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# Coordination Economics, Poverty Traps, and the Market Process

## *A New Case for Industrial Policy?*

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**M**arket failure is the strongest reason for defending an active role for the state in the economy. Among other market-imperfection-based arguments, development economists widely use the theory of coordination failure to define a new case for industrial policy (Matsuyama 1997; Rodrik 1996, 2004, 2007).

The central pillar of the literature on coordination failure is the idea that the economy may fail to achieve coordination among complementary activities. Some investment projects are not undertaken because complementary investments do not exist, and these latter investments do not occur precisely because the former are absent. Coordination failure leads the market to an (equilibrium) outcome inferior to a potential situation in which resources would be optimally allocated and all agents would be better off.

The occurrence of such inefficient equilibria, or poverty traps, is supposed to present an opportunity for a positive state intervention. It is argued that such situations can be overcome only by massive coordinated investments, which are unlikely to be made if poor regions are left on their own. As Stefan Dercon puts it, “A poverty trap is an equilibrium outcome and a situation from which one cannot emerge without outside help, for example, via a positive windfall to this group, such as by re-

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distribution or aid, or via a fundamental change in the functioning of markets” (2003, 5). In short, poverty traps can be removed by a “big push” strategy.

A number of authors have seriously disputed and criticized the merits of government intervention to accelerate economic growth. Authors such as William Easterly (2001, 2005, 2006a, 2006b), Benjamin Powell (2005), and Scott Beaulier and Robert Subrick (2006) have recently questioned the evidence for poverty traps and demonstrated the weaknesses of the case for “big push” industrial policy. However, the rising importance of “coordination-failure” models for the advocacy of industrial policy has received minor attention. In this article, I refute the idea that entrepreneurial coordination problems lead to poverty traps. I also criticize the claim that public intervention improves the coordination of economic agents.

### **Intellectual Pedigree: Rosenstein-Rodan, Nurkse, and Hirschman**

The literature on coordination problems has a long tradition. A pertinent review of this literature appears in Hoff 2000 and in Hoff and Stiglitz 2001. Paul Rosenstein-Rodan argued in his seminal 1943 article “Problems of Industrialization of Eastern and Southeastern Europe” that poor economies cannot grow because of coordination failure among complementary industries. If industrialization were achieved simultaneously in all economic sectors, industries would end up with profit, even though no sector would be profitable if it chose to industrialize alone. As a result, an underdevelopment equilibrium is possible. To solve this problem, a large amount of investment is required—the “big push” policy.

In the 1950s, many economists thought that underdeveloped economies would never turn into rich and prosperous ones if they were left to the impersonal forces of the market. Ragnar Nurkse (1953) argued that underdevelopment persists because of a so-called vicious circle of poverty: on the one hand, the domestic market is thin because of low incomes, and, on the other hand, the supply of goods is scarce because people are too poor to save. Thus, the level of capital accumulation, investment, and productivity is low.

The assumption was that the free market cannot direct capital toward the most socially efficient investment projects. Unlike Nurkse, who favored a uniform industrial policy—the doctrine of “balanced growth,” which requires a massive investment program, a “big push”—Albert Hirschman (1958) maintained that developing countries also lack managerial and entrepreneurial capacities. Therefore, the optimal policy should have as a goal an unbalanced development, concentrating investments in those sectors with significant external effects, which can facilitate and promote complementary investments in the rest of the economy.

The disappointing results of state-led industrialization in underdeveloped countries and the collapse of centrally planned economies have convinced most economists to repudiate early development models. However, although it seemed as if “big push”

strategies had been definitively expelled from the realm of development economics, they have recently begun to reclaim some economists' attention. "The big push has returned to favor in the development policy-making, after half a century of exile" (Easterly 2005, 3). A good illustration of this change is the United Nations' adoption of the Millennium Development Goals. Claiming that many Third World countries are caught in a poverty trap, proponents of these goals have argued for "a big push of basic investments between now and 2015 in public administration, human capital (nutrition, health, education), and key infrastructure (roads, electricity, ports, water and sanitation, accessible land for affordable housing, environmental management)" (United Nations 2005, 19).

"Big push" policy has returned to development economics because in the past few decades several economists have attempted to refine the case for industrial policy and ground it in more solid theoretical bedrock. Using the rational-expectations hypothesis, several authors have attempted to formalize the coordination-failure argument and to elaborate a multiple-equilibria theory of development. Murphy, Shleifer, and Vishny's (1989) reference work illustrates the resurgence of interest in coordination problems and formalizes some aspects of the Rosenstein-Rodan viewpoint. In addition, other development economists have emphasized a number of situations in which the interdependence of private agents seems to produce coordination failures that prevent economies from achieving a better equilibrium.<sup>1</sup>

Since the publication of the article "Ending Africa's Poverty Trap" (Sachs et al. 2004) and *The End of Poverty: Economic Possibilities for Our Times* (Sachs 2005), Jeffrey Sachs has quickly become the foremost advocate of "big push" industrial policy. Sachs's influence is phenomenal throughout the world. He is the guru of economic development, the spiritual father of numerous research institutes, initiatives, and projects, and advisor to economic development policymakers in many countries. Economists such as Dani Rodrik (1996, 2004) and Andres Rodriguez-Clare (2005a, 2005b) have used this particular market-failure argument as justification for a "new industrial policy" whose goal is to induce entrepreneurs to invest in the projects with the highest social return.

## From Coordination Failure to "Big Push" Policy

According to the coordination-externality argument, the economy works like an ecosystem:

Whereas neoclassical economics emphasizes the forces pulling toward equilibrium—and with similar forces working in all economies, all should be pulled toward the same equilibrium, modern development economics

1. See Krugman 1991; Matsuyama 1991, 1996; Acemoglu 1997; Adserà and Ray 1997; and Azariadis and Stachurski 2005.

focuses more on evolutionary processes, complex systems, and chance events that may cause systems to diverge. Thus, it tends to be influenced more by biological than physical models. . . . The economy is like an ecosystem, and Darwin was implicitly recognizing that ecosystems have multiple equilibria. Far more important in determining the evolution of the system than the fundamentals (the weather and geography) are the endogenous variables, the ecological environment. Luck—accidents of history—may play a role in determining that and, thus, in the selection of the equilibrium. (Hoff 2000, 152–53)

And further, along the same lines:

In an ecosystem, a key factor determining how any individual will behave is his environment. One of the most important aspects of that environment is the behavior of others. Under some conditions, ecosystems have multiple equilibria, and individuals may fail to “coordinate” on the equilibrium that is preferred by everyone. . . . The basic mechanics of coordination failure are simple: An individual’s behavior—for example, to produce or to prey on the production of others—creates externalities. The externalities affect not only the *welfare* of others, but also their *decisions*. The interaction of the slightly distorted behaviors of many different agents may produce very large distortions and can lead to the existence of multiple equilibria, some very good for every member of the economy, and some very undesirable. (Bowles, Durlauf, and Hoff 2006, 6–7, emphasis in original)

For Kiminori Matsuyama, this coordination problem—like “the problem of hundreds of people, scattered in a dense, foggy forest, trying to locate one another—is of such fundamental difficulty that no algorithm can solve it. What the economics of coordination tries to show is that even the market mechanism cannot solve the problem” (1997, 134–35).

Rodrik (2004) and Rodriguez-Clare (2005b) provide a good explanation of this market failure. Rodriguez-Clare points out that the success or failure of an action depends on the context in which it is undertaken: “A firm’s productivity depends not only on its own efforts and abilities, and on general economic conditions (e.g., the macroeconomic environment and the legal system), but also on the actions of other firms, infrastructure, regulation and other public goods” (3). In such a case, different agents’ actions are said to be “complements.”

On a more specific note, Rodrik notes:

Many projects require simultaneous, large-scale investments to be made in order to become profitable. . . . An individual producer contemplating whether to invest in a greenhouse needs to know that there is an electrical

grid he can access nearby, irrigation is available, the logistics and transport networks are in place, quarantine and other public health measures have been taken to protect his plants from his neighbors' pests, and his country has been marketed abroad as a dependable supplier of high quality orchids. All of these services have high fixed costs, and are unlikely to be provided by private entities unless they have an assurance that there will be enough greenhouses to demand their services in the first place. This is a classic coordination problem. . . . More generally, coordination failures can arise whenever new industries exhibit scale economies and some of the inputs are non-tradable (or require geographic proximity). (2004, 12–13)

Thus, the coordination problem illustrates the proverbial chicken-and-egg dilemma. Agents cannot introduce a new good X on the market because they cannot rely on complementary suppliers of Y and Z, but, in turn, suppliers of Y and Z have no reason to produce because there is not enough demand for their output.

As Peter Howitt argues, the coordination effort that market participants make depends critically on their expectation that other individuals will act to take full advantage of potential gains from trade: “When people on one side of a market put more effort into the matching process, this makes it more worthwhile for those on the other side to do the same thing, because it makes transacting less costly for them” (2003, 141). For example, pessimistic expectations on the part of firms that they can find appropriate workers will make it more costly for workers to find suitable jobs. A vicious circle seems to ensue, keeping the market at a distance from an efficient allocation of resources.

Following a similar line of reasoning, Marshall provides a good explanation of what is meant by the term *coordination failure*:

Suppose the economic performance of a country (or a firm, industry, or financial market) depends on large numbers of investors being willing to provide funds. If it is generally believed that *other* investors will withhold funds, it is rational for any *given* investor to refrain from investing. Thus, these beliefs become self-fulfilling. This represents a coordination failure because *everyone* would be better off if *all* investors provided funds to the affected country. Unfortunately, there is no way to coordinate investor actions in this way. (1998, 13–14, emphasis in original)

In the circumstances described, there are, more precisely, multiple equilibria: a good equilibrium obtained when entrepreneurs have optimistic expectations and thus manage to coordinate their businesses and a bad equilibrium resulting from entrepreneurs' reluctance to invest and their failure to coordinate their actions. In the latter case, when the market mechanism does not work, the government—according to coordination-failure economists—should coordinate (stimulate) entrepreneurs to move them into the good equilibrium.

This policy prescription echoes the arguments made by Rosenstein-Rodan (1943) and Hirschman (1958), who argued for the necessity of a massive and concentrated industrialization policy (a “big push” strategy) in order to break the underdevelopment equilibria. In light of the negative consequences of industrialization policy carried out by many developing countries in the 1960s and 1970s, market-failure theorists are more cautious now, and they insist that the new industrial policy differs from the old interventionism in two respects. First, it requires skill, rather than resources (Hoff 2000). The government essentially should adopt policies that rein in the spillovers among entrepreneurs, paving the way for achievement of the good equilibrium. What is needed in order to induce entrepreneurs to start complementary investments is an “ex-ante subsidy,” consisting, for example, in an implicit bailout or an investment guarantee. Second, the policy need not be permanent; state intervention may end as soon as the economy is pushed into the good equilibrium because in the new context implicit or explicit subsidies are no longer necessary.

The case for the new industrial policy cannot be taken for granted in spite of its popularity among economists and policymakers. In particular, both the idea that interdependencies among market participants prevent an optimal allocation of resources and the policy recommendation based on it should be considered carefully.

### **Issues to Consider with Poverty-Trap Models**

A number of considerations prompt me to claim that the coordination-based model of market failure in development does not provide a proper explanation for the divergent economic performance across regions and that the model is unrealistic and inconsistent. I now proceed to analyze some of its weaknesses closely.

#### *Coordination Failure and Political Expediency*

Advocates of “big push” policy are biased in their analysis of market failure and poverty traps. Development economists are not interested in analyzing coordination failures per se. Because peoples’ tastes, resource availability, and technology do not remain unchanged, the allocation of resources changes continuously, and there is a permanent need for recoordination of economic activities. From this perspective, all regions and all countries are developing. Consequently, coordination failures may happen everywhere. Thus, in terms of coordination, the difference between rich regions (countries) and poor regions (countries) is only a matter of degree (Matsuyama 1995). Divergent economic evolutions happen all the time among various regions within every country. As Easterly aptly notes, however, “no serious economist that I know of is proposing a Big Plan to triple US per capita income, or to end poverty in the US” (2006a, 1). Instead, we hear this argument with reference to other countries. What is of interest is not intranational coordination failures, but only international coordination failures—and for purely ideological reasons.

### *The Irrelevance of Coordination Failure*

Even if we leave aside the criticism just outlined, a serious definitional problem affects coordination failure-based arguments. Development economists provide a very simple description of coordination.<sup>2</sup> In their view, coordination problems typically arise when “profitable new industries fail to develop unless upstream and downstream investments are coaxed simultaneously” (Rodrik 2004, 13). For example, “building an airport in a region that has no hotels would not lead to any traffic, but hotels without a regional airport may not be profitable either” (Rodriguez-Clare 2005b, 10). This view of coordination may be considered simply a truism. If a successful investment occurs, it is profitable because it is properly integrated into a network of complementary businesses. Inversely, any investment failure brings a loss because it does not fit in a suitable network of complementary businesses.

The example does not demonstrate that the free market may fail in coordination; rather, it shows that not all potential activities can be brought into a coherent structure of production, and so some activities are not undertaken. Building an airport and hotels may be considered “complements,” but there is nothing special about them except that they are two possibilities. We might add easily that building hotels or highways or museums or fancy restaurants and shops or providing ski transportation facilities or artificial snow are complements because they can be used together. But the example does not say anything about how (in what combination), when, and especially if consumers wish to buy these services. It does not say if consumers prefer to have this set of activities at ten-thousand-foot altitude or at sea level. Most important, it overlooks the fact that if consumers do have a clear preference for all these (not yet existing) services, then they must stop supporting alternative activities (farming or mining, for example).

### *Increasing Returns as a Cause of Coordination Failure*

Let us now turn to more substantive flaws in the coordination-failure models. First, some development economists suspect that the existence of increasing returns to scale is the principal cause of coordination failures. “Increasing returns matter because development is almost synonymous with industrialization, and with the adoption of modern production techniques in agriculture, manufacturing and services” (Azariadis and Stachurski 2005, 299). They advocate state intervention on behalf of adopting these modern technologies. This is old and bad news because the argument claims far too much. Indeed, central planners in the former Communist countries held this view. They too equated development with industrialization when they decided to patronize the expansion of steel mills, auto plants, shipping companies, “petro-

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2. For a broad discussion of the different meanings of “coordination” in economic theories, see Murphy 2001 and Klein 2004.

chemical complexes” (extraction companies, oil refineries, and fertilizer plants), cement factories, and so forth.<sup>3</sup> After all, “forced collectivization” in agriculture was intended only to “coordinate” farmers to adopt increasing-returns technologies, such as irrigation, fertilization, and mechanical treatment of soil and crops.

The policy recommendation with regard to the adoption of increasing-returns technologies overlooks important economic insights. First, the employment of certain technologies enhances individuals’ productivity only if it springs naturally from producers’ voluntary actions. To say that increasing-returns technologies and mass production encourage economic growth and prosperity unconditionally is to treat human actions mechanistically. To be sure, increasing-returns technologies decrease unit cost, but, following similar reasoning, we may say that an increase in the number of producers on the market—that is, a widening of the division of labor—decreases unit costs. Yet it is absurd to consider that mass production promotes society’s welfare just because, by decreasing average costs, it may encourage demand, reinforce production, and so on. Individuals do not wish to decrease average production costs unconditionally. Beyond a certain point, increased production does not result in net positive external benefits, but in negative externalities. An important question for the entrepreneurs deciding on the size of their business is whether an investment presents increasing or decreasing returns to scale. An independent observer cannot settle the issue because he cannot determine the relevant benefits and costs objectively. Only the entrepreneur’s judgment of market conditions can determine the optimal size of production units and the best type of technology to employ.

It is difficult to prove empirically that adopting mass production is necessarily beneficial. Rather, as history illustrates, people prefer to consume a variety of goods even if, as a consequence of their choice, the average cost of production for any particular commodity is higher. On a free market, entrepreneurs will try to respond accurately to their customers’ demands, providing specific goods and services according to the public’s preferences.<sup>4</sup> Therefore, only in a free market can the optimal size of (or the proper technology for) production be discovered. Because political action is not a substitute for voluntary cooperation, the merits of discretionary intervention in the organization of production are highly questionable.

### *Coordination and Search Costs*

Another point in the coordination-failure argument is that coordination is costly. As Rodriguez-Clare explains,

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3. As definitive proof of how deeply the “increasing returns” paradigm permeated development models in central planning, the standard of living was supposed to result from the number of tons of steel or cement per inhabitant!

4. Discovering “niche” markets and offering specific services for particular customers are ingredients in one of the most used recipes for building a successful business. For example, mass production in the agriculture and food industry is currently challenged by “ecological” production, and the latter precludes the employment of certain increasing-returns technologies widely used by the former.

One can think of a similar story . . . where coordination failures arise between workers thinking about investing in training and firms thinking about investing in technologies that require trained workers. . . . Although a firm can contract with a worker so that they both invest in training and technology, and split the realized surplus, a problem arises because of the risk of separation. At that point, the firm would have to look for a trained worker, and the trained worker has to look for a job in a firm with modern technology. Given search costs, however, there is a risk that a productive match will not materialize, in which case firms and workers will have lost their investment. (2005b, 6)

The thesis that the search cost undermines entrepreneurial coordination is misleading. All actions entail cost. Search costs, like transportation costs or labor costs, are economic costs that must be taken into account before deciding on the allocation of resources. The fact that high search cost discourages some actions is no more relevant than the fact that high transportation cost prevents a doctor from selling his services to a distant customer. If we pursue the argument to its logical conclusion, we will maintain that this fact is a good reason for state subsidization of the doctor's distant activity. But this conclusion is hardly acceptable. One cannot derive any sound conclusion by comparing real-world situations with Rodrik's (perfect competition-based) model, in which search is costless.

Further, search costs cannot be eliminated through state action, which only shifts them onto other people. The government itself has to incur search costs (associated with the implementation of cluster development strategies), and it covers them through taxation. A natural question, then, is why are market search costs more important to avoid or reduce than the costs associated with taxation? In the absence of a scientific answer, the sensible economist is encouraged to regard with caution the enthusiastic claims of coordination-failure theorists.

### *The Inconsistency of Coordination-Failure Models*

Apart from the issues already mentioned, coordination-failure models and their policy prescription have a major drawback. Any action or policy has coordinating as well as dis Coordinating effects, and the reader of market-failure literature is left without a precise indication about which coordination is better.<sup>5</sup> For example, the decision to upgrade railroad infrastructure will promote faster land shipping, but will most likely undermine air transportation. Railroad-related activities will prosper at the expense of industries producing complementary goods and services for the airline industry. A leading coordination-failure theorist acknowledges this point and makes a striking

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5. See Mises [1929] 1996 and Ikeda 1997 for systematic theoretical analyses of government intervention in the economy.

remark about it: “improving coordination means not only setting up a new system of coordination, but may also mean tearing down the old system of coordination. A steady progress in coordination can be achieved only through the process of ‘creative destruction’” (Matsuyama 1997, 138).

Instead of reasoning in terms of “coordination externalities” and “market failure,” mainstream economists should realize that government is at the root of the most important poverty traps. As Collier (2006) argues, war and corruption have self-reinforcing mechanisms that prevent economic development. Violent conflict is easy to initiate when the division of labor is still incipient, and, in turn, war destroys the exchange network and creates even more poverty. Corruption also has traplike features. State regulations that stifle entrepreneurial initiative lead to corruption, which affects individuals’ reputation and further decreases the benefits of acting honestly.

Coyne and Leeson explain this connection, referring to the case of a developing economy:

The situation in Romania can be viewed as a vicious circle that is a self-reinforcing, suboptimal equilibrium. One unproductive activity—for example, a new law or regulation—creates several more opportunities for other unproductive opportunities, such as inspectors using the new law to extract bribes. In fact, the constant creation of new laws and regulations often raises the returns from entering the civil service above those of entering wealth-creating enterprises. As one entrepreneur we spoke with indicated, several of his associates left successful businesses to become regulators and inspectors because they could earn more engaging in unproductive activity than in productive ones. Unproductive activities thus have a negative cumulative affect, reinforcing the current stagnation that characterizes the Romanian economy. (2004, 244)

## **Institutional Framework and Economic Coordination**

The economic system consists of a combination of interrelated production processes. The efficient functioning of this social arrangement requires smooth coordination among its various activities. Because individuals’ preferences for various consumption goods (as well as their intertemporal preferences and the availability of resources) change constantly, producers need to revise their plans, and the configuration of production is continuously reshaped. Economic development—the process of creating a better coordination of productive activities—implies ongoing structural transformation. Some production processes are dropped, others are undertaken. Economic development occurs when this structural change is fueled by capital accumulation and the production structure is widened and deepened.

By permanently searching for profit opportunities, entrepreneurs drive economic change. However, mere economic change does not automatically imply economic

growth. The institutional setting that creates the rewards to different types of entrepreneurial ventures determines how entrepreneurial talent (together with all the other resources) is eventually distributed between productive and unproductive activities (Baumol 1990). Because only productive entrepreneurship contributes to economic development, societies that adopt an institutional framework conducive to productive entrepreneurship succeed in developing economically. Both theoretical inquiries and empirical investigations (Acemoglu and Johnson 2005) support the idea that clear private-property rights are of fundamental importance for cultivating productive entrepreneurship.<sup>6</sup>

The market process—voluntary exchanges between individuals in a private-property framework—has long been recognized as an excellent mechanism for achieving spontaneous coordination. Adam Smith described metaphorically the process by which the general welfare is enhanced as a result of each individual's pursuit of his own self-interest, using the expression “as if led by an Invisible Hand.” More accurately, Frederic Bastiat pointed out that the interests of all members of society are harmonious, even if the members occasionally fail to act in harmony with each other.<sup>7</sup>

Sporadic inconsistency among individual activities occurs because human error is inescapable, being the result of limited cognitive abilities (bounded rationality) and a highly complex network of economic relationships. It is overly optimistic to think that entrepreneurial effort (within the framework of a market order) can overcome all coordination problems. Therefore, the existence of coordination failures cannot be disputed. Success stories reported by business magazines and the very fact that new entrepreneurs sometimes enrich themselves suggest the existence of coordination problems in the first place.

No mechanism can help us to achieve the perfect allocation of resources. However, the price mechanism is superior to alternative means of coordinating economic activities. This verdict is based on the following considerations.

*Rational calculation.* In a market system, coordination is possible because agents have a rational method for selecting what and how production processes should be coordinated. The essential instrument that entrepreneurs use in deciding on the allocation of resources is monetary calculation.<sup>8</sup> If their undertaking ends with a profit, they know that resources were brought in line with consumers' needs. If the result is a loss, then inputs were diverted from their optimal employment and wasted in less-valued activities. Therefore, entrepreneurs have a robust guide for selecting among competing production processes. In a free market, production is rational and coherent, always subordinated to consumers' wishes.

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6. A large theoretical literature explores the significance of private-property rights for development and prosperity. See, for example, Mises [1920] 1990.

7. See Hülsmann 2001 for a pertinent account of Bastiat's contribution to economics.

8. Mises ([1920] 1990) points out the crucial importance of economic calculation as an indispensable tool for coordinating the complex network of exchanges that constitutes an advanced economy.

*Incentives.* Although the free market leaves plenty of room for imperfections, errors, and discoordination, individuals rationally seek to avoid errors by anticipating accurately consumers' future demands and the future supplies of resources as well as by adjusting their behavior to recent and expected changes in prices and costs. Investors and producers are motivated to coordinate their businesses in order to respond to consumer demands. Failure to use resources to satisfy the most urgent consumer needs is penalized, whereas success is rewarded. Profit incentives improve the quality of their judgment, leading to a reduction of errors. These incentives affect individuals' willingness to use resources to make optimal decisions.<sup>9</sup>

*Selection.* The profit-and-loss mechanism not only provides powerful incentives for avoiding error, but also serves as a test for selecting the ablest entrepreneurs. Only competent entrepreneurs pass the market test and continue to produce, and they can stay in business only as long as they manage to demonstrate their abilities again and again.

The market process coordinates productive efforts effectively because the structure of prices is shaped according to the relative importance of resources for their final users, the consumers.<sup>10</sup> By forecasting future market conditions, entrepreneurs bid for resources in an attempt to increase their investments in the production processes with the highest expected rate of return—that is, those processes that produce the goods that consumers desire the most. Because the prices of factors of production are continuously adjusted to the expected prices of final goods, the emerging constellation of prices coordinates the various uses of resources and results in a coherent structure of production.

## Paternalism and Coordination Economics

Despite the economics profession's tradition of using coordination failure as a basis for public policy, a closer analysis suggests we should regard this habit with suspicion. A huge gap separates the arguments for the necessity of solving coordination failures through government-sponsored mechanisms and the requirements that these arguments must fulfill to be considered scientifically valid. Three main arguments may be advanced against public industrial policy.

### *The Information Argument*

One major problem is the lack of knowledge. Each decision maker, private or public, possesses only very partial knowledge of the economic scene. As F. A. Hayek (1937, 1945) emphasizes, knowledge about economic allocation exists only in a dispersed

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9. Bounded-rationality arguments do not provide a solid basis for interventionist policies. See Glaeser 2005.

10. For an excellent description of the market process's coordinative property, see Salerno 1991.

form among individuals. No single agent possesses a clear picture of the entire situation, but only knowledge specific to a particular time and place. The crucial economic problem is to coordinate these bits of separate information productively, which is precisely what the price system does.

Given that policymakers are not omniscient, they cannot know *ex ante* the optimal pattern of investments, and they consequently cannot improve the market outcome. As a popular and condensed adage strongly supported by empirical evidence tells us, the “government cannot pick winners.” Indeed, the history of development policy is replete with wrong decisions that wasted resources in bad investment projects, creating inefficient industries and social unrest.

In a sense, the industrial activism inspired by the “poverty trap” notion can impose even higher costs on society than focused attempts to engineer development. Because “big push” industrial policy requires that policymakers target a comprehensive group of related industries rather than specific businesses, the magnitude of potential failures increases considerably. If government’s privileges fail to promote growth, the outcome will be not discrete bankruptcies, as in the past, but economy-wide failures.

It can be argued that the new industrial policy is more about coordinating changes in expectations than about actually allocating investments. In other words, “implicit” subsidies, such as public guarantees for investors, are as useful as explicit aid. Thus, policymakers’ main objective is to induce a shift in expectations to stimulate investors to act simultaneously. This interpretation, however, does not avoid any of the problems discussed previously. Any policy is costly—that is, it implies spending resources to achieve a certain goal—so it diverts resources from the market and thus prevents economic coordination. In addition, a number of specific problems attend the “big push” policy.

First, how can policymakers know that individuals’ expectations are wrong and that people are failing to coordinate their activities? Simple observations of present economic malaise (bad equilibrium, poverty trap, and so forth) can only suggest that this phenomenon is the result of past errors—of actions based on wrong expectations. Second, how can policymakers know what the situation would be in the absence of public intervention? Perhaps entrepreneurs have found a way to coordinate their actions, and the allocation of resources will be improved even without government interference. Third, how can policymakers be sure that agents have not already taken the policy into consideration in their expectations regarding the future economic environment? All these questions lack satisfactory answers or have been completely ignored in the new development economics literature.

### *The Incentive Argument*

People lack incentives to conserve or increase the value of resources when they do not own (have a private-property right over) these resources. Industrial policy invites

corruption and rent seeking. Once the government is in the business of providing support to firms, the incentives change, leading to perverse outcomes.<sup>11</sup> It becomes profitable for private actors to withdraw resources from productive employment and channel them into the competition for political favors. Thus, such an institutional setting leads to a bad equilibrium, becoming itself a source of coordination failure.

### *The Calculation Argument*

As Boettke and Leeson (2004) and Beaulier and Subrick (2006) strongly insist, development economists must acknowledge that social planners are neither benevolent nor omniscient. However, the free market cannot be successfully defended simply by pointing out that policymakers do not possess enough information to allocate resources optimally or by emphasizing the state's corrupt nature. Some of the leading advocates of industrial policy acknowledge both these difficulties. They believe, however, that the quality of the government's activity can be improved. Therefore, we may accept, if only for the sake of argument, that perhaps government bureaucrats are both smarter (and better informed) than private entrepreneurs and well intended. This hypothesis is, of course, completely counterfactual, but it should not be dismissed simply on this ground. Government interventionism must also be criticized on the assumption that policymakers are morally and intellectually the best members of society.

In spite of the clean new clothes provided by these assumptions, government interventionism has no more solid justification that it ever had. The problem with industrial policy is deeper than most of its critics admit. Starting with Mises ([1920] 1990), a large Austrian literature has argued that in the absence of private-property rights, money prices cannot emerge and rational economic calculation is impossible. As Salerno explains, the market process transforms various individuals' qualitative knowledge about particular market conditions into quantitative data: market prices (1994, 112). Without such cardinal values, it is impossible to determine the relative profitability of different production processes, so there is no guide for determining a superior pattern of resources' allocation.

At the limit, the central planner in a socialist commonwealth has no rational way to decide whether to shift resources from project A to project B. His intervention is arbitrary because it cannot be subjected to the profit-and-loss test, as private activities are. Murray Rothbard observes that any particular decision to socialize investment introduces an island of calculational chaos into the market economy (1962, 825). Promises to bail out entrepreneurs if they fail to operate profitably, as Rodrik indicates, amount to a de facto socialization of private investments.

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11. See Easterly 2006b for a more detailed description of this "accountability" problem with reference to foreign aid.

The advocates of industrial policy think government can act as private businesses do, using the profit-and-loss criterion to decide between different investment projects. Rodriguez-Clare declares that, “at least in principle, one could calculate a social return for such an investment. With limited resources, the obvious approach would be to invest in the proposals that entail the highest social returns. The problem, of course, is that calculating such social returns is very difficult. One (perhaps limited) way to interpret prospective studies is as a way to facilitate this calculation [*sic*]” (2005b, 28). Here, the author, to his credit, touches the real problem of industrial policy. The state is not an entrepreneur, so it is not in a position to “interpret” prospective studies the same way private individuals do.<sup>12</sup> More precisely, policymakers cannot calculate as private entrepreneurs do. Therefore, any decision they make is merely a leap into darkness.

Development economists need to acknowledge that policymakers receive no economically meaningful feedback about the results of their decisions (Easterly 2006b). Unlike private entrepreneurs, whom the market system of profit and loss informs regarding whether their production plans match consumers’ desires, public planners never really know whether their policy worked. The simple fact that a formerly privileged industry survives on the market gives us no clue about the merit of industrial policy. Perhaps the industry would have survived without state interference, or perhaps it would have been organized in a different, more profitable way, or perhaps alternative industries that were suffocated by government policy would have yielded a higher profit.<sup>13</sup> Moreover, it is possible that the industrial development occurred not because of government policy, but in spite of it. The development of the Japanese auto industry is an example in this regard.

As Powell emphasizes, “Successful planning, however, cannot ever be established by observing that a subsidized firm eventually becomes privately profitable. No market feedback mechanism is in place to show that the gain in the subsidized industry is greater than the opportunity cost of the industry that would have developed in the subsidy’s absence. Although observing failures in development planning illustrates the knowledge problem, there is no way to establish which of the industries that are apparent ‘successes’ should have been created, so they are not ever proof of planning’s success” (2005, 311). This point may be restated in the vocabulary of

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12. Rather, as Buss notes, “only individual or group interests . . . use public authority to their benefit, often at the expense of others” (1999, 367).

13. Powell describes the informational problems that challenge planners’ work: “Just because a project that was not profitable when it was undertaken and subsidized by the government is eventually profitable does not indicate that it should have been undertaken *when it was*. . . . If a state provides a large enough subsidy, an industry can be created that would not otherwise exist. Path dependencies and positive externalities develop within the industry that may later allow it to survive without subsidy. Because the industry can later survive does not mean that development was promoted, however. Some other industry that better corresponds to the country’s comparative advantage would have developed in absence of the subsidy. Real resources are used that could have better satisfied consumer wants in other industries” (2005, 309–10).

coordination economics. Not only is the new (government-engineered) equilibrium not likely to be the best of all feasible situations, but one cannot know whether by reaching the new equilibrium society has in fact been prevented from reaching an even better state.<sup>14</sup>

Industrial policy continues to raise insurmountable issues. One cannot say whether such policy is relatively more successful in coordination than the market process based on private property. A priori, nothing prevents government-sponsored allocation from resulting in a better coordination of economic activities in a certain region at a certain point in time. However, strong theoretical reasons suggest that this case is unlikely to happen. Without the possibility of economic calculation, proper incentives, and an impersonal selection mechanism for entrepreneurs-coordinators, discovery of the optimal pattern of allocation is almost impossible. In contrast, a market-based process of coordination contains powerful endogenous forces that *systematically* push the economy toward the best equilibrium.<sup>15</sup>

One might argue, as Easterly does, that “nations that fall short of freedom COULD become rich if they are lucky enough to have benevolent autocrats; however, they also COULD remain very poor. Democracy and free markets are ways to reduce the variance of outcomes as well as to improve the average outcome. Freedom is an investment bringing lower risk and higher returns than no freedom, which should qualify it as an attractive investment opportunity” (2006b, 3, emphasis in original).

## Conclusion

The coordination-failure argument does not provide a solid theoretical foundation for rehabilitating the “big push” industrial policy. At the root of the argument is a misunderstanding of the entrepreneur’s role in industrial organization. Although the lack of conceptual precision makes the case for industrial policy appealing, coordination analysis cannot be used to improve the allocation of resources by comparison with the level reached on a free market. There is no recipe for industrial policy. Government intervention intended to repair the supposed market-coordination failure, such as industrial targeting and infrastructure development, is so widely practiced not because of scientific merit, but because of political reasoning. The rationale for “big push” initiatives fails to deal properly with the information, incentive, and calculation problems that plague economic policymaking in general. In view of the “new” industrial policy’s many deficiencies, it should not be considered a refined part of development economics.

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14. As Matsuyama states, “even if society accidentally discovers a better equilibrium and succeeds in reaching it, this newly attained equilibrium is almost surely dominated by other unknown (at least to the agents living in the model environment) equilibria” (1997, 140).

15. Market institutions facilitate the harmonization of individual plans, but, again, it is not realistic to think that all human actions will achieve their expected results and a general equilibrium situation will be reached (Hülsmann 2000).

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