

PNABI 173
71923

THE INDUSTRIAL ENTREPRENEURS -
EDUCATION, OCCUPATIONAL BACKGROUND
AND FINANCE

by

Gustav F. Papanek

Economic Development Report No. 128

April 1969.

A.I.D. Contract 1543

DEVELOPMENT ADVISORY SERVICE,
Center for International Affairs,
Harvard University,
Cambridge, Massachusetts.

THE INDUSTRIAL ENTREPRENEURS - EDUCATION, OCCUPATIONAL BACKGROUND AND FINANCE¹

Industrial development in Pakistan contradicted many widely held notions. It proceeded at a pace which was quite unexpected in a country with no industry and no industrial tradition -- the modern manufacturing sector expanded from less than one percent of the domestic product in 1947 to nine percent of a much larger product in the middle 1960's, and continued to expand at 15 percent per year. The entrepreneurs who were responsible were largely indigenous traders, with little industrial experience. The necessary capital came largely from the entrepreneurs' own savings. The process has been described and discussed elsewhere in broad terms.² There is no need to repeat the description of the speed, the analysis of the causal factors, the general discussion of savings patterns, or of the changes in the Pakistan economy which determined industrial development. But the very fact that Pakistan's industrial development was unusual in starting almost de novo makes it especially interesting. Besides, it is a process which can be examined much more readily than in other countries, with little industrial development, or with a long drawn-out process which makes it difficult to discover much about the men and money involved. To analyze in some detail the background and behavior of Pakistan's entrepreneurs and their sources of capital can help explain the nature and speed of industrialization.

In order to focus on the development of indigenous entrepreneurs, this paper ignores government firms and private industrialists who were foreigners or non-Muslims. The latter were largely well-established industrialists, primarily Hindus, whose firms had been set up before Independence. In 1958, the date of this study, roughly two third of industrial assets were in the hands of private industrialists, the subject of the analysis which follows.

¹I am grateful for the computational work of Stephen Guisinger and the comments of J. Tomas Hexner, Hanna Papanek and Joseph J. Stern.

²Gustav F. Papanek, Pakistan's Development-Social Goals and Private Incentives, Harvard University Press, 1967.

All the data in this paper came from a sample survey carried out in the early 1960's. It included about 9% of all firms and 58% of the value added in the manufacturing sector (so-called "large-scale" industry). Cross checks with independent data confirm that the sample represented the universe quite accurately. Most tables in this paper are for the universe, not the sample.³

Education and Success in Industry

Since books on development are usually written by teachers, it is not surprising that a good many stress the importance of formal education. If Pakistan's entrepreneurs do not follow the script, it may be in part because many of them cannot read it. The causal relationships appear to be more complex, largely because education is not limited to the formal variety and a good many of Pakistan's industrialists obtained most of their education from their business-oriented families, not the school system, during early industrial development.

To justify this statement requires reasonably imaginative use of interview data. When one examines interview answers to a question dealing with a personal, and sensitive, matter, one must increase the skepticism usually called for because of sampling error, inconsistency among interviewers and bias. Most of those who indicated they had only primary education are likely to be barely educated in a formal sense. The drop out rate in the early grades is high and those who leave school before completing third or fourth grade generally retain little of their formal education. In any case, respondents are likely to overstate their educational achievement.

³ Described in detail in G. Papanek, "Industrial Production and Investment in Pakistan", The Pakistan Development Review, Autumn 1964, No.3.

Although educational attainments reported in the survey probably are biased upward, one-third of industrial investment was in the hands of persons who said that they had, at best, completed primary school, most of whom were, in fact, without formal education. On the whole, this poorly educated group controlled larger than average investments. While they controlled one-third of investment, they included only one-fourth of the industrialists.

TABLE I

Education of Muslim Industrialists-1958
(rounded)

Education	No. of firms %	Investment Controlled				
		Total %	Total	Traditional ¹ industries	Cotton textiles crores of rupees ³	Non-traditional ² industries
No formal education	8.0	6.5	18.0	4.5	7.0	6.5
Primary	18.0	25.5	73.0	6.0	36.0	31.0
Secondary	18.0	21.0	59.5	18.5	25.0	16.0
Matric ⁴	27.5	19.0	54.0	8.0	10.0	36.0
College	16.5	18.5	54.0	22.0	21.0	11.0
Post grad - general	4.5	2.0	5.5	.0	3.0	2.5
Technical - below college	1.0	0.5	1.0	1.0	--	--
Technical - college	4.0	6.0	17.0	5.0	4.0	8.0
Technical - post grad.	2.0	.5	1.0	1.0	--	.0
Total	99.5	99.5	298.0	66.0	106.0	126.0
Unknown	0.5	5.5	16.0	--	--	16.0

1) Includes: primary processing; import processing - traditional.

2) Includes: secondary processing; import processing - non-traditional; jute; chemicals, cement, paper; machinery, transport equipment.

For definition of these industry groups and examples of industries in each, see Note 1 to Tables 1 and 2 in "The Location of Industry" in this volume.

3) One crore is ten million. One crore of rupees roughly equals \$2 million.

4) "Matric" is the comprehensive examination at the end of secondary education.

More surprising, the group with little or no formal education is not primarily concentrated in the simple processing industries. They control a share of cotton textile and other non-traditional industries roughly equal to their share in industry as a whole. Actually firms in traditional industries were concentrated in the hands of the most highly educated decision makers.

Most surprising is that lack of education seems to be no handicap to successful performance. All firms in the Survey were divided into four roughly equal groups with respect to the rate of growth in assets and the rate of return. When the highest quartile in both respects was compared with the lowest quartile, industrialists with little education seemed to be doing about as well as the average industrialist.

Table 2

Education and Performance
(number of firms)

Education	<u>Rate of Growth</u>		<u>Rate of Return</u>		<u>Total of Both Indicators</u>	
	<u>Highest quartile</u>	<u>Lowest quartile</u>	<u>Highest quartile</u>	<u>Lowest quartile</u>	<u>Highest quartiles</u>	<u>Lowest quartiles</u>
No formal education	7	4	4	5	11	9
Primary	8	9	8	8	16	17
Secondary	11	8	10	8	21	16
Matric	9	3	8	10	17	13
College	3	13	8	13	11	26
Post Grad - General	4	3	4	5	8	8
Technical - below College	0	1	0	1	0	2
Technical - College	2	3	1	5	3	8
Technical - post Graduate	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>
	44	44	44	55	88	99

The poorly educated industrialists also do just as well whether they run a large or a small firm, although education should be of particular importance with larger, and presumably more complex, enterprises. Industrialists with little education could handle large enterprises because they were able to hire specialized technical and management talent. They often left management to their minions, concentrating on other activities in which they were strong, especially if their background was in trade -- organizing the capital and obtaining government permits. In the small firms these functions could presumably be delegated less easily. Many of these firms were in very simple processing and some of the others suffered from a boss who lacked education. As a result, among firms headed by decision makers with little education, as many were in the top as in the bottom quartile, regardless of size of firm.

Table 3

Performance by Industrialists with Little Education
(No. of Firms in Each Category)

<u>Performance</u> <u>measured in terms of</u>	<u>Large Firms</u>		<u>Smaller Firms</u>		<u>All Firms</u>	
	Highest quartile	Lowest quartile	Highest quartile	Lowest quartile	Highest quartile	Lowest quartile
Rate of asset growth	7	2	8	11	15	13
Rate of return	<u>2</u>	<u>6</u>	<u>10</u>	<u>7</u>	<u>12</u>	<u>13</u>
Both criteria	9	8	18	18	27	26

If one examines the education of decision makers in detail, one has to be careful of sampling errors. The number of firms in some categories is small and the two indicators of performance -- the rate of growth in assets over the years to 1959 and the rate of return in 1958 -- are often contradictory. If one is prepared to accept the total of both indicators as the best criterion of success the group with secondary education shows the best performance, with substantially more firms in the top quartiles than in the bottom one. (Of course some firms may show up twice, if they are in the top and bottom quartiles with respect to both criteria). Industrialists in charge of these firms had spent 7-11 years in school, but only marginally out-performed their competitors with little or no formal education. Those who received technical training or education beyond high school controlled firms that did much worse than average, with the worst performance by firms in the hands of technically trained industrialists. Certainly a paradoxical and -- at least to educators, especially University teachers -- a discouraging set of relationships.

Inevitably there are plausible explanations. Probably the most important is the result of equating education and formal schooling. Many of those with little formal education or with only secondary schooling came from traditional trading "communities" (quasi-castes). They had almost always received a remarkably fine business education in their family enterprise. They had been indoctrinated with the importance of economic success, and the need for hard work, thrift and risk-taking to achieve it. They had also learned about buying and selling. These skills and attitudes were much more useful at the early stages of industrial enterprise than much of the rote learning of moderately useful facts which was a large part of the formal education system. The scions of trading community families also started with important advantages in terms of access to capital, access to a network of suppliers and distributors and knowledge of the business world. Many of the wealthier of these business families had begun to give their sons a secondary education by the middle or late 1930's, and these sons showed up as decision makers in the survey twenty years later. The offspring of the big trading families, of course, often had the best access to capital, knowledge and connections, and were therefore among the more successful industrialists. On the other hand, industrialists in 1959 with higher education

often came from professional families with less capital, fewer business contacts, and less business experience. If success in industry was partly the result of training and experience in business, and those with much of that training had little formal schooling, it is not too surprising that formal schooling and success are not correlated.

Second, formal education may in fact not have been an asset during early industrial development. The educated, especially those with technical training, might tend to concentrate on management, on technical problems, on technologically advanced industry. They may have learned to value achievements other than amassing the almighty rupee and may have become concerned with probity. All these attitudes were handicaps. The successful industrialists in the 1950's competed intensely, preferably with little regard for the niceties of the law, in obtaining funds and permission from government to invest in industries with a quick payoff and a minimum of technical problems. The successful industrialist, in short, was a promoter and a robber baron, not a skilled technician and manager.

Finally, a lack of relevant education, like any scarce input, could be made good at a price. Especially in its early years, Pakistan's industry was generally high cost. These costs resulted from many inadequacies, of which a poorly educated entrepreneurial group may have been one. Whether they compensated for lack of education by hiring some specialized skills or by accepting greater inefficiency, inadequate appropriate education for the whole group of industrialists could have contributed to high costs, even if within the group of industrialists education and performance are not correlated. There is no evidence on this point, however.

By the middle 1960's the situation had begun to change. Management was more important, personal contacts with other businessmen and with government officials less significant, as the market expanded and government controls were no longer as all-pervasive as earlier. New industries were more complex. Education was coming into its own. A few of the original entrepreneurs were acquiring more formal education. More were giving increasing responsibility to their educated sons and grandsons. The leading business families, which two or three generations back had often disregarded formal education, by the 1960's were rarely satisfied with secondary education for their children. They now wanted most of their sons to have a higher education. Since these families will usually continue to show

up as among the more successful, the correlation between advanced education and success in industry will be increasing. A survey carried out in 1965 would almost certainly show that the educated were more important and successful in industry than they had been in 1960, though not necessarily because of their education.

After all these exceptions and explanations, the major outlines still remain. A surprisingly large share of Pakistan's industry was originally developed by entrepreneurs with little or no formal education. The performance of these industrialists did not suffer because of lack of education and they were not restricted to enterprises with a simple technology or limited capital. A higher proportion of assets was controlled by decision-makers with secondary education, and this group turned in an above average performance with respect to growth and profits. One quarter of assets was controlled by those with college, technical, or other advanced education. This group's performance was below average.

The situation had begun to change a dozen years after the start of the industrial development. Decision-makers increasingly were trained technicians and managers. Leading industrial families sent their boys to study business administration and engineering and others with technical training moved into industry. But, if Pakistan's experience is any guide, rapid industrial development need not wait for the education of industrialists. On the contrary, education followed industrial development rather than preceding it.

Technical Knowledge and Competence

The explanation of the success of uneducated entrepreneurs, advanced somewhat gingerly above, is given some support, and the educational paradox is further

clarified, by the sources of technical information used by industrialists. For the complex industries and the large firms, the Pakistani industrialist bought his technical information the same way he hired his transportation or his machinery. Even in 1958, when many of the foreigners who came to Pakistan with the industrial machinery had left, foreign technicians played an important role. This role was, of course, not costless, but must have involved significant foreign exchange outlays, even if hidden in the price of machinery.

Table 4

Sources of Technical Information in 1958 - Percentages

	<u>All Firms</u>	<u>All Investment</u>	<u>Total (1)</u>	<u>Large Firms-Investment²</u>		
				<u>Textiles</u>	<u>Traditional² Industries</u>	<u>Non-² Traditional Industries</u>
Mainly foreigners	1.5	26.0	31.5	16.0	--	54.0
Partly foreigners, mainly Pakistani outside family	4.5	19.5	22.5	39.5	13.5	13.5
Pakistani outside family	26.0	36.0	39.5	37.0	79.0	27.5
Partly or wholly family	64.5	18.5	6.0	7.5	7.0	4.0
Unknown	4.0	0.5	--	--	--	0.5

(1) Includes all firms with Rs 1,000,000 (\$ 200,000.00) or more of investment.

(2) For definitions see footnotes 2 and 3 to Table I.

Nearly two-thirds of all firms obtained the technical information required to operate any industrial enterprise from some member of the family controlling the firm. However, it was mainly the small firms who could rely on the technical expertise of the controlling family. In terms of investment, and especially in terms of the investment in large firms, most industrial families had too much sense to rely on family members for technical knowledge. In the new industries, usually with complex technical problems, and among the large units, over two-thirds of investment was in firms that relied partly or largely on foreigners for technical information. The remaining firms in this group relied primarily on Pakistani technicians drawn from outside the decision-makers family.

These percentages understate the role of foreign technicians, since they report the situation in the 1958 to 1961 period, when many firms had already reduced their dependence on foreigners. In addition, the process of training young family members in technical skills had only been operative a few years and most of them had not yet returned to the family firm. In the late 1960's the importance of foreigners in providing technical knowledge will have declined greatly, the importance of family members will have greatly increased.

Industrialists were asked what occupation their children would follow. Quite naturally a large number (one-fifth) did not respond -- some because their children were small or non-existent, and they were poor at forecasting in this area. Of those who did answer, less than one-tenth thought their children would become professionals, traders or industrialists outside the family enterprise. The rest said their children had or were expected to enter the family industrial enterprise, and of these one-seventh were expected to have specific technical training.

One quarter of 1958 industrial assets were controlled by families that said that they had/or were sending their children for technical training in industry. In short, a definite industrial class is emerging, distinguishable from the older business or commercial group. The more successful business houses, with strong family leadership, allocate their offspring returning from education quite carefully to activities they are best qualified for, discriminating among them on basis of competence. As one might expect, however, the family management is reluctant to discriminate too severely.

As the leading firms find it increasingly possible to reduce the influence of foreign and non-family technicians, inefficiency could gradually become built in, if every grandson is entitled to some important position. The degree of inefficiency resulting from nepotism in an industrial sector built on family control will increasingly depend on competitive pressure. The reluctance to discriminate among family members on the basis of competence is, and will be, overcome if the alternative is competitive failure. Most families hate to discriminate among members, but hate even more to fall behind in expansion and in profits. If the economic system is essentially competitive, the shift to technically trained family members, combining technical and managerial training with all the business acumen of the original entrepreneurs, could result in improved functioning of Pakistan's industry; on the other hand, if there is little effective competitive pressure, the shift to greater reliance on family members for management and technical knowledge could produce a decline in industrial efficiency as nepotism puts great resources at the command of incompetents.

The use of foreigners to provide technical knowledge (which included knowledge of management techniques) is surprising. The lack of technical knowledge is widely considered a serious obstacle to the industrialization of less developed countries. It is often argued that only investment by foreign private enterprise can fill the vacuum, since companies from the developed world are unlikely to make their technicians available unless it is for firms they control. (Quite naturally this argument finds favor with companies in the developed world.) Hiring foreign technicians is considered a poor alternative since often the only ones available are those with professional or personal flaws.

Yet the problem proved manageable in Pakistan. During the initial period of industrialization most industries had a relatively simple technology, which could be acquired rather quickly by Pakistanis. The necessary technical and management skills were bought together with the machinery. A typical arrangement for a textile mill would call for the Japanese supplier of the machinery to provide the engineers required to erect the machines and to supervise their operation for some time. The supplier, concerned primarily with selling his machines, had an interest in expediting the training of Pakistani technicians, so his people could leave--a situation quite different from one in which a foreign company controls the enterprise and might prefer to use it to put its less competent executives out to pasture. If the sales contract required satisfactory performance of the machinery before the sale was completed, the supplier had some incentive to send good technicians, and to provide a adequate training. The Pakistani controlling the enterprise was an entrepreneur pure and simple, finding the money, obtaining the government permits, hiring the top Pakistani staff, buying the machines and other imports, and arranging for marketing.

By the time the industrialization moved to its second stage, involving industries with complex technology which required a highly skilled technical team, the whole industrial sector in Pakistan had become more sophisticated. There were more technically trained Pakistanis; some industrialists knew a good deal about sources of technical information and could hire foreign firms or technicians without falling into the hands of international carpetbaggers; still others made sophisticated partnership arrangements with foreign companies which provided technical, managerial, and marketing skills. In the 1960's when Pakistan moved into industries of considerable complexity, the lack of technical knowledge again did not

impose insurmountable barriers.

It must be stressed again, however, that the lack of technical knowledge, like the lack of education was surmountable primarily because firms were large. Pessimists about industrial growth in the less developed countries often seem to see it as a replay of the Industrial Revolution, speeded up. In many respects this is a false image. If Pakistan's industrialists had begun as small artisans or merchants who gradually acquired modern machinery and slowly built up an industrial enterprise, a lack of technical knowledge and education could have been a serious drawback. But in industrialization, as in so many activities in this imperfect world, money could often substitute for education and training. The rich merchants who became industrialists hired their engineers and some plant managers, often from abroad, and their accountants, lawyers, labor relations officers and most plant managers, usually from within the country. Fortunately many industrialists were shrewd enough and were under enough competitive pressure to realize that the next generation would need more education and more technical knowledge. They used their money as well to buy a good education for their sons and grandsons.

Activist or Business-is-all

It is interesting to examine as well to what extent the industrial entrepreneurs, and particularly the successful ones, conformed to the stereotype of the modern businessman. The successful contemporary Western, and especially U.S., businessman or industrialist, is often pictured as a go-getter, an activist, in a variety of social, civic and political activities, as well as in business.

In Pakistan, the opposite stereotype was held in government, the Universities and elsewhere - of the businessman-industrialist as interested almost exclusively in his enterprise. Superficially the Pakistani stereotype seems more nearly appropriate.

Over half of all Muslim industrialists said they had no non-business interests and close to a third said they had "few" outside interests. Less than 10% said they were "active" or "very active," a seeming confirmation of the stereotype of profit-obsessed industrialists. But if one looks at the assets controlled by industrialists in various categories, a different picture emerges. Nearly 40% of assets were in the hands of those "active" or "very active" in outside pursuits. Clearly the big industrialists, with command over resources and in position to hire staff, played an important role, not only in industry but also in other areas.

Table 6

Non-business Interests of Industrialists
(percentages)

	<u>None</u>	<u>Few</u>	<u>Moderate</u>	<u>Active</u>	<u>Very Active</u>	<u>Blank</u>
No. of Industrialists	53	29	8	5	4	1
Control of Assets	27	18	14	12	26	3

Only a few of the big industrialists were active in politics at the time they were interviewed (1960/61), though this activity increased later. The activists were often leading figures in their communities (quasi-caste and religious groupings) and sometimes in various social organizations. The important industrialists clearly were not content to achieve economic eminence; they wanted to play a role in other areas as well. This tendency is undoubtedly giving them a more important political role--in the broadest sense--than if they tended only to their industrial knitting.

One can draw no clearcut conclusion about the effect of non-business activities on the success of an industrialist's enterprise. The activists seem to run enterprises which grow less rapidly, but earn a higher rate of return than the business-is-all group. Neither group has a clear edge if

both success indicators are combined. Possibly outside interests diverted the industrialists' energy more from the pursuit of growth than of profits, though it is not obvious why this should be so, and overall conclusions are far from clearcut. This non-conclusion at least suggests that outside activity is not clearly detrimental, though it presumably leads to a diversion of energy; nor is it highly useful though it presumably provides contacts and prestige. It is clear, however, that the political importance of the rising bourgeoisie will be considerable since the industrial magnates are active in society and its organizations, not just in their firms.

Table 7

Non-business Interests and Success*
(numbers of industrial decision makers)

<u>Degree of outside activity</u>	<u>Growth in assets</u>		<u>Rate of Return</u>		<u>Both success indicators</u>	
	High	Low	High	Low	High	Low
Few or none	14	6	6	15	20	21
Moderate	2	6	6	6	6	12
Active or very active	<u>7</u>	<u>6</u>	<u>7</u>	<u>10</u>	<u>14</u>	<u>16</u>
TOTAL	28	18	17	31	40	49

*Large (Rs 1 million or more in assets) firms only, since small firms include few activists.

The Occupational Background of Industrialists

The importance of trade, and especially foreign trade, in the background of decision makers has also been covered elsewhere,² but some of the details of their background shed further light on the mechanism which turned traders into industrialists. It also sheds some light on widespread assumptions about the process.

First of all, over half of all Muslims who were industrialists in 1959 came from families that had some experience with industry before independence (1947). The experienced group controlled almost two-thirds of industrial assets in 1958. The notion that Muslims in pre-independence India were completely unfamiliar with industry seems, on the basis of this evidence, to be an incorrect stereotype. But the stereotype is largely confirmed by the primary occupation of the Muslim industrialists. Only 17% were primarily industrialists even before 1947.¹ Another 18% were in small industry (workshops mostly) and handicraft, but this group controlled only 6% of industrial assets in 1959. Another small group (4%) had been industrialists as a secondary occupation, but they were among the most successful industrialists of Pakistan, controlling 30% of all assets. Finally a large group (23%) had been in small industry or handicrafts as a secondary occupation, but they were quite unsuccessful after independence, controlling only 7% of 1959 assets.² In other words the industrialists of Pakistan had been primarily traders before 1947 (ex-traders controlled two-thirds of 1959 assets), but many of them had had in addition some experience with industry. The shift from trade to industry as a primary occupation in response to economic incentives was facilitated by this experience.

A good many of Pakistan's industrialists were from families that first became involved in industry in the 1930's, when there was strong nationalist agitation for breaking British predominance in this field. The largest groups entered industry during two periods when economic incentives were strong since competition from imports was sharply curtailed during the second

World War and in the 1952-55 period.

Table 8
Timing of Initial Entry into Industry
(for the family of Muslim industrialists as of 1959)

	<u>Percentages - rounded of No. of Industrialists</u>	<u>of 1959 Assets</u>
Before 1920	8.5	12.0
1920's	11.0	19.5
1930's	13.5	22.5
1940-47	24.5	16.5
1948-51	13.5	9.0
1952-55	22.5	19.0
1956-59	6.0	1.5

The occupation of industrialist families can be traced back to previous generations. About half of 1958 industrial assets are in the hands of a group whose family background was in trade. The grandfathers of present decision makers were already primarily wholesalers, buying and selling in undivided India. The fathers continued in trade, but shifted somewhat more to exporting and importing. Some had a secondary interest in industry. This group included the more successful of the industrialists--one-third of all industrialists⁴ belonged to it--but it controlled about half of all assets. There is an almost complete overlap between this group and the "trading communities," quasi-castes with a long history in trade.

⁴ Clearly one cannot speak of a "group" over several generations on the basis of a simple statistical table. Statistically a family with a trader grandfather could have a contractor or landlord father and a current decision maker who (con't)

Another substantial group had grandfathers, and to a lesser extent fathers, in agriculture. That some industrialists come from this background is not surprising, since the overwhelming majority of Muslims in pre-partition India were cultivators. However, in relation to their importance in the total population this group furnished a very small proportion of industrialists. Many of those who did become industrialists had been farmer-traders, usually on a small scale, who moved into simple processing activities closely related to their previous trade (cotton ginning, jute baling). A few were large landlords, sometimes local rulers, who moved into such large-scale activities as sugar mills when the advantages of being an industrialist became clear. The clear division between the group of small farmer/traders industrialists and landlords-industrialists on the one hand and the more important trader/business community-industrialist on the other is seen by the fact that practically no industrialists indicated that their fathers secondary occupation had been in agriculture. Industrialists with a background primarily in trade had no ties to the land.

Several other occupations are notable by their insignificance in the background of industrialists. Industrialists whose grandfathers were retailers, or small scale industrialists, or in handicrafts, or employees controlled only 15% of all industrial assets in 1959. The proportion is similar for those with fathers in these occupations. So far as Pakistan is concerned there clearly is nothing to the notion that industrialists are produced by a gradual learning process. In many countries--from Southeast Asia to Africa--where indigenous industrialists are scarce, governments are sponsoring programs to develop

4. (con't) was an employee before becoming an industrialist. The discussion above on family histories is based on an examination of individual interviews, as well as the statistical data.

industrialists, based on the notion that nationals will gradually participate in the crucial industrial sector if they are first helped to become retailers, or to set up small industrial or handicraft establishments, or to work as employees in the modern sector. Pakistan's experience may be relevant for these policies; its industrialists did not follow this route.

One can only speculate on the reasons. It is plausible that the small shopkeepers, employees, and artisans did not have access to the capital, technology and contacts required by modern industry. The crucial obstacle to industrial enterprise was not some knowledge of particular industrial techniques and a willingness to work with one's hands, which someone in handicrafts or small scale industry might possess; nor was it a knowledge of sales techniques, which a retailer might have, or the knowledge of the functioning of existing large scale organizations plus a good education, which employees might have. The obstacles which early industrialists faced were adequate finance for investment on the required scale, and to buy the required technical knowledge, plus access to foreign suppliers of machinery and to the government officials who provided permits. Establishment of industry also required some familiarity with large scale operations, with the handling of substantial sums and a willingness to take large risks. In all respects traders had an edge. Countries with similar circumstances may also find that reserving retail trade or small industry, for instance, to nationals, is not good preparation for national participation in large scale modern industry. These countries may do better to encourage and assist some of their larger-scale traders to enter industry directly.

Table 9

Occupation of Fathers and Grandfathers
of Industrialists in 1959

(percentages - rounded)

Occupation category	Father				Grandfather	
	Primary Occupation		Secondary Occupation		Primary Occupation	
	1) of no.	2) of assets	1) of no.	2) of assets	1) of no.	2) of assets
Import	4.5	11.0	3.0	7.5	1.5	3.5
Export	7.5	20.5	0.5	1.0	7.0	9.5
Wholesale	25.5	29.0	4.0	6.0	18.0	35.5
Retail	2.0	4.0	2.0	1.0	6.5	4.5
Government Contractor ³	5.0	8.0	2.5	3.5	5.0	8.0
Industry ⁴	6.5	5.0	8.0	27.5	5.0	6.5
Small Industry ⁵	15.5	3.5	5.0	4.5	16.0	6.5
Employee	17.0	7.5	1.5	2.0	8.0	3.5
Agriculture etc. ⁶	11.0	10.5	1.5	2.0	14.0	11.5
Other, unknown, none	0.0	0.5	72.0	44.5	20.0	10.5

1) is the percentage of the number of industrialists in 1959 whose fathers/ grandfathers were in the category.

2) is the percentage of 1959 assets controlled by industrialists whose fathers/ grandfathers were in the category.

3) Mostly traders who procured goods for government, as well as construction and other services

4) Large and medium sized industry

5) Essentially handicrafts, workshops and village enterprises.

6) Includes a local hereditary ruler with substantial land holdings.

Some further insight on the process of industrialization can be derived by comparing the background of industrialists with the industries they entered. However, given the increasing unreliability of sample surveys as results are disaggregated, one has to interpret a matrix, such as Table 10, with caution.

TABLE 10
Previous Occupation of Muslim Industrialists
by Industry Groups
(crores of rupees of investment - rounded).

Primary Occupation before entering industry	Industry Group ¹ in which engaged in 1958							Total
	Simple Processing	Secondary Processing	Cotton Textiles	Jute	Import Processing Trad- itional	Non-Trad- itional	Chemicals machines cement etc.	
1. Import	4	2	42	14	6	1	15	85
2. Export	-	5	19	16	-	-	4	43
3. Wholesale	7	2	14		4	1	1	28
4. Retail	-	-	2		-	-	-	3
5. Govt. Contractor	1	9	4		13	-	5	34
6. Industry	17	5	16		2	8	4	53
7. Small industry	-	2	7		-	8	1	18
8. Employee	6	1	-		2	2	3	14
9. Agriculture etc.	-	16	1		1	-	-	18
10. First occupation	-	-	-		1	-	2	3
Total	35	40	106	30	31	20	36	299

¹ For definitions of Industry by groups and examples of industries in each group, see Note attached to Tables 1 and 2 in "The Location in Industry," this volume.

Quite striking is the pattern of post-independence industrial interest of those who were already in industry before independence. One third of the investment of this group was in the least sophisticated industries, in simple processing (e.g., jute baling, canning). The owners had most probably been in the same industry pre-independence and simply continued or expanded their holdings. Another third of the investment of these experienced industrialists was in cotton textiles, again in some part undoubtedly the expansion of their pre-independence industrial holdings. In short, the 1958 industrialists whose primary occupation before independence was already industry were not particularly venturesome in their post-independence investments. As a matter of fact, if all industries are divided into the three categories--traditional (simple processing and traditional import processing), cotton textiles (somewhat more daring) and non-traditional (everything else, and on the whole requiring the most entrepreneurship) it is clear that the smallest proportion of traditional investment was by those previously in international trade. This group not only dominated textiles, but was also most prominent in the non-traditional industries. Two-thirds of the most sophisticated, capital intensive, investments in the non-traditional category (chemicals, cement, machinery, transport

equipment, paper) was controlled by those formerly in international trade.

Table II
Extent of Innovation in Industrial Investment by
Previous Occupation

Previous Occupation	Category in Table 10	Industrial investment in 1958- cores of rupees			
		Traditional	Textiles	Non Trad ¹	Total
Foreign Trade	1,2	10	61	57	128
Internal Trade	3,4,5	25	20	20	65
Industry	6,7	19	23	29	71
Other	8,9,10	<u>10</u>	<u>1</u>	<u>24*</u>	<u>35</u>
Total		64	105	130	299

*Includes substantial investment in sugar mills.

Part of the same syndrome is the small role of industrial investors who previously were retailers, small-scale industrialists and employees, but this has already been mentioned. More interesting is that employees who did become industrialists invested primarily in traditional industries (nearly half in simple processing), where capital and technical requirements were modest. Obviously, these were not highly skilled or technically trained employees, but people who had run a cotton gin, or jute press for someone else, possibly Hindu owners before partition, who then took over the business. Those who had been in small-scale industry did invest in cotton textiles (they mostly continued in their accustomed activity of cloth printing etc.) and in non-traditional import processing (mainly simple metal-working, plastic processing, etc.) but most of them clearly never became really large-scale industrialists.

In short, the disaggregation of the previous occupation of industrialists and especially of the industries they invested in after independence, supports

some of the conclusions reached earlier: Investment in less traditional industries, requiring technical sophistication and more capital, was not undertaken primarily by those who might be expected to have a better technical background--former industrialists and employees. It was, rather, dominated by those with international connections and capital--the importers (and exporters). The international traders had more extensive knowledge of the international market for talent to run more complex industries and they approached their industrial investment decisions with no prior commitment or pre-conception with respect to industry.

It seems plausible that employees and industrialists who generally were already familiar with an industry found it easiest to continue in the same industry, relying on their own technical knowledge. Those in internal trade might approach industry rather cautiously, since they could still pursue their normal trade activity. Those in international trade, and especially importers, suddenly deprived of much of their normal business by import restrictions, might be more inclined to look around for potentially very profitable, though non-traditional, industrial investments, since the whole industrial field was in any case new to them. They knew they could not rely on their own technical knowledge, and they might do better in buying technical expertise in completely new industrial fields than in activities already undertaken by others.

While some of the suggested motivation is based on speculation, the actual behavior of the industrial entrepreneurs is clear--at last in Pakistan's case the entrepreneurs who developed its most sophisticated industries did not come from experience in more traditional industry, either as owners or employees, but from large-scale trade. Incentives and capital were more important than technical knowledge or industrial background in explaining innovative activity.

The Sources of Finance

The broad outlines of how Pakistan industrialization was financed have been sketched elsewhere.² For an understanding of the process some of the specifics are interesting as well. It is particularly worthwhile to distinguish the initial investment in industry, the financing of the initial entrepreneurial decision, from the subsequent financing of expansion. Unfortunately the data are for each firm, not for each decision maker as entrepreneur. The initial investment in a particular firm, therefore, sometimes represents the second or third industrial investment for a particular decision maker, or his family, and sometimes even the second or third investment in a particular industry. This somewhat obscures but fortunately does not eliminate the distinction between initial and subsequent investment. (Initial investment is defined here as the investment in setting up a firm, regardless of when the firm was established, subsequent investment financed its expansion, modernization or improvement. The data, like the rest of the survey results, end with 1959.)

Clearly Pakistan's initial industrialization was substantially financed by the reinvestment of profits made in trade. Of the funds used to finance the initial establishment of firms almost half came from trade (including government contracting), if the 15% of funds from profits of other industrial holdings are excluded. One third of total initial investment funds came from international trade, one-fifth from import trade earnings alone.

Contrary to the experience of other countries, banks and credit institutions did not play a significant role in financing the establishment of Pakistan's industry. Only a little over 10% of the funds for initial investment came from commercial banks and none from government credit institutions. Roughly another 10% was equity investment by government (including the Pakistan Industrial Development Corporation) in privately controlled firms. As one might expect the commercial banks

Table 12

Sources of Capital- Private Muslim Firms
(Rounded crores of rupees of 1958/59 assets)

<u>Item</u>	<u>Original Investment</u>	<u>Later Investment</u>	<u>Later Disinvestment (minus)</u>	<u>Final Assets</u>
Industry pre-partition	18.0	1.0		19.0
Import trade	25.0	4.0		29.0
Export trade	12.0	3.0		15.0
Internal trade	14.0	2.0		16.0
Govt. contracting	10.0			10.0
Trade-unspecified	0.5			0.5
Land-rural	6.0	2.0		8.0
Transport	1.5			1.5
Commercial banks	16.5	16.0	1.0	31.5
Creditors	3.5	8.0	1.0	10.5
Scattered shareholders	6.0	7.0		13.0
Government credit		3.0		3.0
Pak. Industrial Dev. Corp.	13.0	1.0	9.0	5.0
Government equity	3.5		2.0	1.5
Foreigners (incl. Indians)	1.0		3.0	- 2.0 ^{**/}
Others		1.0	1.0	0.0
Re-invested industrial earnings	20.5	130.0		150.5
Total	151.0	178.0	17.0	312.0

^{**/} A negative figure is not impossible. It simply means that some original investment in a Muslim-controlled firm by an Indian national was reported under a heading like "Industry, pre-partition" or "internal trade" while later disinvestment was reported in the category of "foreigners "

contributed significantly to later expansion of firms. The government too played its expected role, and withdrew much of its investment once private firms were well established.

The data also shed some light on the role of the stock market and share holders. In setting up enterprises the family controlled firms were overwhelmingly important. Less than 5% of investment came from scattered shareholders and most of this was from Directors, not associated with the dominant family, who bought a few shares in enterprises controlled by friends on a reciprocal basis. The role of shareholders became more important as enterprises aged. Often the dominant family allowed an enterprise to go public after they had skimmed off the high profits of the early years, thus obtaining funds for new investment in high profit lines.

The most startling fact about the financing of Pakistan's industry is that nearly half of the investment in 1958/59 came from the re-invested industrial earnings. Trade, and especially import trade, started private industry, together with some contributions by government and the banks, the latter mainly for working capital. Subsequently government withdrew most of its funds, the banks expanded their financing, and assets doubled as profits were reinvested.

Some Conclusions

The industrial development of Pakistan, and undoubtedly that of other less developed countries, differed in three fundamental respects from the early stages of the process in some of the currently developed countries. Firms were larger, technology was largely transferred from other countries, and the process was a very rapid one as a result of extreme incentives. These characteristics affected the financing of the process and the nature of the entrepreneurial group which brought it about. Pakistan as a result provides important lessons for other less developed countries similarly situated.

Modern technology, and its inherent widespread economies of scale, meant that the bulk of Pakistan's industrial growth was the result of establishing large units. By the time modern manufacturing was 6% of the National Product there were some 3,000 firms in manufacturing, but only 500 firms with assets of one million rupees (U.S. \$200,00) or more contributed about 85% of the value added. Sixteen families controlled firms with one quarter of all sales of manufacturing units and 60 families controlled nearly one-half. In short, the number of entrepreneurs required to start a rapid process of industrialization, in a country with a population of 100 million, was about a hundred.

The firms which they set up were largely technological carbon copies of plants in the developed world. There are good economic reasons for arguing that less developed countries should use more labor intensive and less capital intensive technologies than the developed. There are also good arguments on the opposite side. Whatever the merits of these arguments the fact is that Pakistan's industry did rely on developed technology.

The third characteristic of Pakistan's industrial development was the speed of the process in response to extreme incentives. Government intervention in the economy was massive and provided extensive protection from foreign

competition for the developing manufacturing sector. Profits in industry were therefore very high, the rewards of becoming an industrialist were great and there were substantial disincentives to remaining an importer.

These three factors are, or at least can be, duplicated in many less developed countries. One would suppose that they would produce a similar pattern of industrial development in many instances, though for a variety of political, equity and efficiency reasons an alternative pattern may be preferred. The three characteristics had a number of consequences in Pakistan. Larger units required a substantial initial investment. Since neither the commercial banks nor government investment or credit institutions were very venturesome in providing capital for the establishment of ^{private} industrial firms, would-be industrialists with a substantial sum to invest had a crucial advantage over their less wealthy rivals. Unlike the situation in the UK during its industrial revolution, the owner of the small shop or handicraft establishment was not competing with others in a similar position as he gradually expanded his enterprise. He faced, rather, competition from large units set up by merchant-capitalists. His disadvantage was compounded by the tremendous profits which the industrial pioneer could make. The merchant-capitalists who were the pioneers thus had capital for rapid expansion of their initial industrial holdings. No wonder the industrial structure which emerged was characterized by a high degree of concentration. Incidentally, since indigenous commercial banks were almost non-existent at independence, and since those that did develop shortly thereafter did not really participate in high profit industrial investment, the merchant-capitalist-industrialists dominated the commercial banks which gradually became established. The Pakistan pattern was quite different from the bank-dominated industrial development of some European countries.

Large units, using transferred technology also meant that technical knowledge was not a crucial asset. Technicians could be readily imported. The would-be industrialists with technical experience from handicrafts, workshops or small-scale industry found it difficult to compete with the hired, and usually imported, technical and managerial talent of the large-scale enterprise, headed by a decision maker with no technical experience. Neither technical knowledge nor education were important for success as an industrialist. Both could be and were hired, as needed. However, many families once well established in industry, and beneficiaries of the high income which was a consequence, obtained both education and technical competence for their next generation. Education and technical competence/were not a prerequisite for, but a consequence of, early industrial development.

What Pakistan needed for industrial development was a limited number of entrepreneurs -- willing to undertake a new activity, to take the risks involved and organize the capital required, and to put together the necessary permits, skilled manpower and contacts with suppliers and buyers. Most of these entrepreneurs had a background in trade, with some subsidiary experience in manufacturing. Since most of the traders belonged to groups called "business communities" a disproportionate share of industry was in the hands of these business communities.

The Pakistan experience suggests that governments who want to promote initial industrial development need not be discouraged if a country does not possess an experienced industrial class, a well-educated population, or trained technicians and managers. It need not rely on a slow process of expanding the number of indigenous retailers or processors. If it has a small group of profit-seeking merchants, (or other price and profit oriented groups), a judicious structuring of government policy to force a number

of them out of their usual occupation and into industry, and to give them the high profits required for capital accumulation, should do the trick. However, once the industrialization process is well stated the country may have to cope with a high concentration of control in industry and, if family ties are strong, the possibility that nepotism and lack of technical competence will perpetuate an inefficient industrial structure. Opening the economy at that point to import competition can largely mitigate these potentially unfortunate consequences. Greater competition will, of course, be resisted by an industrial class accustomed to protection, and comfortable with it, whose economic power is likely to give them considerable political influence. Their political influence will be enhanced if, as in Pakistan, the big industrialists are active in social social, religious and interest groups.