IJAZ NABI

Entrepreneurs & Markets in Early Industrialization

A CASE STUDY FROM PAKISTAN

Executive Summary

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Executive Summary

ENTREPRENEURS AND MARKETS IN EARLY INDUSTRIALIZATION

The Case of Pakistan

By Ijaz Nabi

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Preface

The study of entrepreneurship is a largely untold story of development in Pakistan and other countries. The Center sponsored this case study of the farm machinery industry in Pakistan to explore how a small, indigenous sector of the economy, lacking effective access to the economic institutions of the larger society, has nevertheless built a vibrant, growing industry. Small firms run by entrepreneurs have penetrated the Pakistani economy and society even more completely than the formal sector, which, dominated by large established firms, is typically the object of industrial strategies in developing countries.

We are confident that Dr. Nabi's study will make an important contribution to our understanding of the role of entrepreneurs in economic development.

This is an executive summary of the original book published by ICEG.

Nicolás Ardito-Barletta
General Director
International Center
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Panama City, Panama
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About the Author

Ijaz Nabi is an economist at the World Bank, where he currently specializes in the economic development of Mexico and Central America. His former posts include a Fulbright Research Fellowship at the Economic Growth Center of Yale University and a position as assistant professor of economics at the Quaid-i-Azam University in Islamabad, Pakistan. He received his Ph.D. in economics from the University of Warwick, United Kingdom. Among his many publications in the areas of finance, agriculture, industry, and labor economics are the co-authored *Economics of Agriculture in Pakistan: Issues and Policies* (1986), and the co-edited *Aid and Development: Transition from Agriculture to Industry and from Concessional to Commercial Flows*, to be published by ICS Press in 1989.

Executive Summary

The purpose of the book is (a) to describe the microeconomic environment in which industrialization takes place, and (b) to analyze its influence on the decisions taken by individual firms. To do this, the book focuses on a study of the farm machinery industry in Pakistan, analyzing the microeconomic behavior of individual firms and individuals. The principal conclusions of the study are:

- Industrialization is an important indicator of economic development, and there are several paths to it. Until recently, import substitution was favored, with government subsidies to large-scale industry, protected by restrictions on imports. But import substitution has failed to provide broad-based employment. It has often allocated scarce capital to inefficient industries that cannot compete in world markets.

- The failure of import substitution has led a number of countries to follow the example of South Korea, Hong Kong, and Taiwan and adopt more open economies, promoting production according to countries' resource advantages and export-oriented industry.

- A central theme in the book emphasizes the role of entrepreneurs in responding to opportunities to move capital and labor to increasingly valuable uses, which is the basic task of development. Government policy can facilitate the work of entrepreneurs by providing a stable macroeconomic environment and by ensuring that special interests do not monopolize scarce resources. The successes of entrepreneurs in Pakistan's farm machinery industry are remarkable given the bias in govern-

ment against small enterprises. An example is the government's allocation of credit to large, inefficient firms—which reduces the capital available to smaller enterprises.

- The qualities associated with entrepreneurs, such as education, are too individual to be an appropriate subject for policy encouragement. Policy's most important contribution is to improve the overall economic environment—especially by bringing the returns to investment into line with the risks associated with investing in new, innovative enterprises.

- The absence of technical training explains the importance of kinship or *biradri* in the industry. In Pakistan, entrepreneurs are concentrated among the *lohar biradri*, who pass their skills as ironsmiths on to their children. As technology and product mix become more sophisticated in later industrialization, this influence of culture should decline in importance. In the meantime, the cultural monopoly on technical skill produces an employment benefit for *lohar* workers. Because private technical schools have been more successful than government schools in preparing workers for the Middle East market, government training programs should work closely with the private sector in any future attempt to upgrade skills in Pakistan.

- Other impediments to fluid labor markets come from excessive labor regulations on wages and employment conditions, which harm small enterprises, forcing them either to more capital-intensive technology or to lower output—both of which reduce employment. This is especially true when the government maintains an overvalued exchange rate, which encourages imports of cheap, labor-displacing machinery.

- Undeveloped capital markets retard allocation of scarce capital to small enterprises. The problem is aggravated by legal ceilings on interest, which encourage bankers to resort to credit rationing and lending strategies that discourage risk-taking investments. Under this system capital tends to be allocated to large firms, with limited profit potentials. Lack of an adequate patent law, protecting property rights in innovation, also hurts. The lack of incentives for risk taking (as well

as lack of technical training) has harmed innovation of machine design in the industry. Lacking developed capital markets, Pakistan has tried to help finance innovation and pay costs of prototypes.

- In its broadest terms, this study shows how small firms develop extensive linkages with other economic sectors. Development of small firms does not (as commonly thought) necessarily promote migration from rural to urban areas, but allows balanced growth, upgrading skills in the economy-wide labor market.

- Successful policy should not assist entrepreneurs directly, but should remove impediments to them. That is the great challenge to all developing country policymakers.

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Ijaz Nabi

Entrepreneurs and Markets in Early Industrialization

The level of industrial activity in a country is often taken as an indicator of its economic development. The reasons are straightforward. Industrial activity provides for increased flexibility in the choice of technology and in the goods produced for domestic consumption and for export. In a correct policy framework, the industrial sector is capable of rapid technological transformation to provide new investment and employment opportunities. Indeed, there are few examples of countries having attained high levels of development without a strong industrial base. It is little wonder, then, that for many developing countries industrialization occupies a central position in their development strategies.

There are several paths to industrialization. Until recently, the strategy in vogue was import substitution, whereby the government fostered domestic large-scale industry in an environment that was highly protected by government regulations. As a result, the import-substitution industries registered impressive growth in many less developed countries. In Pakistan, for instance, the share of large-scale manufacturing in gross domestic product increased from less than 3 percent in 1949/50 to nearly 12 percent in 1983/84. Similar high growth rates are reported for much of Latin America.

Despite this rapid growth, import-substitution industries have failed to provide adequate employment. Moreover, the inability of these infant industries to "grow up" and compete in the international market has resulted in severe trade and balance-of-payments crises. These industries have relied heavily on imported materials and machinery and, other than producing very expensive consumer goods, have had few demand or supply linkages with the rest of the economy. The resulting disenchantment with their performance has led to a search for alternative industrialization strategies.

Several alternatives exist. One is to persist with import substitution but in a more open economic setting, exposing the industry to international competition in order to attain greater efficiency. Another strategy, used in South Korea, Hong Kong, and Taiwan, is to promote export-oriented industry in an open economy framework. Yet another alternative is to promote small-scale, labor-intensive industry that is known to use resources more efficiently than the large-scale sector. Evidence from Pakistan suggests that in the later 1970s small-scale industry was, on average, nearly nine times more labor-intensive, while value added per unit of capital was nearly twice that of the large-scale industry. Given such evidence from many countries, the promotion of small-scale industry has come to acquire great appeal as a development strategy.

Regardless of which strategy is ultimately chosen for balanced long-term growth, it is important to provide a correct policy framework that suits the economic environment in which industrialization takes place.

The objective of this study is twofold. One is to describe the economic environment in which industrialization takes place and to analyze its influence on the decisions taken by individual firms. We focus on the microeconomic behavior of the firm and of the agents that interact in its decision making. Our concern is just as much with the workings of markets, such as those for labor and capital, as with the participants in those markets—entrepreneurs, bankers, and workers. We associate development with the release of entrepreneurial energy, which can overcome the hurdles of an underdeveloped economic environment. Those agents of change not only perceive new opportunities for making profits, but also create markets for inputs where none existed, experiment with new technology, and continuously expand markets for their products. All this must take place without creating special interests and rent-generating enclaves that result from excessive government intervention. In what follows we attempt to describe this route to industrialization.

The policy framework in which industrialization takes place is equally important. The second objective of this book, therefore, is to identify the policies that consciously or unconsciously aggravate market imperfections, which, in turn, create barriers to entry and impede growth. We then suggest alternative policies that contribute to a smoother functioning of markets and promote balanced industrial development.

Entrepreneurship, Regulations, and Industrial Development

Industrial strategies in developing countries focus mainly on large firms. To this end, governments manipulate their economies to direct resources toward large firms at the expense of other sectors of the economy. But there is growing evidence that such strategies have had little success. This micro study of the farm machinery industry in Pakistan reveals what increasing numbers of countries have discovered: that balanced industrial growth, well-integrated with the rest of the economy, happens as a result of work and cooperation by individual entrepreneurs trying to better their lot throughout the society. The government can help by providing a stable macroeconomic environment and by ensuring that special interests do not monopolize scarce resources.

This study, which focuses on the single case study of the agricultural machinery industry in Pakistan, highlights the central role played by individual entrepreneurs in aiding development. They do this by taking risks in moving capital and labor to increasingly valuable uses, always seeking to improve their products in response to an ongoing dialogue they have with the farmers who are their customers.

Their success in building this industry is all the more impressive in light of the fact that not only do they get no special help from the government, but, on the contrary, are often actually hampered by government interventions in the economy. This is especially true of government regulations that create market biases against small enterprises. Perhaps the best example of these biases is the credit policy that allocates scarce credit to large enterprises, thereby cutting small businesses out of formal credit markets.

Although we consider how government policy might be able to encourage entrepreneurship and increase the pool of entrepreneurial talent, the characteristics associated with entrepreneurs are too individual and eccentric to be encouraged by such policy. The most important policy contribution, we conclude instead, relates to improving the overall economic environment, especially by bringing the returns to investment into line with the risks associated with investing in new, innovative enterprises. To the extent that government policy contributes to this environment and permits returns that are necessary to encourage risk taking, it will encourage potential entrepreneurs, who belong to different social groups, to exercise their entrepreneurial talent.

Apart from the impact of economic incentives on entrepreneurship, it is the absence of widespread technical training that perhaps accounts for the importance of kinship or *bradri* in the industry. We observe a concentration of entrepreneurs among the *lohar bradri*, who pass their skills as ironsmiths from one generation to the next. Culture, therefore, appears to play a role in beginning industrialization, especially where access to specialized skills depends on membership in a closely knit social group. Since non-*lohar* firms abound, however, this cultural barrier is not very strict. Moreover, as the technology and product mix become more sophisticated, the entrepreneur who is a combination of manager and skilled worker will give way to the pure risk-taking entrepreneur who hires managerial and technical expertise. Therefore, although the *bradri* may be a barrier in the early stages of industrialization, it should become weaker over time. The transition of industry from dependence on entrepreneurial talent limited to certain social groups to a society-wide entrepreneurial pool is occurring slowly in this industry, and reflects similar trends in other industries in Pakistan.

Employment Problems

The prominence of *lohar* entrepreneurs leads, in turn, to a preference for *lohar* workers, who are believed to inherit the group's pool of technical knowledge. We find that in most skill categories *lohar* workers are better paid and appear to have more responsible jobs than those in other groups. Entrepreneurs do look for properly trained workers, or at least those with the ability to learn on the job, and educated workers, especially those with technical training, would almost certainly be hired regardless of their *bradri* background. The absence of technical training, however tends to favor the *lohars*, who pass on skills informally within the group. To broaden employment opportunities, therefore, it would be valuable to expand technical training in the educational system to serve local industry's needs better than the existing showpiece government institutes are now doing. Private-sector technical schools and apprenticeship programs have in fact been much more successful than government schools in preparing their graduates for employment in the Middle East market.

Our study reveals one additional source of impediments to the workings of the labor market: misuse of bureaucratic power by the lower functionaries in the labor welfare department. The problem arises because of arbitrary and selective implementation of labor laws regulating work conditions. The laws are well intentioned and aim to

provide protection against unsafe, poorly lit, and badly ventilated working conditions. However, government functionaries implement the laws selectively and mainly against the small entrepreneurs. The objective is less to enforce the law, since the large firms go unchecked, than to extract graft from the small firms struggling for survival. This particular intervention by the government and the manner in which it is implemented are widely resented in the industry. In fact it may be counterproductive, since it has the effect of encouraging a more capital-intensive technology mix or lower output, either of which would reduce employment.

One serious problem of discrimination against the relatively low-paid workers occurs as a result of government policies that encourage substitution to excessively capital-intensive technology. The problem occurs when the government maintains an overvalued exchange rate, thus encouraging rapid and widespread importation of automated, labor-displacing machinery. There is at present a lively market for secondhand machinery in most towns where the farm machinery industry is concentrated. Use of secondhand machinery eases the burden of firm entry into the industry, particularly for worker-entrepreneurs who can service and repair the machinery themselves. Although this machinery is not obsolete (most of it is less than fifteen years old), it can be made "obsolete" by indirect subsidies (through the overvalued exchange rate) to import more capital-intensive technology, which is beyond the existing capabilities of worker-entrepreneurs and their equipment. Similarly, subsidies that encourage the import and use of sophisticated farm machinery, such as combine harvesters, are likely to do serious damage to the industry. The analysis presented in the study shows that the entrepreneurs in the industry do not as yet possess the technological sophistication required to manufacture such machinery.

Policy Problems in Capital Markets

Besides these problems in the labor markets, serious policy problems also exist in the artificially limited capital markets in many developing countries. Part of the problem with undeveloped capital markets is the extreme scarcity, if not complete unavailability, of risk capital (or venture capital) to invest in small but high-risk enterprises. There is as yet little evidence that remittances from Pakistanis working overseas are being invested in the agricultural machinery industry on any significant scale. This limitation is aggravated by legal ceilings on interest in the capital market that cause bankers to resort to credit

rationing and adopt lending strategies that discourage risk-taking investments. In this study we show that a firm's probability of success in borrowing depends on "visible" criteria: past accumulation of capital and past profits, membership in the more successful *lohar biradri*, profit potential, and firm location (because location will often determine whether a firm is known to bank managers). By these standards, capital tends to be allocated to large, well-established firms; small, new, innovative firms are rationed out of the formal market and forced to go to the much smaller informal market. As long as returns are limited and capital remains in short supply, this problem will almost certainly continue. The current situation might be improved by rewarding bank managers for lending to new *potentially* successful firms and by penalizing them for lending to ventures that either have low profitability or actually generate losses. Increasing bank managers' accountability might improve the allocation of capital.

The problem of policy effects on entrepreneurship, especially on the willingness to take risks in innovating machine design, is extremely serious. By and large, the designs used by the industry in manufacturing farm machinery are copies of older models imported from industrially advanced countries and the technologically advanced Indian Punjab. During the 1965 border war with India, following the capture of a farming area in the Sialkot sector near Daska, local manufacturers visited the farms and copied the thresher designs. The same was true for the single-piston Rustin tubewell engine, which was copied from a British prototype of the 1920s and has seen little innovation.

There are three principal reasons why so little experimentation goes on with engineering design. Part of the problem is lack of technical training. But a more fundamental reason, again, comes from the lack of incentives for risk taking due both to the legislated limits on returns to investment already mentioned and—just as important—to the absence of an efficiently policed patent system.

The lack of technical training explains why most worker-entrepreneurs cannot read simple technical drawings; they rely—instead on homegrown rules of thumb and experience in manufacturing. This incapacity leaves the industry especially vulnerable to foreign competition, such as occurred, for instance, when lighter and more efficient Chinese diesel engines were first imported in the 1970s. The industry lacked the technical skills to compete, and many firms had to either switch products or close down. Large firms, with

more skilled workers, are generally more able to experiment and innovate than small ones.

The government has tried to compensate for the inefficient capital market by helping finance innovation and paying costs of prototypes through the Agricultural Machinery division. The division also helps in acquiring orders for successful machines. Through this cooperation a new generation of reaper-binders was successfully developed. In the absence of efficient capital markets and without adequate technical training programs, government support of the costs of research and development of basic designs may be valuable in the beginning stages of industrialization. At the same time, the overriding priority should be to increase incentives for risk taking, including establishment of a strong patent system that would effectively ensure that entrepreneurs are adequately rewarded for assuming the risks associated with innovation.

Broad Effects on Development

It is often argued that investment in many developing countries has low domestic multiplier effects because production machinery, technology, and raw materials must all be imported. Our study shows the contrary. Most of the thirteen broad categories of production machinery used in the farm machinery industry, ranging from simple lathes to complex cutting, honing, and shaping machines, are domestically manufactured, often by the worker-managers themselves. The industry thus forges important linkages with the domestic engineering industry, which its growth is likely to benefit. Conversely, factors that constrain development of the local heavy engineering, foundry, and forging sectors are likely to retard growth of the light engineering industry. Investment and renewal programs in the heavy engineering sector must keep pace with developments in downstream industries.

A well-known hypothesis regarding small-scale industry in developing countries is that workers use it as a halfway house to acquire skills and search for jobs while they move from traditional agricultural occupations to employment in the large-scale sector. While our study's evidence on occupational mobility provides partial support for this hypothesis, we have much stronger evidence that, after acquiring new skills in the industry, workers return to their agricultural occupations better equipped to maintain and repair new farm machinery. This trend, which we believe is healthy, is contrary to the widely held belief that industrialization in developing countries sets in motion a

one-way stream of workers from farm to city. When industry is properly linked to the domestic agricultural sector, it can directly contribute to upgrading skills in the economy-wide labor market.

The concern about urban concentration has also been mitigated by the growing mobility of workers through what has come to be known as the Suzuki Revolution (named after the automobile manufacturer). The advent of inexpensive automobiles in the 1970s facilitated cheap and frequent commuting, which has greatly increased the availability of labor for firms located in small towns. Workers can continue to live with their families in rural areas, and towns are not burdened with having to provide social services to immigrating households. Workers avoid disrupting their family life and benefit from the low costs of rural living. The multiplier effects in rural areas of incomes earned in urban areas may also be substantial.

Until recently, government policy toward the farm machinery industry has been one of benign neglect. The industry has benefited from restrictions on imports of farm machinery put in place not so much to promote this industry as to conserve foreign exchange and safeguard employment in rural areas. It has enjoyed some direct benefits, principally through tax holidays. On the other hand, as we have seen, the industry has been hurt by government allocation of capital to large-scale firms; it has fallen far short of its potential for innovation because of an ineffective patent law that fails to protect property rights in the fruits of innovation. Finally, the industry has recently come to be threatened by direct government subsidies to import heavy farm machinery, in the form of combine harvesters and sophisticated reaper-binders.

This profile of the farm machinery industry shows how entrepreneurs go about the real business of development. The longer one looks at their extraordinary record—at the depth of their linkages with other parts of Pakistan's rural economy—the healthier this venture in industrial development appears. In important ways, one may think that the most advantageous condition affecting the industry is the lack of governmental attempts to directly influence any part of its development. Indirect interventions in labor and capital markets to benefit the large-scale sector, however, work to the disadvantage of entrepreneurs like the ones who are the subject of this book. Retarding such entrepreneurs means retarding development.

Successful policy should not assist entrepreneurs directly, but it should do everything it can to remove impediments to them. That is the great challenge to policymakers in developing countries everywhere.

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