive and proactive policies to build industrial capabilities” but notes that African industrial policy institutions often exist in name only and are largely ineffective. Elsewhere, in one of his last publications, Lall de-emphasizes macroeconomic stability and governance and instead concludes that African countries need to build institutions capable of building capabilities, and need to develop industrial strategies that draw on the East Asian experience. It is clear from this that Lall was moving towards a greater and more detailed appreciation of the institutional underpinnings of successful industrial policy, including the intermediate goal of building better-functioning governments that could be entrusted with the design and implementation of industrial policies. In a rare foray into the study of “social capital” Lall explored the importance of the “social capacities that allow economic capabilities to be developed and efficient policies to be designed and implemented”.

Lall’s concerns about Africa and social capital can be understood in the broad political-economy context outlined above. If government policies do not take the realities and concerns of non-governmental society, or civil society, broadly defined, into account, they will likely fail. In that case the government’s “vision”, the importance of which was

45 Lall (2003), p.5
frequently underscored by Lall, is not shared by significant segments of society even if it can be readily communicated. Such a misalignment could be seen as an important determinant of an economy’s ability to control the costs of discretionary interventions; it could be understood in terms of the broad legitimacy of government. If rulers and the ruled cannot agree that the state is indeed a legitimate instrument or mechanism of collective action then the power to conduct discretionary interventions may not be granted; or, in other words, interventions are more likely to be countermanded and undermine by non-state action, leading to “runaway reactions” and unintended consequences that will considerably increase the total costs of discretionary interventions, especially in terms of the direct and indirect costs of rent-seeking activities and the withdrawal of productive entrepreneurship from the private and formal sector. This reasoning appears implicitly in Lall’s work and it is studied explicitly in classical-liberal or neoclassical approaches to political economy, thus providing common ground for a positive analysis of industrial policy success on both sides of the debate.

Returning to the theme of “impatience”, the possibility of industrial policy is limited not only by rulers’ objectives (which may be predatory or developmental) but by the cohesiveness of the objectives of both rulers and the ruled in terms of their relative patience or impatience. This cohesiveness (the effectiveness of the state as a legitimate instrument of collective action) is a function of bargaining between rulers and the ruled which is itself embedded in the domestic context (history and geography) and international context (the nature of external threats and opportunities). An “impatient government”, even if it is broadly developmental, must bargain in one way or another with citizens or subjects that may be impatient but predatory (focusing on unproductive or destructive activities), or patient (in preferring incremental improvements to the potential costs of impatience), or impatient and inclined toward productive activities and investment that will improve their prospects rapidly (in which case they may consent to policies of mobilization and control). Each of these configurations of patient/impatient rulers and patient/impatient subjects, alongside the different and possibly divergent objectives of each group in terms of their preference for productive or unproductive activities (where this preference may itself be an expression of the rules embedded in domestic institutions), has different implications for the possibility of industrial policy defined as a welfare-improving set of discretionary interventions.

In this paper I have broken down the industrial policy debate by emphasizing both the cognitive-informational and the political-economy foundations of the debate, by tracing out contrasting implications of the “tacit knowledge” assumption, by disaggregating the various potential costs of discretionary government intervention and by viewing the possibility of industrial policy in terms of limits to the effectiveness of a government’s “impatience” with backwardness. These different but complementary aspects of late industrialization can play a constructive role by allowing the industrial policy debate to be more context-specific. They can also help us contextualize Lall’s contributions by linking them to the broader debate on the possibilities and limits of discretionary policies in countries far behind the frontier.
8. Conclusion

In the opening epigraph an “urgent master” is confronted with great labors but also with sluggish workers and great rewards – in other words, he is confronted with a particular configuration of attitudes towards impatience and with possibly competing goals of master and worker. The epigraph was introduced as a metaphor for the challenges of late-industrializing development, where the “urgent masters” of government might stimulate markets and provide incentives that will help overcome sluggishness and backwardness. But the metaphor was also introduced as a characterization of Sanjaya Lall’s academic predilections and his personal temper. Lall’s work has given us a vast amount of concrete and insightful material on the detailed workings of governments and firms in successfully late-industrializing countries; he was himself an “urgent master” of sorts who was confronted by great labors and whose great rewards included unflinching dedication to his field, relentless and voracious research, and inspiring work as a consultant, teacher, and mentor. As part of the ongoing appreciation of his contributions this paper has sought to place his evolutionary vision of structuralism and developmentalism in the broader context of informational or cognitive issues and of political-economy issues. It was argued that both the necessity and the possibility of industrial policy depend on assumptions and inferences that are ambitious and often ambiguous, and are interpreted rather differently by different schools of thought. Lall’s vision of market-stimulating government leadership is inspiring but also challenging and problematic. This paper had called on both sides of the debate to take up the constructive challenge of embedding Lall’s vision and his findings within a broad political-economy framework that takes the peculiarities of different countries seriously and accounts properly for the costs and benefits of industrial policies in latecomer countries. Developing and strengthening Lall’s vision in the future will therefore require more work and research pointing in two directions: specifying the historical and geographical domain of its applicability; and, possibly, expanding that domain as we better understand the relevant constraints, especially in terms of political economy, on the possibility of industrial policy.

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