

## **I. Industrial Policy: Neither Nationalist nor Keynesian**

Industrial latecomers are faced with a context in which their traditional avenues of policy to promote industrialization are no longer available. Protectionism -- whether tariff-based or import-substitution-based -- is more and more difficult to carry out because the emerging international trade order inhibits them from closing their markets, even selectively. Only a very few countries, such as China, have the market size which gives them real bargaining power in this domain.

At the level of domestic policy, the Keynesian-Marxian formula of balancing productivity gains and wage gains no longer provides the key to promoting virtuous circles of output and employment growth. Modern management and technology, as well as existing income smoothing institutions, no longer tightly link growth to workers' incomes, and producers can reduce their wage costs via relocation on a global scale. The Keynesian formula of pumping up expectations as a means to generating investment and growth works to generate investment, but not full employment. For owners and investors, profitability (especially if we include appreciation of assets) has become possible without generating full employment and is no longer dependent on rates of growth that could generate full employment.<sup>1</sup> Even though it might be socially desirable if Marxian or Keynesian policy formulas were followed today, any nation that attempts it alone will be severely sanctioned by financial markets, while at the international level, there is no prospect of equitable global reflation in sight.

The policy problem in the short- and medium-term, for advanced industrial nations and latecomers alike is, then, to sustain industrialization on the basis of products which do not lock them into low-wage competition. Given the impossibility of national Keynesianism, this means that they must sustain export competitiveness, and do so without simply becoming a low-wage participant in the global economy. The definition of competitiveness we shall use here therefore centers on the ability of an economy to maintain stable or increasing market shares in an activity while maintaining stable or increasing standards of living for those who participate in it.<sup>2</sup> This poses a particular problem for "latecomers." These are countries which are neither fully developed -- in terms of both the social institutions of the economy and technological

capabilities -- but which are well beyond the agro-industrial transition and where wages are already considerably higher than in the fast-growing newcomer nations. Since industrial latecomers start out with relatively low real per capita incomes, competitiveness must not only generate increasing employment, it must also steadily raise the incomes of those who are employed.

## II. Competitiveness Based on Learning

Theories of competitiveness abound today, as do descriptive monikers for the new economy: post-industrialism, informational, knowledge-based, flexible, post-Fordist. Though each of these labels helps in understanding some dimensions of contemporary economic activity, the logic of the most advanced forms of economic competition -- those capable of generating high-wage employment -- can best be described as that of learning; hence, the "learning economy," which will be defined in more detail shortly.

The importance of learning can be deduced from the conditions of employment creation today in the high- and medium-wage economies, where there are three basic trends: creation of high-wage, high-skill jobs, usually in value-intensive industries or activities; creation of low-wage, low-skill jobs; and job loss. Employment losses are concentrated in manufacturing industries producing standardized outputs which are amenable to mechanization, automation, or relocation to very low-wage areas. Employment with lower wages is heavily concentrated in the consumer and retail services sector, which is the biggest sector of the whole economy; the exception is management activities in those sectors. Growth in high-wage employment is located in certain occupations, mostly those relying on intellectual labor, found in many sectors, but particularly in advanced producer and financial services, technology-intensive or design-intensive manufacturing, and consumer services with a highly customized output. The first and third of our categories have a high proportion of tradeable outputs, with a highly uneven national and global locational pattern; the second category, retail and consumer services, has tradeable management and input functions, but untradeable final output functions; delivery must be close to the customer, thus following the distribution of population.

Location is a key dimension of employment dynamics in a number of ways. For standardized manufactures, the basic downward trend in employment is enhanced by the increasing possibility of locational change, i.e. relocation, whether to peripheral low-wage regions of advanced countries, or to low-income countries. Employment growth in this sector is occurring in a number of developing countries, most spectacularly in southeast Asia. The technological content and transactional structure of the production systems for standardized manufactures permit easy technological transfer and long-distance linkages to core fabrication and management activities, still located mostly in the rich countries. The new competitive price structures for such goods force wages down in the developed countries, for that employment which remains there.<sup>3</sup>

For consumer and retail services, employment is rising as a proportion of the total in most places, but this employment has not proved capable of raising overall real incomes. At the same time that productivity improvements are applied, via increasing automation and computerization, they intersect with the same dynamics that affect standardized, routinized manufacturing activity: the increasing possibility of locational substitution due to the information revolution (e.g. the second wave of back-offices in retail services).

In contrast to these activities, the employment which could serve as a long-term motor of growth in real-incomes is engaged in the production of non-standardized, non-routinized goods and services, especially tradeables. But such activities are not easy to come by in this world, where a central logic of competition is precisely to standardize the output and routinize the production process. For latecomer countries, there is another, but temporary, way to increase real incomes: to move from simpler to more complex, but still standardized, tradeable goods manufacturing. Still, this strategy is quickly confronted with downward wage competition, and further growth in incomes has to be achieved by developing export specialisations in non-standardized and non-routinized goods and services.<sup>4</sup>

The common way to engage in the latter, although extremely variable from sector to sector, is product-based technological learning (PBTl). Those firms, sectors, regions and nations that can learn faster or better (higher quality or cheaper for a given quality) become competitive because their knowledge is scarce and therefore cannot be immediately imitated by

new entrants or transferred, via codified and formal channels, to competitor firms, regions, or nations. The price-cost margin of such PBTL activities can rise, even while market shares increase, alleviating downward wage pressure.<sup>5</sup> In this respect, such activities are promising for high wage areas. But the key paradox of this happy picture must not be underestimated: these activities remain immune to relocation or to substitution by competitors only insofar as they are equipped to keep outrunning the powerful forces of standardization and imitation in the world economy. Once they are imitated or their outputs standardized, then there are downward wage and employment pressures. They enjoy no one-time advantage; they must become moving targets by institutionalizing learning. They must enhance product differentiation at any given moment, while constantly adapting the configuration of products and processes so as to anticipate the competition.

The PBTL economy is central to the direct objective of generating high-wage, high-skill "knowledge-intensive" employment, but extends well beyond it. PBTL has propulsive effects on economies in a number of ways: technological spillover effects can widen and lengthen the wealth-producing properties of learning, while the quasi-rents earned from imperfect competition can be channeled through the producing economy in the form of wages and investment incomes and used to perpetuate advantage.<sup>6</sup>

Contemporary economic development strategies must therefore attempt to install and sustain activities embodying this propulsive dynamic, as one of their central elements. In certain cases, they will become strategic, export-oriented, trade specialization sectors for an economy, the source of foreign-exchange earnings and key to market invasion, much in the way affirmed by the new trade theory.<sup>7</sup> But the learning economy is not merely an offensive strategy; in the presence of increasingly open markets, local production can be "protected" in certain sectors by upgrading them continuously in the conventional sense (adopting productivity and design improvements which are found in potential invader-competitors), as well as by attempting to differentiate the local industry through endogenous forms of learning.

To say that the learning economy is necessary to high-wage employment generation is not to claim that it represents a complete economic strategy. All the traditional tasks also remain necessary: balancing production and consumption; finding the right mix between

export-oriented and locally-serving activity; ongoing productivity improvements; and coherent reallocation of labor. But, as we have seen, these traditional tasks of long-term economic management are by themselves no longer sufficient to generate adequate quantities of high quality employment.

Latecomers have an additional burden, which is to get from initial roles in the international division of labor which are frequently based on low wages, to those industries or parts of industries which are based on continuous learning, or from protected local sectors to those capable of surviving in more open markets. They have to learn their ways out of the activities for which they are initially competitive, into PBTL activities. This does not imply, however, that there is any neat set of "stages" of development. Far from it: some of the most successful recent latecomers have mixed advanced, learning-based activities and traditional low-wage industries at the same time, to the benefit of the whole economy.<sup>8</sup>

### III. Industrial Learning: The Role of Conventions

There exist extensive analyses of the organizational attributes of learning-based firms and production systems, and we shall therefore be extremely brief here. Learning implies that organizations or production systems must be relatively well-equipped to move resources around in order to implement what is learned: this is what has come to be known as the "flexibility" condition. Some kinds of learning necessarily involve narrow horizons of attention and high levels of focused attention of the learners within a division of labor: this is what has come to be known as the "specialization" condition. Both of these organizational attributes of learning contribute to the well-documented phenomenon of "externalization" or "quasi-externalization," by which are meant the tendency for learning-based organizations to assume the form of production networks based around an inter-firm division of labor, or for (usually large) firms themselves to mimic attributes of externalization, sometimes via inter-firm alliances, sometimes the introduction of price mechanisms inside the large firm, sometimes via increased reliance on external suppliers.<sup>9</sup> Networks involve many complex transactions between firms and the external environment -- labor markets and information-rich institutions,

such as universities, trade associations, governmental agencies, and other institutions. The precise form that such networks take in learning-based production systems varies greatly according to industry, product market, and national-regional institutional setting.

It is to the substantive content of network transactions and their "governance" or "regulation" that we must look in order to penetrate deeper into the learning process itself, which is the object of economic policy we defined above. Unlike transactions of standardized and substitutable goods, factor inputs, and information, transactions associated with the kind of learning we are analyzing here involve the development and -- perhaps even more important -- the mutually consistent interpretation of information which is not fully codified, hence not fully capable of being transmitted, understood, and utilized independently of the actual agents who are developing and using it. The obvious cases are those which involve unforeseen contingencies such as highly uncertain markets in traditional industries or movement along a technological frontier in high technology sectors. But they go well beyond these industries. Learning of any kind -- even when well planned out in the most bureaucratic innovation or research program -- takes twists and turns that are impossible to predict. Moreover, every kind of production system has to cope with some form of fluctuations in markets, product design, available technology, and prices, which make difficult the full routinization of relations between firms, their environments, and employees. Many such fluctuations, if they are to be dealt with in such a way that efficiency losses or conflicts are to be avoided, involve less-than-bureaucratic procedures and adjustment mechanisms, which vary greatly from place to place precisely because they are highly embedded in not-fully-formalized rules and practices.

There are two levels of this relational quality of transactions. In the first, personal contacts, knowledge of the other, and reputation are the basis of the relation, and they represent something like assets that the parties "own" due to these personal investments. In many other cases, however, transactions are not so completely idiosyncratic; they do have dimensions which can be reproduced or imitated by other agents. But transaction is by definition, mutual; so only those agents who are equipped to enter into the kind of relation which has come to be accepted as the norm for the particular learning process at hand (by the parties with whom they will transact) can do so. They are so equipped when they possess faculties permitting them to

take in, interpret, and use information in a way which is consistent with the other transacting party, where this is not fully codified or standardized. Such faculties are, essentially, conventions which coordinate these productive agents. Most conventions are a kind of half-way house between fully personalized and idiosyncratic relations and fully depersonalized, easy to imitate relations (although even the latter do have conventional foundations, not natural or behaviorally universal foundations).<sup>10</sup>

Conventional or relational transactions (henceforth C-R) affect many dimensions of production systems, but the nature and functions of such conventions differ from industry to industry, according to the type of product, the economic fluctuations associated with its markets and production processes, and the type of learning which is possible.<sup>12</sup> C-R transactions may be found in at least five principal domains: (a) inter-firm "hard" transactions, as in buyer-seller relations that involve market imperfections; (b) inter-firm "soft" transactions, as in the sharing or diffusion of non-traded information about the environment or about learning; (c) in hard and soft intra-firm relations, as the bases for the functioning of large firms which are "internally externalized" in the way we noted above; (d) in factor markets, especially labor markets, which involve skills that are not entirely substitutable on an inter-industry or inter-regional basis, i.e. where there are industry- or region-specific dimensions to workers skills; and (e) in economy-formal institution relationships, where universities, governments, industry associations and firms are only able to communicate and coordinate their interactions by using channels with a strong relational-conventional content.

Note that in this analysis, the learning economy and its conventional-relational foundations is not based on a stark contrast between hierarchies and markets, but rather on the notion that all advanced, learning-based forms of economic activity involve complex transactional structures which in turn have a high conventional-relational content.

### Learning Economies as Coherent Systems

For any given set of products-technologies-markets, and any given set of actors, the various conventions and relations have to fit together. They must be coherent, such that what is produced not only embodies endogenous learning, but that the resulting product passes

external tests of competitiveness by being sold at prices and quantities sufficient to reproduce the system.

The unit of accounting of such coherence is, ultimately, the product -- whether it be intermediate or final -- for it is the product which must pass the external test. There are several organizational subdivisions of the economy which correspond to products, just as there are coherent levels of the division of labor other than the final output sector.<sup>11</sup> Some are "smaller" than, i.e. upstream of, the final output sector, such as capital goods industries; others are "bigger" than final output sectors, in that they are essential to a number of such sectors but have wide competences: these are Perrouxian technological spaces. There are, in other words, a number of different organizational subdivisions of the modern economy which define systems in which sets of conventions and relations must be mutually coherent for economically-viable learning to take place. What follows is a heuristic typology of four basic kinds of product, based on the kinds of interactions each involves around the tasks of technology or knowledge development.<sup>12</sup>

The first kind of product grows out of artisanal industry, and consists often of nondurable consumer goods heavily affected by fashion and design. It faces markets which are highly uncertain, due to ongoing product redesign and differentiation, resulting in a low scale of production. Innovation itself consists of applying specialized talent or knowledge to ongoing product differentiation. Critical here is the existence of a community of specialists who redesign the product, on very short time horizons, by deploying their tacit and customary knowledge of the product's qualities and possible dimensions. This is a highly "interpersonal" community, based on traditional acquired skills, where constant communication between members of the community is necessary to carry out knowledge development. One major communicative process essential to innovation is interaction between the producers and the users of technologies: an example of this is the equipment maker who adapts for the final product producer in order to accommodate the rapidly evolving final output. Typically, such communities are concentrated in particular geographical areas where informal processes of communication are central to their successful operation.



A modern-day version of this interpersonal community of innovators can be found in parts of the high-technology industries. Typically, high technology industries are based on the organized application of R&D and scientific knowledge to technological change. Their products often involve large-scale technological systems which require a great deal of planning. This is a much more formal process than in the "interpersonal" worlds referred to above. These formal processes rely on forms of communication that can be stretched over large distances, because they are carried out at regular intervals in a planned fashion (through meetings, congresses and private sector projects with long planning horizons, where communication involves highly codified and hence standardized, non- culture-dependent, scientific language). This corresponds to large-firm corporate networks in high technology today. But often overlooked is that these networks are tied, for some of their key cutting-edge technology inputs, into precisely the kinds of interpersonal communities alluded to above. Many of the core components of their large-scale research and development projects cannot be planned; there is technological uncertainty. This uncertainty requires scientific and technical personnel to be able to interact informally, in unplanned and uncodifiable ways. The large-scale technology-based industries often have, at their cores, geographically-concentrated interpersonal communities of innovators, even though their other innovative activities are highly planned and not highly localized.

A third kind of product corresponds to our image of mass production. Where economies of scale and long production runs dominate, products are typically made by large oligopolistic firms. Such firms are capable of operating production systems at national and international scale, distributing parts and components and assembly plants across the landscape and coordinating the whole, as in the car industry. Nonetheless, even in these industries, context is key to whether competitive learning occurs. Japanese, German, and American automobile companies, for example, have historically drawn heavily from the results of public and private national R&D strengths in their respective countries. Their core technology development activities are also highly centered on particular regions. These big firms have access to localized contexts characterized by dense information flows, including many flows which are internal to the firm but dependent on the system of relations among these units, and between them and their external environments, which have been built up over long periods of time.

The fourth kind of industry is that part of mass production which has been transformed into "lean production" in recent years. The stability of these industries' markets has declined, and to survive they must combine the cost control associated with scale and long production runs with the capacity to have a wide mix of products and frequent change in products. They must be "flexible" mass producers. Lean production usually relies on some kind of just-in-time system for parts delivery and quality control. Just-in-time is not just a way to deliver inputs, however; it is also a way to structure information flows that help producers incrementally alter and refine their products.

For each of these kinds of products, there are conventions which permit learning and competitiveness, in all the domains described above. The policy problem is to build the set of conventions appropriate to the potential learning-based specializations of the economy at hand. For latecomers, there is a transition problem, which consists of getting from lower-value-added sectors to higher-value-added learning-based product niches.

#### IV. Latecomer Roles in the Global Economy

There is no automatic correspondence between internationalization of markets and deterritorialization of productive activity. The core technology- and knowledge-intensive outputs of the world economy continue to be produced in relatively few places on the globe, from whence they are traded.<sup>13</sup> Moreover, the major world trading economies manifest increasing trade specializations, in spite of their similar income levels, due to increases in both intra-industry specialization and trade, and final output specializations.<sup>14</sup> Such activities are also increasingly inserted into networks of relationships with other territorialized cores and with the deterritorialized (routine production) activities of their production and marketing systems, giving rise to globalized-localized systems of production (sometimes now called "glocalized" in contrast to the incorrect image of placelessness associated with the term "globalization"). One of the major agents of this process is the multinational firm, which taps into territorialized technological competences and gives them worldwide effect.

There is both continuity and change in the international division of labor. Continuity in that the post-war development of global commodity chains, in the form of the territorial division of multinational production systems into core areas (those where technological-knowledge mastery, i.e. advanced learning, takes place), routine production regions (branch-plant regions for certain components and assembly, and market-serving assembly), and excluded regions (those who do not partake of international production circuits in an important way) continues to develop at a world scale.

Most low-wage industrializing countries -- such as Sri Lanka, Indonesia, Turkey or the Philippines -- are routine production sites with respect to the global economy. They are in some ways more vulnerable than they were in the post-war world "core-periphery" configuration. In that system, cores and peripheries had standard center-hinterland relationships, whether at national level or at international level. Such clear, hierarchical, structured roles within production systems and as whole economies no longer exist.<sup>15</sup> Routine production areas are, in most cases, simple production locations without any wider necessary relations to "core" investing economies. The extreme manifestation of this is that in some industries, especially those with low fixed capital requirements, there is a "roving" division of labor, with companies alighting in a country or region for just a few years and then moving on as soon as wages rise above the global minimum. This has been happening in certain areas of southeast Asia and Central America in recent years. In general, the developmental possibilities afforded by branch-plant development are more limited than ever. It remains fundamentally vulnerable to changes in markets and technology if export-oriented; it remains fundamentally subject to local income constraints if oriented toward domestic markets; and in neither case is it a creator of markets and technologies. Thus, while the expansion on a global level of mass production continues apace, and generates spectacular growth effects in certain times in particular developing regions, it cannot, taken alone, serve as a vehicle of true development.

In other cases, branch plants involve a certain amount of technological upgrading and skill upgrading, and the State plays a significant role in determining the extent to which this is the case. Brazil and Mexico are intermediate cases, where what remains of post-war import

substitution strategies and existing capital goods production leads to some upgrading (with the notable exception of most of the Mexican maquiladora border industries).

A third group of countries interacts with the global economy in a different way. The long term motor force in their regional and national development success (defined as growth with proportionately increasing real per capita incomes) is the progressive improvement of their technological capabilities, while combining this with productivity advantages. They have all sustained the development process, and are moving toward the point of absolute technological advantage in certain areas, on a par with the advanced nations. In some, this occurs primarily through foreign direct investment on the part of transnational firms (e.g. Singapore); in others through locally-owned big firms (Korea) or locally-owned small to medium-sized enterprises (Hong Kong, Taiwan).<sup>16</sup> Nations that pursue such learning-based activities have an entirely different territorial relationship to the global economy from the other two groups of countries cited above. Paradoxically, their favorable relationship through exporting exists because their learning process is highly "contained" within firms or networks of firms, actors, and institutions; learning is contingent on scarce and territorially-specific knowledge and practices. The examples of these countries suggest that there are possibilities for latecomers.

The most ambiguous position is held by middle-income countries which are not leaders in export-centered development, including nations such as Greece or Ireland in the EU, as well as some of the nations of eastern Europe. While logically they should be poised to reap the same advantages from the world system which have been enjoyed by the successful latecomers of South and East Asia, the question is whether they can construct the conventional and relational contexts which would allow them to follow such an inter-sectoral and intra-sectoral learning process.

## V. Making Coherent Conventions for Learning

Policy in a learning economy ideally would support the development of packages of conventions and relations in coherent product-based subdivisions of the economy. Because these conventions and relations must be developed according to such subdivisions, policy

must have strategic content; because such conventions and relations must be mutually coherent, policy's task is to support the development of groups of conventions that give the actors involved an efficient common context for proceeding with a given kind of learning.

A major problem for development strategies now poses itself: where appropriate conventions cannot be constructed, it is unlikely that any economic development program, no matter how brilliantly executed around the traded dimensions of the economy, will be successful.

Two trajectories, not one. It used to be thought that economic development could be forced via technology policy. In developed countries, especially in post-war continental European countries, most such policies were mission-oriented; they undertook large-scale technology-development programs leading to a specific kind of final output such as petrochemicals, airplanes, or computers. The United States adopted a military version of these policies in order to wage the Cold War. These policies are very expensive, have long latency periods, and suffer from high failure rates, such failure being largely technological for military projects and both technological and economic for civilian projects.<sup>17</sup> They also have produced brilliant successes, such as Airbus or French high-speed trains. Brazil succeeded via such a policy with the civilian branch of its aircraft industry, Embraer, but did not succeed with its computer industry.<sup>18</sup> Success comes in industries where basic knowledge is already fairly mature and the product is a large-scale technical ensemble with very high barriers to entry. Mission-oriented technology policies do not appear to work for basic technological components (e.g. microelectronics), final outputs with rapid learning curves (computers), or complex capital goods (machine tools, for example). They do not even work for low-tech but highly differentiated products (the French plan textile failed). The learning economy is thus only partially adapted to mission-oriented policies.

The object of policy in the learning economy must not be simply to install hardware in a place and the skills required to operate it, but to set a nation or region on a learning-based technological trajectory in particular technological-economic spaces (ensembles of activities characterized by direct and indirect linkages). The task is a complex one, designed to keep the region moving from one point in a trajectory to another.

But just as learning is the outcome of untraded as well as traded linkages, so policy must focus not only on technological trajectories per se. A national or regional economy must also construct and keep reconstructing the conventions -- frameworks of action enabling economic coordination and communication to take place -- that enable it to turn one-time skills and given stocks of hardware into effective technological trajectories. The challenge of the global learning economy to territorial economies, then, is to establish and maintain not one economic dynamic, but two: the technological trajectory, i.e. mastery of specific spaces in the economy characterized by technological spillovers and complementaries<sup>19</sup>, and the trajectory of conventions or untraded interdependencies which build the capacities for ongoing collective action in regions and nations so as to permit ongoing transformations of hardware into technological trajectories.

Latecomer economies, however, cannot be expected to do this in exactly the same fashion as fully-developed economies. Inventing the world leading edge in a sector will be most difficult for them. But their realistic equivalent of the learning economy is one of adaptation. Rapid mastery of latest technologies and techniques and the capacity to do so on an ongoing basis is a reasonable starting point for their participation in the learning economy; a sort of learning-based diffusion process.

## VI. Building Conventions: Talk, Precedent and Confidence

Relations and conventions are recursive outcomes of precedents which act as guides on action, and are reinterpreted and reevaluated for their efficacy, and reproduced as conventions when they work to coordinate action under conditions of uncertainty. The problem is that if such precedents do not exist or are not adequate to the kind of learning system which is to be created, deliberate institutions to create them are hindered by the circularity identified above. Since a learning system is a complex organizational structure with many different actors and transactions between them, hence many different conventions and types of relations, built on precedents which are effectively indivisible, if the learning system is to work. In the face of such indivisibilities, the magic wand of "information" which is supposed to illuminate real

preferences and interests does not work, and experiments are not available because of the “scant set” problem. It is probably no accident that considerable recent research reveals the cardinal importance of “soft” factors such as “civic culture,”<sup>20</sup> in the performance of democratic institutions, but that few venture any policy-oriented recommendations on how the lack of such a culture could be addressed. Very unorthodox policy strategies are needed in order to break out of these labyrinthine prisons. Two of these may be labelled, respectively, “talk” and “confidence.”

The circular relation between public institutions and the institutionalized learning economy requires that the parties to public institutions somehow be convinced of the utility of having a public institution help in supporting the conventions and relations which make up the institutionalized learning economy. That is, they must share a convention of the utility of the public institution in some specific domain, before it can even get started. Talk between the parties may be one approach. Much has been said about the difference between institutions that function via a combination of loyalty and voice, versus those that rely on exit for adjustment and structure.<sup>21</sup> Talk is upstream of voice, in that there is no institution yet existing in which the channels for voice among loyal parties are already established.

Talk refers to communicative interaction, designed not simply to transmit information and relay preferences, but to achieve mutual understanding.<sup>22</sup> In the case of prospective learning, information from other experiences (where learning has worked, on evolutions in product markets, on suggested potentials for the parties at hand, given their current resources and skills) can be valuable as a stimulus, even though it cannot be represented as “experimental” and therefore automatically useful or valid in other circumstances. Such information can be used as the valid pretext for talk.

It can immediately be objected that if there is no tradition of communication or, worse, if there is distrust or antipathy, what is the possible basis for talk? The objection is important: it is probably difficult to stimulate talk, precisely because talk is not free: it takes time and effort, and payoffs are not evident, especially if the history of relations is bad or the economic culture is organized by conventions which do not encourage learning relationships.<sup>23</sup> On the other

hand, talk is cheap: it is not that costly and the risks are relatively low. Public institutions thus certainly have a possibility of getting low-cost talk going.

Precedents which underpin conventions or relations inherently involve confidence, without which single events would be just that, and would have no impact on future expectations. Insofar as conventions and relations involve expectations about how others will interact with you in situations which involve some uncertainty, such confidence involves a measure of vulnerability: it is necessary for interacting agents to place themselves in a position where, should the other not follow precedent, they will be subject to a real loss. To have confidence in what others will do is, in this sense, to trust them; not in the moral sense, but in the sense of making oneself vulnerable, on the basis of confidence in the precedent. But how to establish such confidence so as to bring into being precedent, relation and convention, where they do not exist or worse, where there are histories of mistrust, broken promises, antagonisms?

Talk may involve the parties in getting the ball rolling on a learning project, but it does not establish confidence in the specific sense that generates precedent and convention. Bribery through special material incentives (subsidies, etc) provided by a public institution to private actors is likely to work only as long as the incentives last; if all actors calculate that the other actors only do what they do because of special incentives, then a convention based on incentives is established and with it, the possibility of lock-in to subsidy. Therefore, it would be better to offer them some sort of reinsurance,<sup>24</sup> a safety net (at least partial) for failure, forcing them to reveal the efficacy of talk and their propensity to have confidence. Moreover, if the intention of a policy is to establish learning conventions that are not dependent on permanent subsidies, other approaches will have to be tried, or incentives will have to be slowly replaced with confidence in other, non-subsidized precedents.

One method of creating confidence in a sea of non-confidence is, of course, bureaucracy.

It has been found, in economic policymaking, that certain projects are amenable to isolation from the overall economic culture, by internalizing them within hierarchical bureaucracies. The military is the model. Defense procurement in the USA, or major indivisible high technology projects such as the French TGV, are carried out by quasi-military bureaucracies with strong



financial incentives and command-and-control authority. This instills a certain form of confidence and the bureaucracies can function like well-oiled machines as they carry out their technological tasks. But internalization is not a solution for much of the learning economy, precisely because of the open-endedness and high degree of risk of much learning, which nobody in society wants to pay to internalize, and where the technological character of the product does not permit near-monopoly. Some other method of building confidence must be used.

Small, repeated, experimental interactions may be useful for this purpose. Small interactions are important because they enable policy to cope with the dispersed nature of learning economies, which tend to involve many different, organizationally separate agents. This becomes rapidly unmanageable as a policy problem. "Experiments," as a policy device, means actually setting the parties to work in limited relations which facilitate learning, and then attempting to build up in complexity. It does not mean trying to prove the utility of any general, abstract solution. Most importantly, such experiments must proceed "as if" confidence existed. In other words, the small experiments build on the communicative understanding that comes from talk, asking the parties to interact by suspending their fears and doubts.

The likelihood of getting the parties to act as if confidence existed, as the first step toward establishing real precedents, should logically rise with the degree of knowledge they have about each other. Depth is one dimension: the more I know about you in a specific domain; but breadth is another: the more I know about you in general, through collateral forms of information. Depth has a complicated geography, in that professional interactions, in some cases, have channels involving strong long-distance relations and weak local ones; but this is more valid for rare professions or for highly formalized ones. Breadth has a strong localist dimension: we are more likely to have information on someone's reputation, and to be able to validate it by interpreting it against a context with which we are intimately familiar, in a local context. There is thus some relationship between localness and the mutual knowledge that should allow parties to act as if confidence existed, as a first step toward generating precedent.

The use of a combination of depth and breadth in talk, as a way of generating confidence, while not the province of the locality, are in some cases (certain products, certain worlds of

production) more likely to succeed when they are geographically localized, though this is not a hard and fast rule.<sup>25</sup>

## VI. The New Heterodox Policy Paradigm

There are all kinds of intricate dimensions of talk and confidence-building as the vehicles for creating precedent, relation, and convention. Who should talk? What they should talk about? What techniques should be used to facilitate such talk? What small relations should be attempted first? What kind of reinsurance should be offered to get the parties to suspend skepticism? It is impossible to answer these questions here, because the answers will vary not only according to the kind of world which talk is designed to get started, but also according to the starting point of the parties. Some modest beginnings will be attempted in this section.

In recent years, the analysis of the economic performance of certain industrial systems, variously termed "industrial districts," "flexible specialization," "lean manufacturing," "post-Fordist production," or even "the learning economy," has prompted inquiry into policies and institutions that could be used to institute such systems. A new heterodox policy framework has emerged, largely based on the experiences of "successful" sectors and regions.<sup>26</sup>

The new framework, while having many versions, shares a number of features, favoring policies that are: context sensitive, i.e. interested in the embeddedness of industrial practices in specific contexts and regions, hence "bottom-up", and production systems rather than firm-oriented in its focus. Key words include: networks, flexibility, decentralization, cooperation, research and development, human capital, technopoles, training. The policies are heterodox because of the kinds of public goods they would provide. In standard public goods theory, "market failures" sometimes occur and when they do, public goods can be provided to rectify them. Such public goods must have economy-wide application, i.e. they must be as generic as possible. The new theory also calls for policy to produce public goods, but allows that these goods may be specific to technological spaces: it is their developmental properties (evolution

along trajectories through learning) that ultimately generalize (via spillovers and complementarities) their benefits to the wider economy and society.

We may summarize the varying ingredients of this cocktail, as follows:<sup>27</sup>

Networking. The most widely shared element of the policy framework is to promote networking among firms. It is held that new forms of economic competition involve high levels of vertical disintegration and that there are extensive market failures in information exchange between firms. It follows that inter-establishment and inter-firm relations and networks need to be supported to enhance their efficiency.

Promoting Technology Transfer. It is widely accepted that the rates at which technologies are absorbed by firms vary widely from place to place, especially when the economic base is composed mostly of small- and medium-sized firms. As a result, publicly-funded innovation and technology transfer centers are becoming favored as means to enhance the uptake of new technologies, as well as to stimulate convergence in user-producer relations, so that incremental innovation can proceed more rapidly.

Local Labor Markets: Training and Focusing Institutions. In industries with high levels of industry- or region-specific skills, but also with high levels of local labor market flexibility, there can be strong negative externalities: producers will not want to invest in adequate levels of labor training for fear of losing workers once they are trained. Moreover, in the face of rapid change in labor skills, no single employer will have the wherewithal to effect the change in skill supply, and lack of coordination may lead to a downward competitive spiral. Under these conditions, public institutions that provide for industry- or region-specific labor training, promote strategic changes in the direction of training, and that help workers to secure jobs in the face of flexibility in specific, regionally-concentrated sectors, can attenuate the effects of market failure.

Infant Industry and Getting a Start: pre-competitive R&D and stimulating markets. Infant industries are based on new and experimental kinds of products. The probability of generating new products is high, but product configurations have not yet settled onto an identifiable technological trajectory. High levels of risk and uncertainty exist for producers in these nascent sectors. The collective effect of waiting, however, may create a vicious circle, where everyone waits for everyone else, and the overall rate of development is thereby retarded. By the same

token, regions that could successfully develop a new industry may find that a delayed start (especially when another region has moved ahead of them) locks them permanently out of a promising niche in the new industry. There are potential benefits to getting an early start, in contrast to this common free rider problem. Industries, firms, regions and nations that get ahead early often retain a leading position for quite some time, and in the early years there can be significant superprofits to new products.

As a result, industry specific pre-competitive R&D policies, and other policies to stimulate regional or national (often public) markets for risky new technology products, may be called for, in addition to networking and technology transfer centers.

Entrepreneurship, especially for small firms. Another element of the emerging consensus in new deal economics is that good ideas only become reality when potential entrepreneurs enjoy the conditions that permit them to start-up firms and survive. The conditions favoring firm formation include such traditional hard factors as access to capital markets and some soft factors as cultural images of the entrepreneur and sanctions to failure. They also include such conditions as access to information, locational sites, rules on hiring and firing labor, and access to potential customers in other firms. Entrepreneurship policies are designed, variously, to help potential entrepreneurs overcome these difficulties, although in practice the majority of them consist of loan programs for small firms.

Service Centers. In the many successful Italian industrial districts, the practice of assisting existing firms in a series of concrete ways has emerged as a key method for public support of those communities of producers. Industry service centers are particularly devoted to spreading the costs for certain kinds of resources that single firms cannot afford for themselves alone, including systematic market research, foreign marketing, technology research and, in some cases, technology sharing and on-line electronic networking facilities. In Italian regions, especially Modena, major industrial estates for small firms have been created, where state-of-the-art flexible configurations of space are made available to firms at below-market cost, not only permitting them to modernize their facilities, but also permitting them to remain together, thus enhancing communication and networking.

Service centers have also been involved in the promotion of regional brand names (something like *appellation contrôlée* for wine, but now applied to the market identities of other kinds of products), so as to enhance their non-substitutability on national and international markets.

### The Dangers of Orthodoxy

The emerging paradigm, like any set of measures that attempts to take a complex analysis of economic reality and create a policy formula based on it, runs the danger of missing its target. An example from an earlier period with a different policy framework may help to understand this point. In the 1950s and 1960s, a theoretical analysis of industrial complexes was used as the theoretical justification for growth pole strategies in many countries. The results were impressive in certain cases, at the national level (e.g. French industrial planning in the late 1950s), but were almost total failures at the regional level in all places. Later on, growth pole policies failed at the national level in most developing countries.

These failures were not simply because the external environment changed. There were errors in the way growth pole theory was turned into a formula for policy. Growth poles, a notion invented by Francois Perroux, were defined as economic spaces (sets of dense input-output relations, where stimulating downstream activities would reverberate upstream through a multiplier effect). Perroux was very clear that his intention was to identify economic spaces and not territorial spaces; he actually wanted to break up old regional economies in France in favor of national economic integration, to be achieved through national economic planning. Growth pole policies, however, transformed these economic spaces into territorial spaces by assuming that input-output linkages could be contained within national or regional spaces. This worked, to some extent, at the national level, when markets were protected (e.g. in post-war France or in developing countries using import substitution regulations). It failed utterly at the regional level, however, because many such input-output relations are not necessarily relations of proximity (installing a downstream activity does not induce upstream development in the same territory). The policymakers, in other words, took a theory and applied it in a technically flawed way, with sometimes disastrous results.

Another, and more important flaw was substantive rather than technical. Growth pole policies often forgot about the heart and soul of the growth pole theory. Even more clearly than Perroux, the development economists (especially the ECLA School and the Brazilians) understood that the core of any development process was the mastery of technology.<sup>28</sup> Policymakers nonetheless implemented growth poles as if they were merely complexes of input-output relations, somehow assuming that the technological level of a region or a nation could be raised by giving it hardware. This turned out not to be true: one-time advantages most often did not turn into long-term learning.

This example of growth pole policy gone awry can be complemented with another, of "hardware without development," where the absence of collective order and coordination makes hardware prone to failure. In the 1970s, Italy increased the autonomy of her regional governments. They were endowed with a wide range of powers to promote economic development, though not much direct power in the matter of industrial policy. Over the same period, the *cassa per il Mezzogiorno* was quite active in installing all kinds of public goods and private investments in the southern regions. And then along came Europe, with its massive infusion of resources from the structural funds of the EEC. There has never been a more ideal testing ground for the possibility of promoting regional development in an underdeveloped region: national and international funding and institutional decentralization within a wealthy, constitutionally stable country, where other regions in the same country experienced impressive, internationally competitive economic growth during those decades. The fate of both the regional governments and the economies of the southern regions is indicative of the problem. Putnam et al<sup>29</sup> studied the regional governments from 1970-1990, showing that the regional governments in the south have all performed poorly in their mission, while those in the north have performed well. The absence of what he calls a "civic culture," and what we are more precisely calling a set of virtuous conventions of economic coordination, makes almost any effort at creating formal institutions or of applying investments, doomed to failure. Mistrust, fear, the retreat to particularistic social groupings such as natural family or mafia family, and so on, impede the formation of such conventions, no matter how high the investment level or how wide the institutional powers. Without needing to invoke the problem of mafia which is specific

to the Italian case, we can easily see analogous phenomena in other regions in the developing countries.

By way of contrast, in accounts of successful East Asian development' or -- in a developed country context -- the Japanology literature, repeated references are made to confidence- and loyalty-building rules inside firms and in firm-firm relations and even of "relation-specific assets."<sup>30</sup> These are conventions by which firms establish relationships to markets which are specific, and particularly effective at sustaining learning because of the ways they maintain inter-firm coordination over time. Another subject in the Asian development literature is the relationship between financial institutions and productive firms. Though very different from country to country and industry to industry, the constant factor is the confidence in saving that is established throughout the economy, and the practices of financial institutions in keeping interest rates down, coupled to the arms-length relationship of firms to investors, allowing dividends to be low and retained earnings high. These, too, are conventions that coordinate the parties to these arrangements, not explicit or formal rules. Other examples can be found in the system of labor relations, as in the convention of loyalty in return for hierarchy in large Japanese firms and in their subcontracting relationships. It is in these detailed webs of precedents and expectations, and the specific content they give to interdependencies in the production system, that different pathways of learning and competitiveness may be sought.

#### From Framework to Formula: the Danger

In order to transform the new paradigm into effective policy, both technical and substantive reductionisms must be avoided. Substantively, just as the means to establishing growth poles was not input-output relations but technological mastery, so the heterodox framework is not essentially about small firms, networking, localism, or flexibility per se; it is rather about adaptive technological learning in a territorial context. The proper goals of such policies are:

(a) for traditional or small-scale intermediate products, ongoing adaptation of products and processes, especially through product differentiation or moves up the price-quality curve,

so as to respond to ongoing and inevitable entry by competitors, whether large firms or other regional systems; and

(b) for scale-intensive or new technology products, moves along the technological frontier, where that frontier is unknown or unknowable. The entire substantive thrust of any new deal economic policy must be geared to these substantive goals, as specified in light of particular products and their conventions. The new policies are only means to these ends. The real danger exists, as theory now becomes packaged into policy, that such policies will become detached from this substantive content and necessary procedure of building convention, and instead devolve into mechanical formulas and self-referential content.

### VIII. Strategic Considerations for Latecomers

Starting Points: strategic assessment. It has long been standard practice in industrial policies to carry out strategic assessments of local, regional, or national possibilities (depending on the policy's target). The idea is to eliminate unreasonable goals by assessing the existing state of such factors as technological level, the labor market, infrastructure, market structure, and so on. Such analyses, in practice, vary greatly in quality, and unfortunately there is a high propensity for error, especially excessive optimism (since the assessments are usually paid for by agencies with a vested interest in being in the policy business). Critics of industrial policy claim that this is inherent to such policies, but such skepticism is unwarranted, since there are also examples of excellent strategic assessments having led to wise decisions (e.g. the TGV in France; numerical controls in the USA, and MITI on semiconductor machinery).

Simplifying, we can say that in the 1960s, it was possible for many European countries to carry out strategic assessment based on a standard factor input-cost method. What do we need to bring this industry into existence to serve a national or regional market at something close to world best practice, and how much will it cost? In the context of rapid world, and especially European, economic expansion, the main consideration for efficiency was simply to assess whether the industry could find a market enabling it to enjoy optimal scale economies, and in that context, to implement state-of-the-art production technology. Oftentimes, filière



analysis was applied to maximize the "local content" of the target industry in the national or regional space.<sup>31</sup>

The demands placed on strategic assessment in the context of the learning economy, have become vastly more complex than it was in the 1960s, but the techniques of assessment have not caught up. It would no longer be possible, for example, to use the same method the French employed to plan Fos-sur-Mer today, because world capacity in virtually every major sector is much closer to saturation, and there is no comfortable time lag during which policy can simply copy the best of what is being done elsewhere. The Brazilians learned this with their market protection law for computers; though it has had some considerable positive effects, it has absolutely failed to encourage competitive computermaking in that country.<sup>32</sup> They are generations behind. Any strategic assessment carried out today must use the existing starting point for the economy in question, but the goal of the policy has to be somehow to catch up to a moving target, a target which will move during the period in which the policy is getting started!

The Product as the Central Unit of Reasoning. Strategic assessment has characteristically been organized around the concept of sector: can we build a computer industry or a shipbuilding industry? The advent of the learning economy means that standard sectoral-filière assessments are no longer adequate to the task. Competition via learning takes place around real products. Products do not correspond necessarily to industries-filières. The majority of output of our economies is intermediate goods, and social and spatial divisions of labor create all manner of organizational clusters in the economy which do not correspond to final output sectors, or even to the grand (and now crude) distinctions between consumer and producer goods. Some of the most significant such clusters have to do with cognate intermediate products that go to very different final output sectors; they also have to do with products which have little concrete resemblance but have parallel or convergent technological trajectories, or technological complementarities.

The consequence is that the principal unit of assessment has to be the product or a technological space of products, defined by spillovers and complementarities. Products are, in fact, the objects in which learning is embodied and submitted to the test of markets. Products as the central objects of assessment and policy refocus our attention on the mastery and

learning of the object or the service as a technology. If anything, then, the basis of assessment is product-technology and the potential for product-based technological learning. This does not mean that traditional sectoral analysis is ignored. Success in a given product generally depends on the possession of a production system which extends upstream and downstream of that product in a filiere, or spills over to complementary technological spaces; but this is, from an industrial policy perspective, an empirical question, not an a priori goal, a tactic rather than a purpose.<sup>33</sup>

Strategic assessment has to include assessment of the worlds which are to be brought about, to which talk and confidence-building as means to establish present, are to be applied. The assessment, while depending on expertise, however, cannot be left entirely to the experts. By definition, the talk to which we refer in the previous section can have no hope of setting conventions and relations into motion if it is a mere pretext for ratifying assessments already made by technocrats. Not only is it likely that talk will reveal information to which technocrats otherwise have no access, but it is key to avoiding the circularity problem, where those who talk know that they are talking about something that has already been decided.

#### Developmental Starting Points.

Countries and regions have different starting points: the size of the market; the current technological and infrastructural and knowledge endowments of the society and economy; the generic image of the country or region; underlying relationships between groups and especially between organized interests; the existing stock of firms and inter-linkages between them; the nature and effectiveness of public administration; and so on. Two standard approaches to starting points can be viewed with extreme caution in light of the analysis advanced here.

The first is to reason in terms of grand categories of starting points, the principal ones of which are: big wealthy technologically-endowed regions/countries; small, wealthy, technologically-endowed places; big less developed or latecomer countries; small, less developed or latecomer ("less favored" in the current EU jargon) countries; and, underdeveloped/poor countries or regions. These categories have some descriptive utility, but they do not lead anywhere in particular with respect to strategies for product-based

technological learning. Their principal categories -- size and technology endowments -- are most relevant to big, capital- and technology-intensive industries, but even there, many small rich countries have apparently broken the size rule (Holland with Philips, Sweden with Ericsson) and many big countries have failed in spite of it (France with Thomson and Bull). They are instructive, but only up to a point.

The second, and preferable, approach is to reason in terms of broad categories of products. For products with low barriers to entry -- mostly certain products in the Interpersonal or Market Worlds -- the experiences of Italy and Germany may be guides. In the Italian cases, traditional skills were deployed in interpersonal industries, to serve a national market in the 1950s and early 1960s. That market was big and relatively fragmented. Smaller countries do not have such big markets, however, and virtually all countries are more open to import competition today than was Italy in the early 1950s. The lesson is that such industries are likely to flourish only where (a) skills are good enough or highly focused enough that they can contribute something unique to the world market; or (b) they can serve a local or national market which is unsatisfied by imports or can do so in a way which passes the indifference test: higher local prices are compensated by better tailoring to local demand (but with open markets and media, the knife-edge is sharper and sharper); or (c) where innovative institutional arrangements, such as specification subcontracting, are used to link local producers to order-givers in a way that builds their skills and responsibilities.

For industries with high barriers to entry, whether because of traditional scale concerns or because of high investment in technology, the choice is a very stark one: either go all the way with a major technology policy designed to cover a technological space (e.g. Airbus, the Japanese semiconductor policy, US military procurement), or target particular subsectors but still with potential for developing spillovers. It is likely that, in any country, big multinational partners will be necessary and that substantial commitments of local resources over long time periods will be required. The only strategies likely to succeed are in the latter case are those where technological branching points (e.g. which model of high-definition television? which system for transmitting mobile telephone calls?) are at hand, and where the risk is taken to develop along one branch rather than another.

The optimistic note for this strategic assessment process is that there is rarely a single best world practice for any group of products.<sup>38</sup> Entrants can define products and practices, and they can trace out developmental pathways that continue to redefine such products and practices. (2) The second approach to strategic assessment is to reason in terms of norms for countries, standards against which the starting point is to be altered, categorically. This leads to a developmental recipe, in terms of such things as capital institutions, technological infrastructure, political and administrative institutions, entrepreneurship, and so on, which -- it is said -- will bring about developmental results. This is quite wrong in two respects. One is that among the successful, rich countries and regions, a great diversity of products, and hence accompanying economic convention, practices and institutions exists. They do not all follow the same rules with respect to the provision of capital, skilling of the workforce, public administration, entrepreneurship, and so on. Even within given sectors, there is a plurality of successful but different models. It is a gross oversimplification, except at the most abstract level (e.g. honest versus corrupt public administration; schooling versus no schooling) to try to reduce the development process to a single set of general goals with respect to different starting points. The ending points will be different, too, according to the specialization of the learning economy to be created, and the worlds of production they embody.

Those ending points are defined by assessing what kind of identities and capacities for action and coordination among the participants in the production system are to be created. A critical part of the strategic assessment of what is possible in a given time and place is, of course, talk. Technocrats may be able to offer the talking parties suggestions based on the entry conditions we mentioned above, but they cannot substitute for talk among the parties who ultimately will have to "become" the collective actor of the conventionally-organized system of production to be developed.

## IX. Focusing on the Objective

The dual trajectories of technology and conventions which are set out here as elements of economic development policy today are, admittedly, much more complex objects of policy than is the norm. And the suggested policy goal -- that middle-income latecomer countries must necessarily develop some propulsive activities, defined as activities which have enough endogenous absolute advantages to command world market shares -- is a higher and harder one than the goal of import-substitution and national keynesianism. The agenda proposed here may sound utopian if not impossible. It is not proposed as the single goal or the sole means of economic or regional policy today, but rather as a necessary component of such policies, without which there is no value-added intensive "motor" for the rest of the national economy under current global constraints. Many other tasks for policy, and means to implement other policies, have to be thought through for latecomer economies, especially those having to do with external constraints, insisting on a better set of rules for international production, trade and capital flows, and an internal strategy, including income redistribution, social policy, and overall rationalization of economic institutions.

The institutions of the new economy consist of a complex circular relationship between specific, convention-bound, learning-oriented production systems, which are themselves institutions, and various kinds of formal, organized institutions, notably firms, public governmental institutions, and other organizations such as universities, unions, and trade associations. Any policy framework which involves the creation of public institutions to build or sustain the institution of the learning economy has to be based on ways to cut into this circle, and must reject the traditional logic of "public=institution" versus "private=non-institution."

Strategic assessment has a technical dimension, which is the determination of what kinds of products -- where the product is the essential unit of analysis, and not the sector or the input-output system -- are susceptible to being mastered in the economy at hand, where mastery is defined as ongoing competitive technological learning. There is a complex interaction between the product as a technology -- a knowledge field -- and its associated process technology, for just as products evolve through learning, so do processes, and both have dynamic parallels and complementarities which spill over their boundaries at a given

moment. So the technical part of strategic assessment involves two interrelated forms of learning-based evolution.

However, strategic assessment is not only a technocratic task. Learning depends on the conventions which define collective identities of the actors in the production system by giving them access to a common context of coordination. Without this context, learning will fail, no matter how good the hardware is. The context cannot be produced by plans, nor bought by subsidies; in order to know whether the strategy is possible, it has to be known whether there is any reason to expect actors to go along. The circular relationship described here can only be broken into by talk. Talk is a necessary element in, and component of, strategic assessment.

The second step is the definition of the capacities for action and identities of actors which are associated with the type of product to be assisted by policy. Each product involves conventions, which coordinate inter-firm relations, markets, labor markets, and so on. These are the substantive goals, the specific (and differentiated) end points of policy. They, too, can only be defined through the difficult and clumsy exercise of talk, in concert with analysis.

The third step is the implementation of specific versions of economic policies, whose content is defined by combination of technical assessment and social process, especially talk. The substantive method of policies is not to attempt the construction of learning-based worlds of production from whole cloth, but rather to try to create precedents which build confidence and hence make possible the deepening and widening of conventions. Small experiments are one logical way to proceed.

Finally, and only at the end of this long and "soft" process, can the need for further formal institution-building be realistically assessed and practically undertaken, the latter on the basis of confidence-precedent (and hopefully success in learning), and consequently emerging collective identities. There are other dimensions of formal institutions, i.e. having to do with macro-competition rules, banking, education, and so on, which are not considered in this analysis. They, too, require links to the substantive concerns elaborated here. For example, education policies in different countries favor very different kinds of economic action, and push them down different routes of specialization. Some decisions about institutional structures at these levels can be taken with respect to strictly generic concerns (universal values of the society; inputs to any kind of modern economic activity); but a surprising number involve more concrete visions of the particular kind of productive economy and collective action which is desired. Here we have merely laid out the fragments of this way of thinking about the problem -- the problem of constructing coherent conventions and frameworks of action so as to permit latecomers to participate in the learning economy.

**Industrial Policy for Latecomers:<sup>1</sup>  
Products, Conventions, and Learning**

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**July 1996**

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<sup>1</sup> Paper for publication in L.Tsipouri, S. Thomadakis, and M. Storper, eds, *Industrial Policy for Latecomers*, London:Routledge, 1997. Sections II, III,V, and VI draw from an earlier paper entitled “Institutions of the Learning Economy,” (forthcoming in Lundvall and Foray, editors); and Section IV draws from a paper entitled “Territorial Development in the Global Learning Economy,” *Review of International Political Economy*, 1995.

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  8. See references *op. cit.* at note 4.
  9. See the articles in the special edition of *Research Policy*, 1991, edited by C. De Bresson and R. Walker, especially that of Lundvall.
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  11. On the division of labor, see Sayer, A., and Walker, R., 1992, *The New Social Economy*, Oxford: Basil Blackwell.
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21.Hirschman, A.O. 1970, *Exit, Voice and Loyalty: Responses to Decline in Firms, Organizations, and States*. Cambridge,MA: Harvard University Press.

22.Lundvall, op. cit., relies partially on Habermas, J.,1976,*Connaissance et Interêt*, Paris: Gallimard (orig. In German, 1968).

23.Hirschman, op. cit.

24.Sabel, C. 1993, "Constitutional Ordering in Historical Context," in Scharpf, F., ed., *Games in Hierarchies and Networks*, Boulder: Westview Press.

25. I deal with this in greater detail in: Storper, M, 1995, "Regional Technology Coalitions: An Essential Dimension of National Technology Policy," *Research Policy* 24: 895-911.

26.There is now a vast literature on this framework, too voluminous to cite here.

27.Some of what follows is drawn from work carried out jointly with Allen Scott. See: Storper, M. and A.J. Scott, 1995, "The Wealth of Regions," *Futures*.

28.See: Furtado, C., 1963, *Formacao Economica do Brasil*, Brasilia: Universidade de Brasilia Editor; Prebisch, R. 1982, *La Obra de Prebisch en CEPAL*, Mexico: Fondo de Cultura Economica; and Hirschman, A., 1958, *The Strategy of Economic Development*, New Haven: Yale University Press.

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30.Asanuma, B., 1991, "Manufacturer-supplier relationships and the concept of relation-specific skill," *Journal of the Japanese and International Economies* 3: 1-30; Aoki, M., 1990, "Toward and Economic Model of the Japanese Firm," *Journal of Economic Literature*, 28: 1-27; Dore, R., 1987, *Flexible Rigidities*, Stanford: Stanford University Press; Gambetta, D., ed, 1988, *Trust*, Oxford: Basil Blackwell; Gereffi and Fonda, op. cit.

31.Salomon, J.J. 1985, "Le Gaulois, le cowboy, et le samourai," Paris: Report to the Ministry of Industry and Research.

32.Schmitz and Cassiolato, op. cit.

33.In this respect, while there is much of interest in Porter, M. 1990, *Competitive Advantage*, London: Macmillan, the "diamond" framework it advances is too mechanical, a sort of "one-size-fits-all" policy package.