

Comments

Francisco Rodríguez: In “Coordination Failures, Clusters, and Microeconomic Interventions,” Andrés Rodríguez-Clare presents a coherent case in favor of a new type of industrial policy for Latin America. He argues that the region’s disappointing growth performance calls for renewed thinking about the type of strategies that could complement Washington Consensus policies. He contends that many of the microeconomic interventions presently in vogue in the region do not have strong theoretical or empirical support, and he concentrates on the case for one particular type of alternative intervention, centered on the creation of conditions that will facilitate the emergence of clusters based on economies of agglomeration.

Rodríguez-Clare’s case is supported by an elegant stylized model in which all sectors have the potential to reap productivity gains from clustering. Whether they do so depends on their ability to solve coordination failures. The first-best solution can be achieved by addressing coordination failures in sectors that already have a revealed comparative advantage. Relative price signals will then correctly steer the economy toward the sector in which it has a natural comparative advantage and will generate clustering in that sector. There is no need to pick winners: as long as the coordination problem is solved, the economy will pick them by itself.

I have three sets of observations about this paper. The first relates to the significance of models of multiple equilibria, such as the one proposed in this paper, to understanding the problems of developing countries. The second has to do with the relevance of knowledge-intensive clusters in a world of rapidly declining costs of transmitting and processing goods and information. The last addresses whether it is actually possible to avoid picking winners in the design of industrial policy.

The Relevance of Multiple Equilibrium Models for Developing Countries

Rodríguez-Clare's key argument is premised on the ideas that coordination failures are pervasive in LDCs and that solving them can generate substantial productivity gains. These failures can only be important in the context of multiple equilibria. The premise is that the economy is stuck in a suboptimal equilibrium, as a result of either the failure of agents to coordinate or the government's failure to provide the type of incentives that would generate cooperation. The existence of multiple equilibria and the belief that LDCs are stuck in the bad ones are thus vital parts of Rodríguez-Clare's case.

Models of multiple equilibria have experienced a renaissance of sorts in development economics. Although the basic intuition behind these models goes back at least to Myrdal's application of the idea of cumulative causation to underdeveloped regions, their acceptance by the mainstream had to wait for formalizations via models such as that of Murphy, Shleifer, and Vishny.¹ These models are very attractive for development economics because they enable analysts to explain how economies that do not differ in their fundamentals may end up in very different situations. Indeed, it is safe to say that one can always come up with a sensible model of multiple equilibria to account for any fact that cannot be explained based on observables. An added attraction is that they offer an intuitive role for policy interventions in which the government acts as a coordinating actor that helps the economy move to the higher-level equilibrium.

The main attraction of these models is also their main drawback. Since they explain differences that are not based on fundamentals, it is very difficult to test them. Indeed, one can't do meaningful comparative statics with these models because comparative statics analysis requires taking derivatives with respect to small changes around the equilibrium—and in this neighborhood, models of multiple equilibria look just like models with a unique equilibrium. To test a model of multiple equilibria, one needs to be able to evaluate the effect of large shocks that drive the economy from one equilibrium to another. Theory gives us few clues as to how large these shocks need to be.

Davis and Weinstein provide a careful and ingenious test of multiple equilibrium models.² They study the reaction of industrial composition to the pattern of Allied bombing of Japanese cities during World War II. Their rationale is that since the massive amount of Allied bombing implied shocks that were just about as large as one could imagine, one would expect industrial structure to

1. Myrdal (1957); Murphy, Shleifer, and Vishny (1989).
2. Davis and Weinstein (2002, 2004).

have changed in response if multiple equilibria were an important part of the story. They find, however, that industrial structure within cities did not change even in response to these immense shocks. They conclude that the data strongly support the existence of a unique stable equilibrium and undermine the case for using limited policy interventions in attempts to select equilibria with large permanent effects on city development.

These tests do not apply directly to Rodríguez-Clare's case for clusters because the type of shocks studied by Davis and Weinstein would not necessarily affect the institutional structures and norms that facilitate coordination. Nonetheless, Davis and Weinstein's work is a useful reminder that the existence of a coherent analytical model is a necessary but not sufficient condition for designing interventions based on that model. Without solid empirical evidence that coordination failures are a relevant force impeding the formation of clusters and that the equilibrium with coordination can be enforced, the design of policies based on the theoretical intuitions arising from these models is a risky and audacious endeavor.

How Solid Is the Case for Supporting Clusters?

Practitioners involved in the design of economic policy are continuously shooting at a moving target. The forces that shape the economy sometimes change faster than one can design policies, and interventions that would have worked when they were being designed may no longer work after they are implemented. The author makes the case that addressing coordination failures at a local level—as opposed to the national-level coordination failures emphasized by Murphy, Shleifer, and Vishny—is an important component of a development strategy.³ While the evidence is convincing in demonstrating that this type of local external effect was an important force in the generation of clusters in the twentieth century, designing policy interventions today requires information on whether this will continue to be the case in the twenty-first century.

Local-level externalities are inextricably linked with difficulties in moving goods, people, or knowledge. These are often characterized as agglomeration economies, although physical agglomeration can be seen, as Rodríguez-Clare argues, as a necessary but not sufficient condition for cooperation to emerge. Marshall identifies three sources of externalities that can lead to agglomeration (namely, knowledge spillovers, input sharing, and labor market pooling); they are all related to some type of immobility, be it of ideas, inputs, or

3. See Murphy, Shleifer, and Vishny (1989) on national failures.

people.⁴ It is for precisely this reason that the parameter measuring transport costs plays a fundamental role in most theoretical models that attempt to account for agglomeration.

A potential source of confusion in the interpretation of this literature is that the earliest formal models predicted the existence of a threshold of transport costs below which agglomeration should be widespread.⁵ However, this is only true if there are no forces leading to congestion that are unrelated to transport costs. Even a very small congestion force (such as housing sector prices, comparative advantage, or heterogeneity in workers' preferences over locations) results in an inverted-U-shaped relation between spatial concentration and transport costs: as transport costs decline from an initially high level, suppliers are able to locate farther from consumers, but even more firms are able to locate anywhere and will do so to avoid the costs of congestion. Geographic concentration will be optimal only in an intermediate range of transport costs. If costs fall below the lower threshold of that range, a policy of stimulating clusters will be suboptimal because it will create incentives for firms to willingly sustain higher congestion costs.⁶

To be fair, existing empirical evidence does not suggest that the region's transport costs are so low as to lead to redispersion. Head and Mayer use transport costs for trade between two pairs of countries (the United States and Canada; France and Germany) and twenty-one industries; they conclude that transport costs are in the intermediate range in just over a fourth of the cases, while the remaining cases fall above the upper bound of that range.⁷ It is not yet known how fast these costs have fallen in the recent past nor how much they may fall in the near future. Nevertheless, transport costs for physical output declined continuously over the twentieth century, and there is little reason to expect that trend not to continue in the next few decades.⁸ Moreover, the cost of transmitting information declined at a staggering rate over the last forty years.⁹

4. Marshall (1920).

5. For example, Krugman (1991b).

6. These results are comprehensively surveyed by Fujita and Thisse (2002).

7. Head and Mayer (2003).

8. Glaeser and Kohlhase (2003) review the evidence on falling transport costs and argue that "a new regional model, without centers and without transport goods, will better capture the future of the city" (p. 30).

9. Between 1987 and 2000, the number of transistors on a given chip necessary to execute 20 million transactions per second declined by a factor of about 5,000; current estimates predict that by 2007, the number will have declined by another 5,000 times. The processing power of the existing network of computers—measured in instructions per second—has increased at an average annual rate of 35 percent over the last forty years (Chowdury, 2000).

These changes in the costs of shipping goods and information have significant implications for the importance of local-level externalities. Falling transport costs for goods allow firms to be physically separated from other firms, and falling costs of transmitting information allow people to be physically separated from other people. A continuation of the trends for decline in both of these costs can easily change the very nature of clusters. Even if clusters exist in a world in which the costs of transporting goods and ideas are low, they are likely to be very different from clusters today.

The *Economía* panel is, in itself, an example of this new type of cluster. Forty years ago, thinking about economics in Latin America was concentrated in a set of schools with a distinct approach to the study of development and with a clear geographic concentration in academic centers in Brazil and Chile. Today's cluster of Latin American economists is physically scattered over several countries, facilitated by the relative ease with which we can communicate and exchange research findings.

If the spatial dimension becomes much less important in the formation of clusters in the twenty-first century, then how are analysts to identify these clusters for the purposes of carrying out an industrial policy such as that proposed by Rodríguez-Clare? Indeed, clusters may no longer be the correct concept for thinking about the dimensions in which these externalities will operate, and they may need to be replaced by other, less spatially bound concepts such as networks. My fear is that the identification of these networks will become a daunting task for the institutions in charge of carrying out this industrial policy, making it much harder to implement it without creating severe distortions (for example, forcing firms and people to incur unnecessary congestion costs).

A related issue has to do with the fact that a policy of supporting the emergence of clusters is inspired by a specific view of the source of agglomeration economies, which links these to the interaction between similar or related economic activities. For the record, another view holds that agglomeration economies come from diversity in the interaction between vastly different activities. This view is generally associated with Jacobs's work on the economy of cities.¹⁰ The two views are not necessarily mutually exclusive: increasing returns may pertain to specific industrial clusters, while at the same time it makes sense for these to be located near cities to take advantage of a wide set of interactions between diverse social, economic, and intellectual groups. The relative value of each of these forces can change with the fall in the costs of

10. Jacobs (1969).

transporting goods, people, and information. The net effect of these changes will probably have a lot to do with the relative magnitude of the decline of different types of transport costs. Glaeser and Kohlhase suggest that the cities of the future may largely be driven by economies in acquiring services and in transmitting knowledge.¹¹ If this is true, these cities may be much more Jacobsian than Marshallian, and their emergence is unlikely to be helped much by an industrial policy that is fundamentally Marshallian.

Picking Winners

One of Rodríguez-Clare's key contentions is that it is possible and desirable to design policies that address coordination failures without picking winners. According to his interpretation of the stylized theoretical model, a first-best policy would address the coordination failures in sectors in which the economy has a revealed comparative advantage. An alternative and equally optimal policy would help address coordination failures in all sectors, allowing the developing economy to specialize in the sector in which it has a comparative advantage (sector 1 in the model).

I view this interpretation of his model with some skepticism. Nothing in Rodríguez-Clare's model rules out coordination occurring in some sectors and not in others. If, for example, the economy experiences coordination in sectors in which it does not have a natural comparative advantage, then it could easily end up specializing in these sectors. The sectors that will appear to reveal their comparative advantage are not the sectors in which the economy has a real comparative advantage at all. It is even possible for the sectors in which the economy should specialize in order to achieve the first-best equilibrium to disappear completely.¹² If coordination occurs in some sectors and not in others, then the concept of revealed comparative advantage is operationally meaningless and a policy that supports existing exporters or producers can easily end up targeting the wrong sectors.

This leaves us with the more diffuse policy of supporting coordination in all sectors—even those that do not exist. The author gives some examples of

11. Glaeser and Kohlhase (2003).

12. To be fair, the author recognizes this possibility but sets it aside as not being the most realistic scenario. I see no compelling reason why this would be the case. If coordination failures are very important in the sense that the productivity gains from solving them are high, then this is actually very likely to be the case.

this type of “soft” industrial policy, including the provision of scholarships for study abroad in areas deemed important for growth and diversification and the establishment of ground rules so that private entrepreneurs can compete for government support, as in Costa Rica’s R&D matching grant system. In the first of these two examples, it is obviously necessary to choose the areas deemed important for growth and diversification, so it is hard to see how one could design such a program without implicitly picking winners. In the second case, one can attempt to avoid picking winners by setting up purely technical parameters for evaluating proposals and comparing them on their intrinsic merit. Under such a system, the sectors most likely to present the best proposals would be those that are already the largest and most organized. Thus, the more neutral the policy, the less able it will be to help those who need it most to solve their coordination problems.

My point here is not that these policies are futile, but that it is basically impossible to design them without picking winners. The closest alternative to not picking winners is to set up neutral ground rules to let winners pick themselves. Such a strategy is likely to make the policy favor the most organized sectors, which in principle least need the help.

In my interpretation, picking winners is not something to be avoided, but an intrinsic characteristic of industrial policy. Rather than trying to design industrial policies that don’t pick winners, I would suggest a research agenda oriented toward learning under what conditions governments have been able to make these choices accurately and under what conditions they have failed. Careful empirical and historical work along these lines may lead to interesting insights into the choice of industrial policy.

Ronald Fischer: Andrés Rodríguez-Clare provides a nicely argued rationale for policy intervention. His reason for intervention is the promotion of clusters in sectors with competitive advantage. Since the returns to scale associated with clusters are not internal to the firm, firms cannot internalize their benefits. This means that in the initial stages (when the sector is small), growth is constrained by the fact that the costs are relatively high. The proposal, therefore, is to promote clustering (or coordination) in sectors in which these effects are important, with the caveat that the sectors must be ones in which the country has a competitive advantage, so as to avoid the past mistakes of import substitution policies.

After briefly mentioning the failure of the market reforms of the 1980s to produce high and consistent growth in Latin America, the author specifies that his objective is to examine microeconomic interventions that take advantage

of the opportunities offered by the market. The paper provides an excellent characterization of coordination failures, which serves as a foundation for the analysis. Rodríguez-Clare then presents a model that shows the possibility of multiple equilibria, with specialization in different goods with different degrees of comparative advantage, using technologies with or without coordination (that is, with or without clusters). In the model, there is always the dangerous possibility that the country will specialize in the good with the strongest comparative advantage, using the inefficient uncoordinated technology for that good, which leads to the lowest welfare state. The highest welfare states are achieved with coordinated technologies, ranked by their degree of comparative advantage, and this may require government intervention.

From this theoretical possibility, the author proposes a policy of focused government intervention in sectors with the possibility of clustering competitive advantage. He therefore emphasizes sector-specific policies that promote coordination, such as subsidized support for university-industry linkages in research, and organized efforts by the private sector in innovation expenditures.

This might be called Industrial Policy Mark II: policies designed to aid the market by subsidizing coordination activities, rather than directing it toward a planned objective, as in traditional industrial policy. This new model of industrial policy is less dangerous than the traditional type, for two reasons: the potential reallocation of resources is smaller, and it does not attempt to divert the economy away from its natural direction, as in the case of import substitution.

The question is whether this sort of intervention works. The author provides one example of successful association between industry and a public institution: INIA and the sugar industry in Uruguay. The lack of examples is surprising, since there are many other positive cases in my limited (and not too favorable) experience. In my view, however, even those additional favorable results do not validate the proposal.

The Case of Chile

The Chilean government has subsidized associations between universities and the private sector for almost fifteen years through the Fund for the Promotion of Scientific and Technological Development (FONDEF), which requires cofinancing of projects by the private sector. The rationale for this and several similar programs is basically the same as the one proposed by the author. Thus far, government expenditures on the FONDEF program alone have been about U.S.\$200 million (U.S.\$140 million through 2001). Given the cofinancing

requirements, the program thus induced—at least on paper—U.S.\$160 million in research expenditures from universities and the private sector as of 2001. The results have been mixed, which is reasonable for this type of program. The most impressive results include improvements to the industrial processes used in the forestry sector, where the savings to business have been measured at more than U.S.\$15 million a year. In many other cases, the project seems to have achieved its formal objectives, without any further benefit. These programs generally include little follow-up of finished projects and quantification of the economic benefits, however, so it is difficult to evaluate whether the program as a whole is successful.

Chile has several other funds with somewhat similar objectives and again, there is very little solid information as to the concrete results. Most of the reports produced by the disbursing institutions discuss the sums that have been disbursed and the number of funded projects, but not the rate of return on these investments. These programs usually suffer from a bias in reporting, publishing the results of successful ventures but not the failures. A basic recommendation for any policy of this type is that it be subject to in-depth periodic evaluations, especially since they can easily be captured by research institutions that learn the tricks of preparing the projects (normally highly intensive in time) and fulfilling the stated objectives.

In addition, several sectors in Chile have been very successful without any apparent competitive advantage, and the policies advocated by Rodríguez-Clare would not have been useful in these cases. Pork and chicken exports, for example, are a recent success story, with U.S.\$500 million in total exports this year. Chile has no obvious advantage in these sectors, and they do not appear to feature large clustering advantages, so they would not have been helped by these policies.

Conclusions

Most Latin American countries used basically liberal policies until the crisis of 1929, when countries with open economies found no buyers for their exports. In response to the closed external markets, the countries, more by accident than design, began closing their economies. This was later rationalized in the import substitution approach that dominated economic thinking in Latin America until the 1970s. Industrial policy emphasized strategic sectors, which were supposed to be the building blocks of the development process.

The result, for most countries, was an economic slowdown associated with inefficient production and the corruption of the administrative processes in these semiplanned economies where access to the bureaucrats that made decisions was vital for the success of businesses. These inward-looking policies were eventually abandoned, because experience showed that other options, with less government intervention, could be more successful and might reduce corruption. The Washington Consensus followed, and many Latin American countries attempted to liberalize their economies. They generally did not achieve the growth they had expected, however, with the exception of Chile.

Dissatisfaction with these results has led to new calls for intervention in markets. The interventions proposed by Rodríguez-Clare are less dangerous than those of the past, and the resources involved are smaller. The experience of Chilean programs similar to those advocated by the author shows that the results are less than impressive (though they do not represent a disaster). Perhaps the proposal can best be understood as a way of diverting the ever-present lobbying for state intervention in Latin America toward industrial policies that are relatively harmless. That is certainly a worthwhile goal.

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