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AN IDENTIFICATION OF
DYNAMIC INDUSTRIAL SUBSECTORS
(HIID/IND Survey Data)

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AN IDENTIFICATION OF
DYNAMIC INDUSTRIAL SUBSECTORS

1. Introduction

One of the objectives of this project is to identify dynamic subsectors. We address the following question: Which sectors and size-classes of enterprises are likely to make high contribution to creating productive employment and income-generating activities, increasing industrial growth, and attaining other desirable objectives? In the present study we rely mainly on our new survey. But following the general approach of this study of not depending upon any single sample of data, we also check these findings against earlier ones. In the same spirit, we apply several criteria of dynamism to as many as 30 major subsectors and 8 size-classes.

The subsector analysis proceeds on two planes. On one plane, studies are carried out in accordance with the so-called business school type research, in which we look at the economic-technical aspects of individual firms. Specialists on particular industries were hired as short-term consultants to make factory

visits and form judgments based on quantitative and qualitative information. The conclusions of these reports appear in another paper.

On the other plane is the standard economic analysis, which, in turn, is based on several sets of time-series and cross-section data. The main findings come from the HIID/IND Survey, 1989. Comparable analytical results derived from the existing data are summarized in Appendix HA.

2. HIID/IND Survey, 1988-89

Coverage and design.--This is a nation-wide survey of industrial units. In its cleaned-up version, it consists of 592 factory establishments and 1270 cottage shops (home-based economic activities). The bulk of the data are for the year 1987-88 for factory establishments and for 1988-89 for cottage industries. There are a few exceptions which are described in the data record documentations of the survey. The data are available both on tapes and floppy diskettes and can be supplied to research institutes on request right away.

The survey was designed in consultation with BES, which used its Economic Census, 1986 (EC) frame for small and cottage industries and the updated CMI census frame for large units to develop two subsamples for this project. From the CMI, BBS gave us a random sample of 800 units. For small and cottage

industries (SCI), under our instructions, the BBS prepared a list of all those enumeration areas (104 in all) which had at least 10 units with fewer than 10 workers, which meant a random survey of industrial (probably small-sector) concentration areas. The plan was to take a census of all the 104 enumeration areas, including large units. When we went to the field, several discrepancies were encountered. So not all enumeration areas could be covered. Without going into the problems encountered, it may be stated that we ended up with a, more or less, random sample survey of 51 concentration areas across the entire country for which resulted in a cleaned-up sample of 592 factory establishments and 1270 home-based industrial units.

The questionnaire.--The HIID/IND survey used, what may be defined, a four-in-one questionnaire. It generated (a) the CMI type cross-section data on production, costs, employment, capital, investment, and the like; (b) a short, 1980-81 through 1987-88, time-series section on 3 pertinent variables, investment, sales, and employment; (c) a large section on problems, policies, and incentives; and (d) an 18-question section on locational and environmental variables for the enumeration area, such as infrastructure, linkages of financial and other institutions, distance from big and small market centers (nodes), flood proneness of the area, percentage of households which have at least one emigrant (proxy for money remitters), and so forth. We believe, therefore, that the information generated in this survey is unusually rich for the problem in hand.

Training of investigate training and field work.--Over two score investigators and over half a dozen supervisors were trained for a period of 2 weeks. A manual of investigators was prepared. The cooperation of local civil servants and the upazila BBS staff was successfully solicited and utilized. Additional training, necessitated by field experience and evaluation, was given on several occasions. A pre-test of over 200 units was done and tabulated to revise the questionnaire where deemed desirable. In addition to supervisors, 4 experts from the permanent technical staff of the project (sometimes accompanied by two data-and-survey expert local consultants from BIDS) travelled to almost all the areas on a number of occasions. They were instrumental in increasing the response rate and raising the quality of data. Each evening, investigators went over the day's work to check errors. One or more supervisors were on hand each evening to discuss problems and find solutions. In addition, the supervisors met with field investigators to consider problems of generating the right kind of information after each round of about a fortnight, when investigators returned, according to the pre-planned schedule, to the Project Office in Dhaka.

Data cleaning-up.--A high emphasis was put on correcting errors in data. Data-editing and data-entry work started almost simultaneously. The data cleaning-up, codification, and variable classification work went on for over 6 months and phased into the

data-processing stage whenever an extreme observation looked suspicious.

Data-processing.--Data-processing was done at the 4 PCs of the project by the project staff. In addition, the mainframe computer of BUET was used whenever needed. The data and results were cross-checked with CMI and other sources where considered relevant.

Broad picture

A broad picture of the basic variables of the sample survey can be viewed from the data in Appendix HD.

3. Substantive Results

Time-Series Data

Overall picture

Time-series annual data from 1980-81 through 1987-88 were generated for 4 variables: number of new units, investment (I, new and BMR, separately), sales (S), and employment (E, total and "working proprietors and family workers," separately). Out of the 592 factory establishments of the sample, 528 answered these questions. Of these, 253 units provided information since 1980-81. We call them "old." Almost all of them supplied data on employment practically for all the 8 years. Only 96 of them had made investment, mostly of the BMR type. The response for

sales data by this subsample was rather low: only 43 of them supplied information. Accordingly, for most purposes, we will ignore the sales data for this subsample.

The remainder 239 are those firms which did not have records or memory of data for the entire period or entered production after 1980-81 and supplied the data since the year of their entry. A majority of these units (outside jute and cotton) are new. The former ("old") group of 253 establishments is tabulated in Tables H1a-H1c and the latter (denoted here as "new") group of 253 units in Tables H2a and H2b.

Size of new firms.--At first look across the two tables H1 and H2. It may be seen that large firms dominate the old sample, where the 8th size-class (having a workforce of 800 or more) accounts for 85 percent employment. In the new sample, there is no unit in size-class 8. The 7th class (with 300-799 workers) accounts for no more than 35 percent of employment and only 3 percent of units. Since size-classes are chalked out on the basis of number of workers, the lower class means of employment are by and large the same in both subsamples. The upper-tail size-class has a mean workforce of 2800 in the old sample and zero in the new sample. A trivial conclusion of this comparison is that very large firms have not entered the industry in the 1980s.

Growth rates.--In terms of the rates of expansion (or lower rates of contraction), the 4th size-class (20-49 workers) is, by and large, atop. Watch for the dynamism of size-class 4.

Progress within old firms

Within the old subsample, overall employment declined a shade from 69061 in 1980-81 to 68779 (or by 1.0 percent) in 1987-88. Only size-classes 4 and 7 recorded gains. Investment of the BMR type in the final two years is only 50 percent of what it was in the initial two years. This is a discouraging picture, especially insofar as NIP82 is concerned, because investment fell sharply in 1983-84 and has not recovered since. Overall sales declined by over 20 percent during the same period, but, as stated earlier, sales data of this particular subsample are fickle and should not be given much importance.

Progress within the new sample

In a period of 6 years, from the initial 2-year period to the terminal 2-year period, aggregate real investment in new enterprises increased by 13.43 percent from Tk 46 million to Tk 103 million. If we take 3-year moving averages for both initial and terminal periods, however, investment declined by 0.7 of 1 percent. This shows the volatility of the trend measurement for investment. In the old firms, as noted above, real investment declined at an annual rate of 11.41 percent from Tk 466 million in 1980-82 to Tk 235 million in 1986-88, resulting in a decline of overall sample investment of 5.1 percent, from Tk 512 million to Tk 338 million. The drop in real investment started in 1982-83; it crashed in 1983-84, and has not recovered appreciably since. The present results, thus, confirm the earlier findings

of significant deceleration in investment, especially since the NIP82.

Another aspect worth noting is the almost across-the-board decline in all size-classes in the mean values of investment by new firms (Table H2b). There is, however, a significant increase in mean employment per establishment. Note that the rate of investment can go down while employment per establishment can still go up without a decline in productivity. In the absence of reliable time-series data, however, no inference about labor productivity can be made, though prima facie evidence for its decline exists. Caution should further be observed in making comparisons, inasmuch as the initial periods are not identical for all size-classes--varying numbers of firms entered in different years in different size-classes.

Mean values of I, S, and L per establishment can reflect two changes: (a) as indicators of emerging size-classes and (b) as increase or decrease in the magnitudes of variables without change in size-class. The mean values reported in Tables H1b and H2b reflect both. The mean size of establishment has declined.

The rates of growth of aggregate output have been positive in the lowest 4 size-classes of the new subsample but negative in the higher size-classes (see Table H2a). Once again, observe the highest rate of growth of aggregate investment of 68 percent for size-class 4 against the mean of the subsectors of 13 percent. Even the mean rates of growth of I and S are higher for this

size-class than for other classes. The rates of growth of aggregate employment are higher in size-classes 3 and 4.

Mean investment per worker in old firms is not comparable to that in new ones. In new firms, some workers from the gestation period may spill over to the "year production began." Nevertheless, it may be verified that investment per worker has declined over time in both old and new firms.

The response to questions on investment and sales is lower than that to employment. It may be seen that in the old subsample, in which investment fell during the 1980s, the lower response is from smaller size-classes (Table H1c). Evidently, the reason is the absence of records. Thus, for every 100 responses to employment data, there were the following responses to the investment data from size-class 1 through 8: 0, 12, 33, 32, 37, 38; 86, 124; and mean response 38. The increase in investment in the new subsample took place only in smaller size-classes (Table H2a, Panel 1). The weight of smaller classes is, however, so small that it is unlikely to offset the overall decline to any appreciable extent. The downward bias of investment is corrected by the almost 100 percent response rate of new firms, whose investment shows a significant increase during the sample period.

4. Public and Private Sectors

To begin with, it should be noted that any cross-section

survey of enterprises is a study of survivors. When one computes rates of growth of combined old and new firms by generating time-series data for survivors, the results are overestimated because the mortality among firms is ignored. In view of this, after looking at the overall picture in Tables H1 and H2, we start analyzing different cohorts. The latter procedure becomes more relevant for this study, because several, especially small, enterprises have not kept records and cannot supply the data from the very beginning. Even though the time-series variables we have generated are simple key variables--I, investment, sales, employment, and number of establishments--which entrepreneurs/managers may even recall from memory, not all of them were able to do so. Accordingly, insofar as the public sector mills are concerned, the cohort analysis is preferable to the cumulated sample.

With a view to gauging the relative performance of public and private sectors, we chose two groups of private and public firms in two relatively homogeneous subsectors, namely jute textiles and cotton textiles. Through the good offices of the Planning Commission, we approached the BJMC, BTMC, BJMA, and BTMA for samples of 20 representative mills of each corporation/association for our survey. The chairman communicated with the chosen mills to elicit their cooperation with us and to provide accurate data. The results of the historical data on investment (I), sales (S), labor (L), and units (U) which reported for the 4 subgroups are classified in

Table H3a (public jute mills), Table H3b (public cotton mills), Table H4a (private jute mills), and Table H4b (private cotton mills). These four subgroups accounted for the following magnitudes in 1987-88:

	Units	Investment (Tk mill)	Sales (Taka Millions)	Employees	Sales/ Emp. Ratio
Public jute mills	17	2646	2708	54387	5.0
Public cotton mills	14	4102	1597	21480	7.4
Private jute mills	11	3682	1067	21937	5.3 ^a
Private cotton mills	.16	3966	1248	14010	8.9

^aAdjusted for 11 units reporting sales and 12 units reporting employment.

The sales per employee are only a shade lower in public mills than private mills. If one allows for standard errors, the differences are not statistically significant.

The rates of growth of I, S, and L from the initial two-year (1980-82) magnitudes to the terminal two-year (1986-88) magnitudes for the major cohort that reported the data from 1980-81 onward are all negative in public enterprises (both jute and cotton), as may be seen from Tables H3a and H3b. Summary rates are given below:

Annual Rates of Growth of Aggregate
Values of the Cohort of Mills which
Reported for the Entire Period

	I	S	L
Public jute mills	-19.01	-2.55	-0.54
Units reported	12	14	10
Public cotton mills	-8.06	-3.94	-2.18
Units reported	12	11	8
Private jute mills	0.56	-0.67	2.72
Units reported	5	4	4
Private cotton mills	-13.81	-2.72	0.68
Units reported	5	2	5

Sales values have declined in all the four groups of jute and cotton textile mills, public and private. Investment has also declined, except in private jute mills where it has remained at a stable level. But employment jumped up by about 16 percent in the reference cohort of private jute mills in 1986-87, which imparted an annual rate of growth of 2.72 percent to this cohort. The employment in the corresponding cohort of cotton mills remained practically stable.

Note that the late-comers in private jute and cotton mills are those units which were divested after 1980-81, while those which started reporting data in 1980-81 are mostly those which were divested in the 1970s.

Among the post-1980 divested mills, the following may be broadly identified as dynamic or stagnating:

1. None is dynamic in terms of output growth
2. In terms of investment, 6 private firms of the cotton textile industry which were privatized in 1982-83 together record

a high rate of expansion

3. One public jute mill and one private cotton mill which appeared in this subsample in 1983-84 and another public cotton mill that started reporting data in 1984-85 attained respectably high rates of investment

4. Firms that went down in terms of sales are: one each in public jute and public cotton which started reporting in 1981-82 and one private cotton mill which appeared in the sample in 1982-83.

Thus, a dichotomous result appears for the textile mills which were denationalized after the New Industrial Policy of 1982. In these mills investment has boomed, as may be seen from the 1982-83 and 1983-84 cohorts of divested firms in Table H4b. At the same time sales have declined over the same period of 6 years in these mills. How can one explain this dichotomy over a long period of 6 years?

Four possible explanations may be advanced. (1) The mills remained under renovation for that many years. So they could not be put in operation for production. (2) Investment in old firms, particularly that of the BMR type, is ordinarily sporadic. Therefore, one should not impart much significance to the trend rate. (3) The scenario of overcapacity-creation/stating as the basis for higher entitlement to concessional credit and import quota of raw materials, as discussed in the paper on the ERAs, may underline this finding, inasmuch as sales have declined at a high rate of about 3 percent per year. This explanation is

strengthened by the fact that similar shift has not occurred in jute, presumably because raw materials for jute mills are produced domestically. (4) Investment is genuine and, since BMR must go on in this age of rapid technological change, one must give two cheers to private cotton millers. Further verification is needed to determine which of the interpretations or explanations is more realistic.

5. Subsector Analysis

Historical Growth

The search for dynamic subsectors proceeds on two planes: (1) The historical-growth analysis is done for 8 chosen subsectors, besides the jute and cotton mills. (2) The cross-section analysis of dynamic subsectors is done for all the subsectors which have at least 1 percent representation in the HILD/IND Sample Survey (has at least 6 establishments).

Leaving aside jute and cotton mills, which have been discussed in the preceding section, we have divided the rest of the establishments of the historical survey into two groups: (a) those which existed before 1980-81. We denoted them as "old." (b) Those that have entered the industry since 1980-81. They are all new, and we call them so. Among themselves, the 8 subsectors chosen for this analysis account for 134 old and 148 new establishments, or a total of 282, out of 592, or roughly about half of the sample.

The results are presented in Tables H5a-b: old units and H6a-b: new units. Recalling that jute and cotton textile mills

have already been dealt with, by way of keeping relative magnitudes in perspective, it may be seen that in terms of the number of units, whether old or new, light mechanical engineering industry is the largest in this sample, followed by agrobased industries, with wooden furniture in the third place. In terms of output, tanning and leather is the largest among new firms, while fish and seafood is the largest among old firms. For more information on the relative magnitudes of variables in different subsectors, see Appendix HD.

Rates of growth

Old firms.--Among old firms, no subsector has shown significant dynamism insofar as investment is concerned. In some subsectors, a hump in investment came in 1980-81, in others in 1983-84. The fish and seafood industry experienced an upward jump in investment in all the years of the late 1980s. In terms of output (for which, as noted earlier, the data are sketchy), fish and seafood has shown significant expansion. The highest annual rate of growth of employment, too, took place in fish and seafood (14.67 percent) and the next highest in electrical appliances (10.94 percent).

Employment in light mechanical engineering also expanded significantly at a rate of 4.74 percent per year. Over the period, a decline took place in electronics.

Among the old group of establishments, thus, fish and seafood is the only industry that seems to have shown dynamic growth.

New firms.--Through the entry of new units, investment started creditably in agrobased, wood furniture, and light engineering industries in 1980-81. It increased at an annual rate of nearly 20 percent in agrobased industries, but decelerated at a negative annual rate of about 20 percent in light engineering. In wood furniture, investment picked up by a considerable magnitude in the final three years of the reference period. Readymade garments and electronics experienced a big upward jump in the late 1980s. The investment in new firms of fish and seafood industry seems to have balanced off the wobbles of investment in old firms, in particular see the reverse changes of the two groups in 1985-86. The largest investment in the final 2 years, 1986-88, took place in the 10 old and new unit of the fish and seafood industry (over Tk 13 million in 1986-87 prices); the next largest of about Tk 11 million in 20 tanning and leather firms, and approximately Tk 3 million each in the 4 score-or-so units of each of the agrobased and light mechanical engineering industries.

Investment as an index of the expansion of manufacturing industries is presented in Table H7 and the overall aggregate values are sketched in Fig. H1. To the extent the sample of units which reported the investment data for the 1980s represents the industry in general, investment has clearly decelerated since

1982-83.

Yet another index that may also be looked at is the expansion in investment and factory units that took place during the last 3 years of the sample period. It is given in Table H8. In terms of the number of units, the highest expansion came in 3839: electrical apparatus (17.3%); 3321: wooden furniture (16.7%); 3832: electronics (14.7%), and light mechanical engineering (13.7%). The low bases of 3832 and 3839 are, however, partly magnifying the rates of expansion. This is a weakness of the criterion of the rates of growth. Other subsectors of Table 8 have also done significantly well according to this index.

In terms of the recent 3 years' investment, fish and seafood comes out atop. All other rates of growth are positive but modest. The interesting case of cotton textiles was discussed earlier. Almost all indices, thus, suggest that fish and seafood is a dynamic sector of recent years.

6. Good Years, Bad Years

Another index of growth during the 1980s is the perception of entrepreneurs about good and bad years for their respective enterprises. The results are presented in Appendix Table HA3 and are sketched in Appendix Figs. HA1 through HA10 for 10 subsectors. Except electronics and garments the percentage of perceived good (bad) years has almost consistently declined (increased) since 1980-81. The electronics industry seems to be

flourishing in recent years according to the perception of its entrepreneurs. In garments, the business is good and has, by and large, improved over the years, except that the year 1985 outshines, after which the industry suffered a slump, but has recovered vigorously since. In wooden furniture the deterioration is minor.

In seafood, good years have not been taken over by bad years, but by normal years (Fig. HA5). The results should, however, be interpreted with caution because of the well-known "good-old-days" syndrome.

7. Identifying Dynamic Subsectors through Multiple Criteria Cross-Section Samples

Finally, we present a number of indices based on desirable ratios of various variables to identify dynamic subsectors. Two sets of such indices were prepared. One based on existing data and the other based on the HIID/IND Survey data

Tests based on existing sources

The existing data base used to apply various criteria of dynamism included the Census of Manufacturing Industries (CMI), the Economic Census, the data from the Department of Industries, the ERAs prepared by HIID/ESEPP Project, and so forth. The results are discussed in Appendix HA. The criteria used there are not commensurate with the ones used for the data from the

HIID/IND Survey. The criteria used in the appendix are fewer in number: 7 as against 15 for the HIID/IND Survey. The appendix tests were carried out before the HIID Survey data became available. The appendix test uses at least one additional variable not included in the HIID Survey tests, namely the REA.

The two data sets provide independent tests. As is well-known, the CMI data are not representative of the most recent arrivals. For instance, the CMI has only 2 small, relatively unimportant units of ready-to-wear garments. In the HIID/IND Survey, the electronic firms were picked up only for the late 1980s, whereas the CMI and the Economic Census data are available only upto 1985-86. Subject to these qualifications, the industries that satisfy at least 4 of the 7 desirable criteria in Appendix HA are the following:

- 3113 Fruits and Vegetable
- 3115 Hydrogenated Vegetable Oils
- 3321 Wooden Furniture
- 3515 Pesticides, Insecticides
- 3559 Rubber Products
- 3572 Polythene Products
- 3802 Hand and Edge Tools
- 3805 Structural Metal Products
- 3823 Metal and Woodwork Machines
- 3937 Pens and Other Articles

There are several more which satisfy at least 3 of the 7 criteria, a majority of which are close to the industries just listed:

As will be seen in a moment, most of the industries in the above list are those which came out as dynamic in the HIID/IND Survey also, to which we turn next.

Tests based on the

HIID/IND Survey

The results of the application of as many as 15 ratios of desirableness to 30 subsectors of the HIID/IND Survey data are given in Tables H9 (ratios) and H10 (ranks). The 30 subsectors are those four-digit industries which have at least 1 percent representation in the 592 units of the survey, or a minimum of 6 units. The indices used are noted below with the top-rank industry noted on the right hand side, (For definitions, see Appendix HC. For the aggregate values of basic variables, see Appendix HD).

<u>Index</u>	<u>Top Rank</u>
1. Q/KK = Output/Capital ratio	3807: Heat and Cooking Equipment
2. L/KK = Labor/capital ratio	3206: Handloom textiles
3. VA/Q = Value added to Output ratio	3805: Structural Metal Products
4. X/Q = Export ratio	3221: Ready-to-Wear Garments
5. INV Ratio = Ratio of the domestic component of investment to total investment	3223: Local Garments
6. RM Ratio = Ratio of domestic raw materials in the	3569: Misc. Plastic Products

corresponding total raw
materials

7. I/K = Investment/Capital ratio 3223: Local Garments
8. LF/LM = Female labor to 3221: Ready-to-Wear Garments
male labor ratio
9. Q/L = Output/labor ratio 3231: Tanning and Leather
10. RR = Rate of return 3805: Structural Metal Products
11. S = Small is beautiful 3829: Machinery & Equipment etc.
12. GL = Growth of rate of 3204: Silk and Synthetic
employment Textiles
13. GS = Growth rate of sales 3819: Fabricated Metal Products
14. GI = Growth rate of 3128: Edible salt
investment
15. GU = Growth rate of units 3311: Saw and Planing Mills
(establishments)
16. R = Composite index 3805: Structural Metal Products

The composite rank $R = \text{Inverse rank of } \prod_i r_i$

has its weaknesses and strengths. At first note that the ranking direction of R is the reverse of that of r. For r , the highest value gets the rank of 1 and the lowest value the rank of 30. The R, however, gets the rank of 1 for the lowest value.

The composite rank is not the best way of summarizing the ranks of the 15 ratios or the ratios themselves. It amounts to giving equal weight to each of the 15 criteria. Some may like to give higher weight to export performance than the small trait of

an industry. Others may like to give higher weight to labor-intensive industries in comparison to those with higher rate of return, and so forth. Still others may prefer to use absolute difference in a given ratio between different industries rather than ranking. The composite rank R is thus a very broad index that ignores priorities between various criteria. Nonetheless, this is one type of summary index which is objective, contains no value judgments (except the main judgment of assigning equal weights to equal ranks), and is straightforward. Other researchers may compute their own weighted composite index or use some different criteria. Some may even like to look at the series of a single index, e.g., output/capital ratio. The table has rich information for anyone to employ his/her methodology of choosing desirable subsectors.

Based on the criterion of the composite rank, interestingly, the hero of the current-period Bangladesh is Industry code 3805: Structural Metal Products, the runner-up is 3223: Local Garments, while the bronze medal goes to 3221: Ready-to-Wear Garments. The reason for the 3rd place of Ready-to-Wear Garments is its lowest rank in S--99% of the units of this industry have a work force of 20 or higher--and 23rd rank in a group of 30 in the use of domestic raw materials. Evidently, there are some scale economies in this industry and small units are not technically efficient. If these two criteria are ignored, the Readymade garment industry attains the top position.

The next seven heroes of the 1980s (as based on the composite rank and in that order) are: saw and planing mills, tanning and finished leather, bakery products, edible salt, wooden furniture, handloom textiles, and heat and cooking equipment industries.

With a view to seeing whether ERAs are associated with the composite rank (R), we ran a simple regression of R on ERA. It may be seen from the first regression of Table H11 that the two variables have zero correlation.

We also ran multiple regressions of the first-difference growth rates of sales (GS), employment (GL), investment (GI), and establishment units (GU) from 1980-82 to 1986-88 on the corresponding changes in ERAs and a few other pertinent variables. As may be seen from Table H11, there is little relationship between the stated objectives and ERAs. The coefficient signs are negative, though not significantly so.

An array of the set of desirable ratios by size-class is presented in Table H12. It is interesting to note that small enterprises upto 20 workers come out creditably in output/capital ratio and labor/capital ratio. That is these units get more output and more employment per million taka of capital (fixed + working) than most other size-classes. The below-10-worker units are also high in the ratio of domestic component of investment. Thus, small enterprises of Bangladesh satisfy at least two most desirable properties of an enterprise: high output/capital ratio and labor intensity, and, in part as a sequel of that, high rate of return to the scarce factor of production, capital. Small enterprises, thus, probably have economic future in Bangladesh.

Also desirable are several other ratios, however, in which small enterprises do not perform as well as low medium and high medium, and, in some cases large, enterprises. Indeed, low

medium enterprises (10-19 and 20-49 size-classes) can be viewed to perform atop of all other subgroups, inasmuch as they are high in almost all desirable ratios of Table H12. As a result, they acquire composite ranks of 2 and 3 out of the 8 size-classes. The leading composite ranks for these size-classes result from, more or less, high export ratio, output/capital ratio, labor/capital ratio, value added/output ratio, and rate of return to capital. The large units of Bangladesh (800 workers upwards) are doing reasonably well in terms of output/capital ratio, labor/capital ratio, and domestic component of investment; excellently in terms of value added/output ratio and export/output ratio; but least well in female/male ratio, output/labor ratio, and rate of return. If the 9 desirable ratios of Table H12 are assigned identical weights, then the 10-49-worker size-class gets top marks. Policies should be carefully designed, therefore, so as not to discriminate against these enterprises, indeed not against any size upto 49 workers.

We may conclude this paper by noting that from the HIID/IND Survey data also, we failed to find any relationship between policies, as summarized by ERAs, and growth of output, employment, or investment.

The results are, as usual, subject to large standard errors. Subject to that proviso, among all size-classes, the 10-to-50 worker units satisfy various desirable criteria more closely than other size-classes. In terms of output and employment per

million taka of capital, however, very small size-classes perform, on the whole, better than all other size-classes.

Table IIIa--Aggregate investment, sales and employment for "old" firms which responded for 1980-81 and continued reporting through 1987-88 (The monetary values are in 1986-87 price)

		Values by Year							
No of Firms	Size	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88
Investment in thousands of takas (1986-87 price)									
1	1	0	0	0	0	0	0	0	0
5	2	137	17	16	14	8	7	0	1
25	3	12432	214	925	411	299	1018	146	417
22	4	562	990	50	702	83	155	218	561
6	5	21919	683	1222	0	1136	1905	144	5027
3	6	3177	2	4780	8	1459	1690	660	3844
6	7	12329	23316	6392	9584	4610	8624	21253	4710
26	8	145464	244641	224481	88174	82183	96110	101115	60180
Total	36	196020	269863	237866	98893	89778	109510	123535	74731
Sales in thousands of takas (1986-87 price)									
0	1	0	0	0	0	0	0	0	0
2	2	0	0	0	0	0	0	0	0
2	3	94	60	100	88	60	50	71	82
3	4	172	127	133	120	112	111	101	104
4	5	288	67	71	123	117	224	185	315
3	6	1243	589	2174	1832	1291	1447	1067	742
6	7	5062	4137	5442	5351	5190	4530	3858	4134
25	8	52967	42862	62828	47946	50224	49478	39257	38157
Total	43	59826	47842	70748	55460	56994	55839	44539	43534
Employment									
11	1	27	27	27	27	30	30	30	27
43	2	310	288	292	299	293	294	298	307
66	3	1153	1138	1153	1202	1184	1176	1173	1176
50	4	1475	1493	1586	1653	1748	1791	1814	1734
19	5	1247	1275	1323	1366	1315	1212	1225	1250
8	6	1487	1440	1481	1493	1341	1408	1266	1237
7	7	3772	3864	3307	3807	4183	4248	4253	4239
21	8	59560	61003	54226	56710	59159	56384	59461	58809
Total	253	69061	70528	63395	66557	69253	66543	69520	68779
Investment in thousands per worker		2.8	3.8	3.5	1.5	1.3	2.0	2.2	1.2

a
The year 1980-81 is written as 81, etc.

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Table H1b--Mean values of investment, sales and employment for "old" firms which responded for 1980-81 and continued reporting through '1987-88 (The monetary values are in 1986-87 price)

		Values by Year								
No of Firms	Size	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	
Investment in thousands of takas (1986-87 price)										
0	1									
5	2	27	3	3	3	2	2	0	0	
28	3	444	8	33	15	11	36	5	15	
22	4	26	45	2	32	4	6	10	25	
6	5	3653	114	204	0	189	317	24	838	
3	6	1059	1	1593	0	486	564	220	1281	
6	7	2055	3886	1065	1597	768	1729	3542	783	
26	8	5595	9409	0634	3291	3161	3880	3889	2315	
Total		96	2041	2811	2477	1030	935	1219	1287	778
Sales in thousands of takas (1986-87 price)										
0	1									
0	2									
2	3	47	30	50	44	30	25	35	41	
3	4	57	42	44	40	37	37	34	35	
4	5	72	17	18	31	29	56	46	79	
3	6	414	196	725	611	430	492	356	247	
6	7	844	689	907	892	865	755	643	689	
25	8	2119	1714	2513	1918	2009	1979	1570	1526	
Total		43	1391	1112	1645	1289	1325	1298	1035	1012
Employment										
11	1	2	2	2	2	3	3	3	2	
43	2	7	7	7	7	7	7	7	7	
86	3	13	13	13	14	14	14	14	14	
58	4	25	26	27	29	30	31	31	30	
19	5	66	67	70	72	64	64	64	66	
8	6	186	180	185	187	176	176	158	155	
7	7	539	552	472	544	607	607	608	606	
21	8	2838	2905	2582	2700	2685	2685	2851	2800	
Total		253	1606	1640	1474	1548	1610	1547	1616	1599

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Table H2a--Aggregate investment, sales and employment for "new" firms: HIS
(Which entered production after 1979-80), values are in 1986-87 price

		Values by Year									
No of Firms	Size	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88		a
		Investment in thousands of takas (1986-87 price)									Rate of growth
23	1	0	4	30	0	30	41	30	23	8.88	
68	2	48	585	70	357	621	628	416	854	44.79	
96	3	4428	120	1659	1056	3528	2938	7722	11328	23.87	
52	4	75	252	7008	4560	2650	12155	12298	6760	67.75	
19	5	14888	6486	6146	191	8208	1629	2070	7391	-13.58	
8	6	0	2832	0	12	8826	9254	2176	2704	-2.48	
8	7	0	16647	99354	41528	15558	16625	23240	26072	-17.11	
0	8	0	0	0	0	0	0	0	0	0	
Total	274	19439	26926	114267	47704	39421	43271	47952	55162	13.32	b (-0.7)
		Sales in thousands of takas(1986-87 price)									
23	1	0	0	5	0	2	2	3	23	93.59	
68	2	0	0	0	0	3	66	84	748	115.25	
97	3	3	8	10	1	91	135	493	1455	86.28	
52	4	0	0	1	10	144	151	432	4160	139.97	
19	5	0	62	306	264	273	536	819	1938	40.28	
8	6	0	0	0	0	118	352	1284	2024	90.58	
8	7	83	155	594	1253	3110	4445	4095	6464	62.86	
0	8	0	0	0	0	0	0	0	0	0	
Total	275	91	225	916	1551	3741	5657	7210	16612	72.18	
		Employment									
23	1	4	10	14	9	24	23	34	46	29.05	
68	2	42	63	91	126	891	239	360	408	33.16	
97	3	70	105	240	340	495	549	984	1261	42.53	
52	4	80	162	304	396	50	612	1170	1508	40.06	
19	5	148	336	560	740	966	836	1134	1349	27.25	
8	6	0	160	180	440	819	918	1192	1312	39.93	
8	7	0	0	680	903	1670	2220	2653	3200	32.69	
0	8	0	0	0	0	0	0	0	0	0	
Total	275	344	836	2069	2954	4915	5397	7527	9084		
New establs.		12	32	23	31	43	44	44	40	10.78	
Investment (in '000)											
per new worker		1620	641	4968	1538	917	1183	1090	1379		

a
Geometric rate of final 2-year (1987-88) values with respect to the initial 2-year non-zero values.

b
3-year based on moving average.

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Table H3a--I, S, and L in public enterprises of jute industries 1980-81 through 1987-88,
HIS (1986-87 prices)

Variable of	Number		Year						
	Estabs.	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88
1. Jute Textiles									
Investments ('000 taka)									
	12	58602	111933	83626	64717	31615	43309	34164	20362
	1			1638	3453	2244	661	426	657
	1				1369	3975	4168	41224	4280
	1						2740	1857	1160
Total		58602	111933	85264	69539	38034	50879	77671	26459
b. Mean		4884	9328	6559	4967	2717	3392	5178	1764
c. Cases									
	12	12	12	12	12	12	12	12	12
	1			1	1	1	1	1	1
	1				1	1	1	1	1
	1						1	1	1
Total		12	12	13	14	14	15	15	15
Sales (00'000 taka)									
a. Aggregate:									
	14	33651	24703	31400	30564	33538	35006	27379	22708
	1		5292	4917	3923	4267	3813	3653	2869
	1			749	1224	1601	1085	1219	1039
	1					655	674	605	469
Total		33651	29995	37066	35711	40061	40579	32856	27085
b. Mean		2404	2000	2317	2232	2357	2387	1933	1593
c. Cases									
	14	14	14	14	14	14	14	14	14
	1		1	1	1	1	1	1	1
	1			1	1	1	1	1	1
	1					1	1	1	1
Total		14	15	16	16	17	17	17	17

Table H3a--contd.

Employment									
a. Aggregate:									
	10	36956	40173	36620	37537	38082	36653	37622	37049
	1								1789
	1							5497	5920
	1		6957	5931	6020	6067	6052	4348	6137
	1							919	893
	1				966	950	907	608	684
	1			1423	1453	1403	1450	1416	1448
	1								467
	Total	36956	47130	43974	45976	46502	45062	50410	54387
b. Mean		3696	4285	3665	3537	3577	3466	3361	3199
c. Cases									
	10	10	10	10	10	10	10	10	10
	1		1	1	1	1	1	1	1
	1			1	1	1	1	1	1
	1				1	1	1	1	1
	1							1	1
	1							1	1
	1								1
	1								1
	1								1
	1								1
	Total	10	11	12	13	13	13	15	17

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Table H3b--I, S, and L in public cotton textiles industries 1980-81 thru 1987-88,
HIS (1936-87 price)

Variable of	Number	Year							
	Estabs.	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88
1. Cotton Textiles									
Invesments('000 taka)									
	12	64191	141656	151475	35439	41483	37241	89403	37460
i						666	3133	604	2508
1							351	461	1056
1									
Total		64191	141656	151475	35439	42149	40725	90468	41024
b. Mean		5349	11805	12623	2953	3242	2909	6462	2930
c. Cases									
	12	12	12	12	12	12	12	12	12
1						1	1	1	1
1							1	1	1
1									
Total		12	12	12	12	13	14	14	14
Sales(00,000 taka)									
a. Aggregate:									
	11	17660	15650	30919	15597	13980	12808	10643	13184
1			1544		1590	1369	996	904	1112
1					831	630	705		620
1							989		1049
Total		17660	17194	30919	18018	15979	15498	11547	15965
b. Mean		1605	1453	2811	1386	1229	1107	888	1140
c. Cases									
	11	11	11	11	11	11	11	11	11
1			1		1	1	1	1	1
1					1	1	1		1
1							1	1	1
Total		11	12	11	13	13	14	13	14

Table H3b--contd.

Employment									
a. Aggregate:									
8	14396	14649	12847	12910	13336	13893	13092	12386	
1									
1						2159		2062	
1						802	705	767	
1		2735		2499	2935		3041	2434	
1	1265	1288			972	995	968	1031	
1	692	638		414	660		729	761	
1				1676	1975	1532	2029	2039	
Total	16353	19310	12847	17499	19878	19381	20565	21480	
b. Mean									
c. Cases									
8	8	8	8	8	8	8	8	8	
1									
1						1		1	
1						1	1	1	
1		1		1	1		1	1	
1	1	1			1	1	1	1	
1	1	1		1	1		1	1	
				1	1	1	1	1	
Total	10	11	8	11	12	12	13	14	

Table H4a--I, S and L in private jute textile industries, 1980-81 through 1987-88, HIS (I & S in 1986-87 prices)

Variable	Number of Estabs	Year							
		80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88
Investment('000 taka)									
a.Aggregate:									
	5	24589	21676	10728	10376	4838	19482	31402	10428
	1	2677		3615		1895	1202	4575	1423
	1		1073		1510	1186		2316	17541
	5			11543	13317	8499	25410	13690	7423
Total	12	27266	22749	25886	25203	16418	46094	57983	36815
b.Mean		4544	3792	2353	2291	1368	4190	4832	3068
c.Cases									
	5	5	5	5	5	5	5	5	5
	1	1		1		1	1	1	1
	1		1		1	1		1	1
	5			5	5	5	5	5	5
Total	12	6	6	11	11	12	11	12	12
Sales('00,000 taka)									
a.Aggregate:									
	4	4484	4142	4096	4246	5347	3957	4356	3932
	2		1632	2188	2749	2614	3107	2514	2574
	5			5090	5830	6518	5313	3844	4166
	1					387	321	317	286
Total		4484	5774	11374	12825	14479	12377	10714	10672
b.Mean		1121	962	1034	1166	1316	1125	974	970
c.Cases									
	4	4	4	4	4	4	4	4	4
	2		2	2	2	2	2	2	2
	5			5	5	5	5	5	5
	1					1	1	1	1
Total	12	4	6	11	11	12	12	12	12
Employment									
a.Aggregate:									
	4	7126	7427	6937	6838	7203	7300	8529	8609
	4			5672	6015	6144	6138	6175	6289
	2				2101	2075	2166	2112	2135
	1		1330	3315	3394	3378	3355	3405	3323
	1					1517	1532	1593	1581
Total	12	7126	10757	15924	18348	20314	20491	21814	21937
b.Mean		1782	2151	1769	1668	1693	1708	1818	1828

Table H4a--contd.

c.Cases	4	4	4	4	4	4	4	4	4
	4			4	4	4	4	4	4
	2				2	2	2	2	2
	1			1	1	1	1	1	1
	1					1	1	1	1
Total		4	4	9	11	12	12	12	12

Table H4b--I, S and L in private cotton textile industries, 1980-81 through 1987-88, HIS (I & S in 1986-87 prices)

Variable	Number of Estabs	Year							
		80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88
Investment('000 taka)									
a. Aggregate:									
	5	8160	10514	6036	4851	6032	6119	4037	4116
	1		2693	1995	1467	1451	1384	8809	2961
	1		83				12	15	24
	6			6516	2687	2678	12729	17821	23787
	1				421	7459	7415	3004	2920
	1						5500	2139	40
	1						412		179
Total	16	8160	13490	14547	9426	17620	33571	35825	34027
b. Mean		1632	1927	1212	725	1355	2099	2388	2127
c. Cases									
	5	5	5	5	5	5	5	5	5
	1		1	1	1	1	1	1	1
	1		1				1	1	1
	6			6	6	6	6	6	6
	1				1	1	1	1	1
	1						1	1	1
	1						1		1
Total	16	5	7	12	13	13	16	15	16
Sales('00,000 taka)									
a. Aggregate:									
	2	4454	4007	4568	4488	4235	4219	3361	3822
	2		3092	3276	3136	1606	1922	3926	3951
	4			2941	3122	2781	2708	2416	2101
	1				554	602	567	776	725
	1					690	7059	653	572
	2						1118	1142	1116
	4								196
Total	16	4454	7099	10785	11300	9914	11240	12274	12483
b. Mean		2227	1775	1348	1256	991	937	1023	780
c. Cases									
	2	2	2	2	2	2	2	2	2
	2		2	2	2	2	2	2	2
	4			4	4	4	4	4	4
	1				1	1	1	1	1
	1					1	1	1	1
	2						2	2	2
	4								4
Total		2	4	8	9	10	12	12	16
Employment									
a. Aggregate:									
	5	4740	4151	4906	4986	5295	5018	4829	4430

	3		2470	2669	2697	3612	3597	3622	3922
	2			304	322	328	354	346	368
	1			762	836		824	837	815
	1					481	479	481	479
	1				1104	1254	1393	1410	1394
	3						7664	2630	2602
Total	16	4740	6621	8641	9945	10970	14329	14155	14010
b. Mean		948	828	786	829	914	896	885	876
c. Cases									
	5	5	5	5	5	5	5	5	5
	3		3	3	3	3	3	3	3
	2			2	2	2	2	2	2
	1			1	1		1	1	1
	1					1	1	1	1
	1				1	1	1	1	1
	3						3	3	3
Total	16	5	8	11	12	12	16	16	16

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Table H5A--Aggregate values of variables of "Old" nontextile firms, by subsector HIID/IND Sample

Sector	Year							
	1981	1982	1983	1984	1985	1986	1987	1988
Investment in thousand taka (1986-87 prices)								
1 Agrobased	2825	10	0	8	151	943	12	112
No. of cases	8	8	8	8	8	8	8	8
2 Electronics	0	0	0	0	0	0	0	0
No. of cases	0	0	0	1	0	0	0	0
3 Electrical app	20	0	0	0	6	0	0	0
No. of cases	1	1	1	1	1	1	1	1
4 Wooden furniture	48	0	0	0	0	0	0	0
No. of cases	1	1	1	1	1	1	1	1
5 Readymade garment	943	0	1587	0	0	0	0	2056
No. of cases	1	1	1	1	1	1	1	1
6 Tanning & leather	5094	0	0	34	0	0	0	112
No. of cases	3	3	3	3	3	3	3	3
7 Fish & Sea food	0	0	0	0	0	0	0	0
No. of cases	0	0	0	0	0	0	0	0
8 Light Mech. Engg.	13238	83	1	23	1135	596	162	2659
No. of cases	6	6	6	6	6	6	6	6

Table 45a--Contd.--2

Sales in hundred thousand taka (1986-87 prices)								
1 Agrobased	89	55	93	81	52	41	62	72
No. of cases	1	1	1	1	1	1	1	1
2 Electronics	47	0	0	0	0	0	0	3
No. of cases	1	1	1	1	1	1	1	1
3 Electrical app	0	0	0	0	0	0	0	0
No. of units	0	0	0	0	0	0	0	0
4 Wooden furniture	165	2	0	0	0	107	40	190
No. of cases	2	2	2	2	2	2	2	2
5 Readymade garment	0	0	0	0	0	0	0	0
No. of cases	0	0	0	0	0	0	0	0
6 Tanning & leather	0	0	0	0	0	0	0	0
No. of cases	0	0	0	0	0	0	0	0
7 Fish & Sea food	788	125	1825	1438	1130	1303	947	655
No. of cases	1	1	1	1	1	1	1	1
8 Light Mech. Engg.	100	66	71	105	101	101	130	112
No. of cases	1	1	1	1	1	1	1	1

Table H5b.--Mean values of variables of "Old" nontextile firms, by subsector HIID/IND Sample

Sector	Year							
	1981	1982	1983	1984	1985	1986	1987	1988
	Investment in thousand taka (1986-87 prices)							
1 Agrobased	353	1	69	1	18	117	1	14
No. of cases	8	8	8	8	8	8	8	8
2 Electronics	0	0	0	0	0	0	0	0
No. of cases	0	0	0	0	0	0	0	0
3 Electrical app	20				6			
No. of cases	1	1	1	1	1	1	1	1
4 Wooden furniture	48							
No. of cases	1	1	1	1	1	1	1	1
5 Readymade garment	943		1587					2056
No. of cases	1	1	1	1	1	1	1	1
6 Tanning & leather	1698			11				37
No. of cases	3	3	3	3	3	3	3	3
7 Fish & Sea food	0	0	0	0	0	0	0	0
No. of cases	0	0	0	0	0	0	0	0
8 Light Mech. Engg.	2206	13		3	189	99	27	443
No. of cases	6	6	6	6	6	6	6	6

Table H5b--Cont'd.--2

Sales in hundred thousand taka (1986-87 prices)

	89	55	93	81	52	41	62	72
1 Agrobased No. of cases	1	1	1	1	1	1	1	1
2 Electronics No. of cases	47	0	0	0	0	0	0	3
3 Electrical app No. of cases	1	1	1	1	1	1	1	1
3 Electrical app No. of cases	0	0	0	0	0	0	0	0
3 Electrical app No. of cases	0	0	0	0	0	0	0	0
4 Wooden furniture No. of cases	82	0	0	0	0	53	20	95
4 Wooden furniture No. of cases	2	2	2	2	2	2	2	2
5 Readymade garment No. of cases	0	0	0	0	0	0	0	0
5 Readymade garment No. of cases	0	0	0	0	0	0	0	0
6 Tanning & leather No. of cases	0	0	0	0	0	0	0	0
6 Tanning & leather No. of cases	0	0	0	0	0	0	0	0
7 Fish & Sea food No. of cases	788	125	1825	1438	1130	1303	947	655
7 Fish & Sea food No. of cases	1	1	1	1	1	1	1	1
8 Light Mech. Engg. No. of cases	100	66	71	105	101	101	130	112
8 Light Mech. Engg. No. of cases	1	1	1	1	1	1	1	1

Table H5b.--Contd.-- 3

Employment								
1 Agrobased	18	18	19	20	20	21	21	20
No. of cases	38	38	38	38	38	38	38	38
2 Electronics	39	37	36	24	24	22	22	31
No. of cases	3	3	3	3	3	3	3	3
3 Electrical app	12	14	16	17	17	17	17	17
No. of cases	9	9	9	9	9	9	9	9
4 Wooden furniture	20	21	19	22	22	23	25	21
No. of cases	12	12	12	12	12	12	12	12
5 Readymade garment	3	1	2	2	3	3	6	6
No. of cases	3	3	3	3	3	3	3	3
6 Tanning & leather	15	15	16	16	16	16	16	16
No. of cases	10	10	10	10	10	10	10	10
7 Fish & Sea food	52	50	50	57	55	65	65	70
No. of cases	2	2	2	2	2	2	2	2
8 Light Mech. Engg.	23	22	22	23	23	23	23	23
No. of cases	44	44	44	44	44	44	44	44

Table H6a.--Aggregate values of variables of "New" firms, HIID/IND Sample

Sector	Year								
	1981	1982	1983	1984	1985	1986	1987	1988	
Investment in thousand taka (1986-87 prices)									
1 Agrobased	1415	105	852	13	256	2433	156	4690	
No. of units	5	7	12	13	16	22	26	35	
2 Electronics	0	0	0	0	0	392	1860	3157	
No. of units	2	2	2	3	3	4	6	7	
3 Electrical app	0	6308	3400	2345	162	3070	944	2580	
No. of units	1	4	5	7	9	13	16	20	
4 Wooden furniture	48	0	30	8	70	81	546	58	
No. of units	2	3	5	8	10	14	26	29	
5 Readymade garment	0	0	0	547	8825	110	4675	2232	
No. of units	0	0	0	1	5	6	7	8	
6 Tanning & leather	62056	29516	0	24794	15624	20787	10000	22512	
No. of units	1	1	1	2	3	4	5	8	
7 Fish & Sea food	0	0	0	0	1774	8695	3732	1015	
No. of units	0	0	0	0	2	2	4	5	
8 Light Mech. Engg.	130	148	462	488	2698	2097	1290	3564	
No. of units	4	7	11	16	19	26	30	36	
Total	Investment	63649	36057	4744	28195	29409	37665	23202	39808
	No. of units	15	24	36	50	67	91	121	148
Sales in hundred thousand taka (1986-87 prices)									
1 Agrobased	0	0	86	0	0	33	203	980	
No. of units	0	0	2	0	0	1	7	35	
2 Electronics	0	0	0	60	50	108	79	826	
No. of units	0	1	0	1	1	1	1	7	
3 Electrical app	0	0	0	0	9	32	60	420	
No. of units	0	0	"	0	1	2	5	20	
4 Wooden furniture	0	0	0	0	0	3	972	1656	
No. of units	0	0	0	0	2	5	6	8	
5 Readymade garment	0	0	0	0	118	503	972	1656	
No. of units	0	0	0	0	2	5	6	8	
6 Tanning & leather	0	0	0	684	1096	1362	1544	6480	
No. of units	0	0	0	1	2	2	2	8	

Table H6a.--Contd.

	7 Fish & Sea food	0	0	0	0	1518	814	2648	2580
	No. of units	0	0	0	0	3	1	4	5
	8 Light Mech. Engg.	0	0	226	204	267	269	300	828
	No. of units	0	0	2	2	3	4	12	36
Total	Sales	0	0	312	948	3058	3124	6030	14118
	No. of units	0	1	4	4	12	17	44	148
Employment									
	1 Agrobased	36	84	169	195	221	268	390	525
	No. of units	4	7	13	15	17	23	26	35
	2 Electronics	28	32	132	117	117	115	228	350
	No. of units	2	2	3	3	3	4	6	7
	3 Electrical app	5	100	140	147	171	173	256	360
	No. of units	1	4	5	7	9	13	16	20
	4 Wooden furniture	24	27	45	49	81	97	338	377
	No. of units	2	3	5	7	9	13	26	29
	5 Readymade garment	0	0	0	234	630	1094	1528	1808
	No. of units	0	0	0	2	5	7	8	8
	6 Tanning & leather	0	0	400	604	693	605	740	800
	No. of units	0	0	1	2	3	4	5	8
	7 Fish & Sea food	0	0	0	0	705	971	1100	975
	No. of units	0	0	0	0	3	4	5	5
	8 Light Mech. Engg.	117	138	165	224	260	270	372	396
	No. of units	3	6	11	16	20	25	31	36
Total	Employment	210	381	1051	1570	2878	4324	4952	5591
	No. of units	12	22	38	52	69	93	123	148

~~37a~~
38A

nontextile

Table H6c.--Mean values of variables of "New" firms, HIID/IND Sample

Sector	Year							
	1981	1982	1983	1984	1985	1986	1987	1988
Investment in thousand taka (1986-87 prices)								
1 Agrobased	283	15	71	1	16	111	6	1345
No. of units	5	7	12	13	16	22	26	35
2 Electronics	0	0	0	0	0	98	310	451
No. of units	2	2	2	3	3	4	6	7
3 Electrical app	0	1577	680	335	18	236	310	451
No. of units	1	4	5	7	9	13	16	20
4 Wooden furniture	24		6	1	7	6	21	2
No. of units	2	3	5	8	10	14	26	29
5 Readymade garment	0	0	0	547	1765	18	584	279
No. of units	0	0	0	1	5	6	7	8
6 Tanning & leather	0	0	80317	12397	5208	5197	933	203
No. of units	0	0	1	2	3	4	5	8
7 Fish & Sea food	0	0	0	0	887	4348	933	203
No. of units	0	0	0	0	2	2	4	5
8 Light Mech. Engg.	3261	24	42	28	142	81	43	99
No. of units	4	7	11	16	19	26	30	36
Total								
Investment	1036	286	2363	563	439	414	192	269
No. of units	14	23	36	50	67	91	121	148
Sales in hundred thousand taka (1986-87 prices)								
1 Agrobased	0	0	43	0	0	33	29	28
No. of units	0	0	2	0	0	1	7	35
2 Electronics	0	0	0	60	50	66	79	118
No. of units	0	1	0	1	1	1	1	7
3 Electrical app	0	0	0	0	9	17	12	21
No. of units	0	0	0	0	1	2	5	20
4 Wooden furniture	0	0	0	0	0	3	32	12
No. of units	0	0	0	0	0	1	7	29
5 Readymade garment	0	0	0	0	29	101	162	207
No. of units	0	0	0	0	2	5	6	8
6 Tanning & leather	0	0	0	654	548	681	772	810
No. of units	0	0	0	1	2	2	2	8

Table H6c.--Contd.

	7 Fish & Sea food	0	0	0	0	506	814	662	516
	No. of units	0	0	0	0	3	1	4	5
	8 Light Mech. Engg.	0	0	113	102	89	67	25	23
	No. of units	0	0	2	2	3	4	12	36
Total	Sales	0	0	78	237	255	183	137	95
	No. of units	0	1	4	4	12	17	44	148
Employment									
	1 Agrobased	9	12	13	13	13	12	15	15
	No. of units	4	7	13	15	17	23	26	35
	2 Electronics	14	16	44	39	39	29	38	50
	No. of units	2	2	3	3	3	4	6	7
	3 Electrical app	5	25	28	21	19	13	16	18
	No. of units	1	4	5	7	9	13	16	20
	4 Wooden furniture	12	9	9	7	9	7	13	13
	No. of units	2	3	5	7	9	13	26	29
	5 Readymade garment	0	0	0	117	126	156	191	226
	No. of units	0	0	0	2	5	7	8	8
	6 Tanning & leather	0	0	400	302	231	151	148	100
	No. of units	0	0	1	2	233	4	5	8
	7 Fish & Sea food	0	0	0	0	235	243	220	195
	No. of units	0	0	0	0	3	4	5	5
	8 Light Mech. Engg.	39	23	15	14	13	11	12	11
	No. of units	3	6	11	16	20	25	31	36
Total	Employment	18	17	28	30	42	46	40	38
	No. of units	12	22	38	52	69	93	123	148

Table H7.—HIIID/IND Sample Survey investment in thousands of 1986-87 takas, 1980-81 through 1987-88^a

Year	Investment in constant Taka thousands by						
	12	12	5	5	Other Subsectors		Total 202 Firms
	Public Jute Textile Mills	Public Cotton Textile Mills	Private Jute Textile Mills	Private Cotton Textile Mills	20 Old Firms	148 New Firms as of 87-88	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
1980-81	58602	64191	27266	8160	22170	67649	244038
1981-82	111933	141656	22749	13490	93	36097	326018
1982-83	85264	151475	25886	14547	2144	4744	284060
1983-84	69539	35439	25200	9426	65	28195	167867
1984-85	38034	42149	16418	17620	1293	29409	144923
1985-86	50879	40725	46094	33571	1540	37665	210474
1986-87	77671	90468	57983	35825	174	23200	285321
1987-88	26459	41024	35815	34027	4939	39808	183072
Total	518381	607127	258414	166666	32418	264366	1847392

^aThe values of the first 5 columns are for the 1980-81 cohort which reported in 1980-81 and for each year thereafter. In Col. 6 are the values for all the new firms of the sample, which entered from 1980-81 through 1987-88. Great caution must be observed in blowing up these values as the six groups of firms are not proportional to the respective populations. However, since all the six series move, by and large, in unison, the changes over time are unlikely to be grossly biased. For a more realistic view, one must refer to the disaggregate tables H1 through H6.

Table H8.--New Units and their investment in the chosen subectors in the recent 3 years of 1985-1988, HIS: Factory Establishment Sector

Subsector	Annual Mean Number of New Units during 1985-88 as % of Total Units in 1987-88	Annual Mean Value of Investment in New Units during 1985-88 as % of Capital Stoc in 1987-88
(1)	(2)	(3)
31	7.6	3.60
3114	6.7	190.67
3201	..	4.35
3203	..	3.15
3221	11.0	1.15
3231-33	10.3	3.21
3321	16.7	0.59
3802, 4, 5	13.7	0.82
3832	14.7	2.66
3839	17.3	2.61

Table H9.--Desirable ratios by subsector, HIS:Factory Establishments

INDUSTRY	Q/KK	L/KK	VA/Q	X/Q	INV	RM	Q/L		RR	S
					RATIO	RATIO	in 100			
3112 Dairy, ice plant	0.42	0.63	0.50	0.000	1.00	0.79	0.019	657	0.11	0.88
3114 Fish & Sea Food	2.36	0.52	0.10	0.464	0.91	1.00	1.235	4502	0.17	0.20
3116 Edible Oils	1.98	0.77	-0.42	0.000	1.00	0.95	0.000	2577	-0.94	0.83
3118 Grain Milling(Flour)	1.46	0.25	0.09	0.000	0.34	1.00	0.000	5793	0.10	0.89
3119 Rice Milling	2.47	1.41	0.10	0.000	1.00	1.00	0.383	1757	0.14	0.62
3122 Bakery Products	3.97	2.19	0.21	0.000	1.00	0.81	0.012	1812	0.51	0.77
3128 Edible Salt	5.55	2.27	0.26	0.000	1.00	0.97	0.000	2439	1.03	0.10
3201 Cotton Textile	2.40	2.18	0.40	0.059	0.96	0.35	0.011	1101	0.52	0.03
3203 Jute	1.71	3.09	0.39	0.877	0.96	0.94	0.001	553	-0.09	0.00
3204 Silk & Synthetic Tex.	2.03	0.98	0.47	0.000	1.00	0.15	0.025	2060	0.73	0.38
3206 Handloom Textiles	5.01	9.31	0.14	0.000	1.00	0.86	0.272	538	0.01	0.45
3213 Knitting Mills	1.39	1.58	0.20	0.000	1.00	0.43	0.100	880	0.15	0.85
3216 Spool & Thread Pail	1.51	1.48	0.15	0.000	1.00	0.88	1.302	1025	0.12	0.67
3221 Ready-made Garments	4.39	3.61	0.30	0.925	0.29	0.26	3.943	1216	0.99	0.00
3223 Local Garments	2.55	3.86	0.48	0.000	0.13	0.79	0.195	660	0.84	0.85
3231 Tanning & Finish	3.40	0.19	0.34	0.715	1.00	0.95	0.000	17689	1.10	0.62
3311 Saw & Planing Mills	1.54	0.53	0.44	0.000	1.00	1.00	0.006	2923	0.56	0.88
3321 Wooden Furniture	2.62	2.38	0.43	0.000	1.00	0.93	0.002	1100	0.59	0.70
3422 Print & Publish Book	0.36	0.48	0.35	0.000	0.77	0.82	0.053	762	0.04	0.75
3569 Misc. Plastic Prod.	1.66	0.63	0.21	0.000	0.81	0.01	0.035	2636	0.26	0.87
3802 Hand & Edge Tools	2.76	4.60	0.48	0.000	1.00	0.17	0.047	599	0.62	0.50
3804 Furniture & Fixture	2.04	1.95	0.47	0.000	0.56	0.48	0.000	1050	0.67	0.80
3805 Structural Metal Pro.	4.45	1.43	0.78	0.000	1.00	0.88	0.000	3123	3.25	0.85
3807 Heat Cook Equip.	8.71	2.64	0.27	0.000	1.00	0.53	0.060	3295	1.98	0.71
3819 Fabricated Metal Pro.	0.48	0.41	0.30	0.000	0.97	0.06	0.010	1190	0.06	0.80
3825 Industrial Machinery	0.30	0.35	0.57	0.000	1.00	0.43	0.000	849	0.10	0.71
3829 Machinery Equip.n.e.c	0.72	1.49	0.59	0.000	1.00	0.19	0.000	479	0.22	1.00
3832 Radio & Television.	1.82	0.69	0.28	0.000	1.00	0.07	0.360	2624	0.36	0.00
3839 Electrical Apparatus	0.93	0.78	0.26	0.002	0.83	0.29	0.038	1189	0.13	0.62
4412 Jewelleries	5.05	5.95	0.26	0.000	1.00	0.37	0.013	849	0.93	1.00

Table H10.--Ranks of desirable ratios by subsector, HIS:Factory Establishments ^a

INDUSTRY	Q/KK	L/KK	VA/Q	X/Q	INV RM		LF/LM	Q/L	RR	S	R
					RATIO	RATIO					
3112 Dairy, ice plant	28	22	4	30	1	12	15	26	23	5	19
3114 Fish & Sea Food	14	25	27	4	5	1	3	3	18	25	7
3116 Edible Oils	17	20	30	30	1	4	30	9	30	10	24
3118 Grain Milling(Flour)	23	29	29	30	10	1	30	2	25	3	16
3119 Rice Milling	12	17	28	30	1	1	4	13	20	20	10
3122 Bakery Products	7	10	22	30	1	11	17	12	14	13	15
3128 Edible Salt	2	9	20	30	1	2	30	10	4	26	6
3201 Cotton Textile	13	11	11	5	3	19	18	17	13	27	21
3203 Jute	19	6	12	2	4	5	22	28	29	28	17
3204 Silk & Synthetic Tex.	16	18	7	30	1	24	14	11	8	24	20
3206 Handloos Textiles	4	1	26	30	1	9	6	29	28	23	9
3213 Knitting Mills	24	13	24	30	1	17	8	21	19	8	23
3216 Spool & Thread Ball	22	15	25	30	1	7	2	20	22	18	18
3221 Readymade Garments	6	5	16	1	11	21	1	14	5	30	4
3223 Local Garments	11	4	5	30	12	13	7	25	7	7	13
3231 Tanning & Finish	8	30	14	3	1	3	30	1	3	21	2
3311 Saw & Planing Mills	21	24	9	30	1	1	20	6	12	4	8
3321 Wooden Furniture	10	9	10	30	1	6	21	18	11	17	14
3422 Print & Publish Book	29	26	13	30	8	10	10	24	27	14	30
3569 Misc. Plastic Pro.	20	23	23	30	7	27	13	7	16	6	27
3802 Hand & Edge Tools	9	3	6	30	1	23	11	27	10	22	11
3804 Furniture & Fixture	15	12	8	30	9	15	30	19	9	12	26
3805 Structural Metal Pro.	5	16	1	30	1	8	30	5	1	9	1
3807 Heat Cook Equip.	1	7	18	30	1	14	9	4	2	16	3
3819 Fabricated Metal Pro.	27	27	15	30	2	26	19	15	26	11	29
3825 Industrial Machinery	30	28	3	30	1	16	30	22	24	15	25
3829 Machinery Equip.n.e.c	26	14	2	30	1	22	30	30	17	1	12
3832 Radio & Television	18	21	17	30	1	25	5	8	15	29	22
3839 Electrical Apparatus	25	19	21	6	6	20	12	16	21	19	28
4412 Jewelleries	3	2	19	30	1	18	16	23	6	2	5

^aA regression of the composite rank (R) on ERAs is given below
(zero correlation):

FOOTNOTES

1. The business-school-type research includes the following studies:

1. Report No.7: Agrobased Industries by Imdadul Huq
2. Report No. 8: Electronics Industry by Dr. Syed Sattar
3. Report No. 9: Light Mechanical Engineering Industries by Drs. Nurul Amin and Ahsan Ali Khan
4. Report No. 10: Ready-to-Wear Garment Industry by Professor Monty Graham
5. Report No. 11: The Textile Industry by Professor Momtaz Ahmed
6. Report No. 12: Leather and Leather Goods by Professor M. M. Huq
7. Report No. 13: Wood Furniture and Wood Products by Mr. A. T. M. Zahurul Huq, Associated Professor.

Table H11.--Regressions of chosen ratios on ERAs and other variables, HIID/IND Factory Establishment Survey

Cross-Section for 1987-88

$$R = 15.04 + .031 \text{ ERA}; \quad R = .0300; \text{ Obs} = 30$$

(4.5) (0.16)

First differences, 1986-88 over 1980-82 for dependent variables and for ERA, cross-section for 1987-88 for other independent variables

$$GS = .66 + .02 \text{ L/K} + .51 \Delta \text{ERA} - 0.042 \text{ Q/K}; \quad R^2 = .1399, \text{ Obs} = 30$$

(6.51) (.52) (1.77) (-1.11)

$$GL = .32 + .23 \text{ VA/Q} - 0.014 \text{ L/K} + .14 \text{ GS} - 1.19 \text{ RMR} - 0.17 \Delta \text{ERA} +$$

(1.90) (1.04) (-0.44) (.91) (-1.43) (-.70)

$$0.006 \text{ Q/K}; \quad R^2 = .1758, \text{ Obs} = 30$$

(0.19)

$$GI = .74 - 0.33 \text{ VA/Q} - 0.05 \text{ L/K} - 0.40 \text{ GS} - 10.17 \text{ RMR} - 0.57 \Delta \text{ERA} +$$

(1.37) (-.46) (-0.5) (-.0.82) (-0.39) (-0.72)

$$0.006 \text{ Q/K}; \quad R^2 = 0.0983, \text{ Obs} = 30$$

(0.07)

$$GU = .14 + .025 \text{ Q/K} + .12 \text{ VA/Q} - .02 \text{ L/K} + 0.09 \text{ GS} - 1$$

(1.21) (1.22) (.79) (-.99) (.84)

$$-.012 \text{ RMR} - 0.016 \Delta \text{ERA}; \quad R^2 = .1168, \text{ Obs} = 30$$

(-.13) (-0.10)

$$RR = 0.35 + .16 \text{ RMR} - .04 \text{ S} + 2.08 \text{ VA/Q} +$$

(-1.82) (.84) (-.21) (7.11)

$$0.006 \text{ Q/L}; \quad R^2 = 0.4023, \text{ Obs} = 91$$

(2.99)

Table H12.--Desirable ratios by Size Class,HIS:Factory Establishments^a

SIZE CLASS	Q/KK	L/KK	VA/Q	X/Q	INV RATIO	RM RATIO	LF/LM	Q/L in 100's	RR
1	4.04	3.60	0.17	0.00	1.00	0.78	0.07	1125	0.51
2	2.35	1.65	0.20	0.00	1.00	0.51	0.03	1426	0.31
3	3.27	0.87	0.30	0.50	0.77	0.84	0.06	3780	0.86
4	1.94	6.82	0.25	0.45	0.85	0.77	8.04	284	0.36
5	1.35	0.90	0.26	0.00	0.66	0.52	0.12	1506	0.21
6	1.40	0.65	0.13	0.59	0.69	0.85	0.53	2158	0.09
7	1.58	1.23	0.27	0.38	0.97	0.73	0.09	1281	0.18
8	2.08	2.89	0.39	0.50	0.97	0.66	0.00	722	0.12

^a All ratios are defined in measures such that higher values are more desirable.

Table H10.--Ranks of desirable ratios by Size Class,HIS:Factory Establishments

SIZE CLASS	Q/KK	L/KK	VA/Q	X/Q	Domestic INV RATIO	Domestic RM RATIO	LF/LM	Q/L in 100's	RR	^a R
1	1	2	7	8	1	3	5	6	2	2
2	3	4	6	8	1	8	7	4	4	6
3	2	7	2	3	6	2	6	1	1	1
4	5	1	5	4	5	4	1	8	3	3
5	8	6	4	8	8	7	3	3	5	8
6	7	8	8	1	7	1	2	2	8	4
7	6	5	3	5	3	5	4	5	6	7
8	4	3	1	2	3	6	8	7	7	5

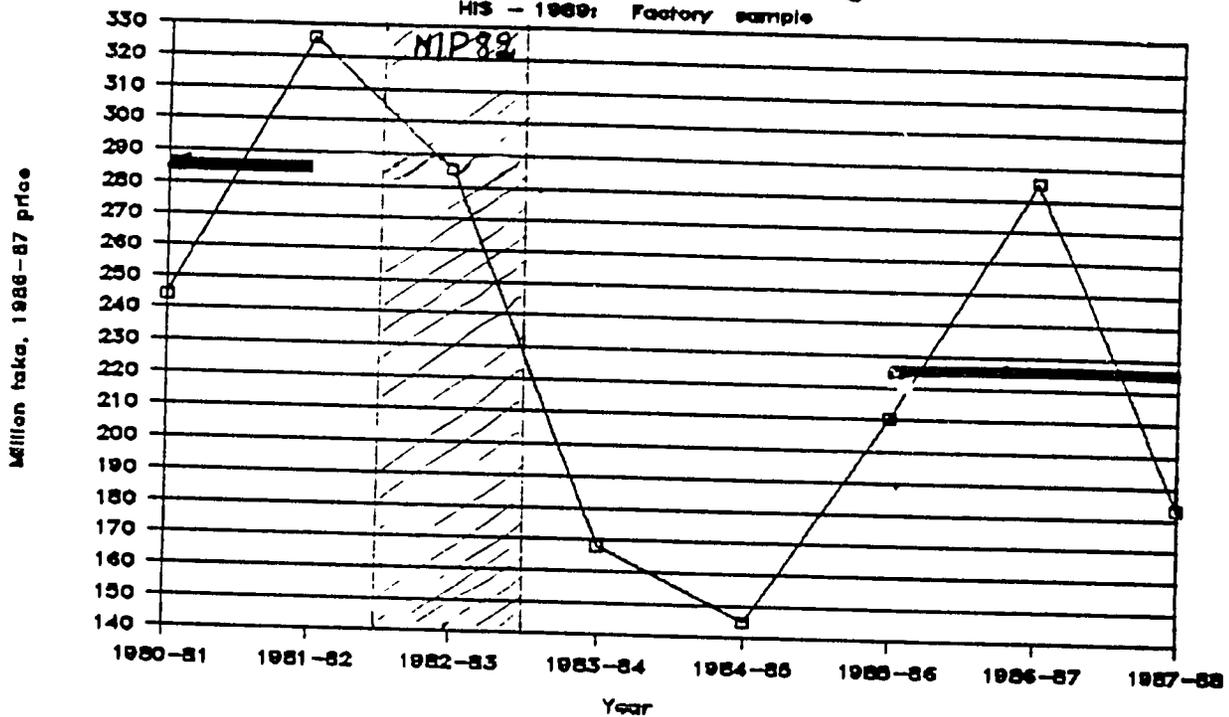
^a Composite rank: $R = \prod_i r_i$. The ranking of this column is done from below.

FIGURES

1/5c

Fig.HI.--Investment of mfg. firms

HIS - 1989: Factory sample



The sample consists of 12 public firm and 5 private firms in each of jute and cotton textiles, 20 non-textile old firms, and 148 nontextile new firms, where an old firm is the one which existed before 1980-81 and new are those which entered after 1980-81.

Source: Working paper No. 20, Table H7.

Fig. --Investment of mfg. firms

HIS-1989: Factory sample

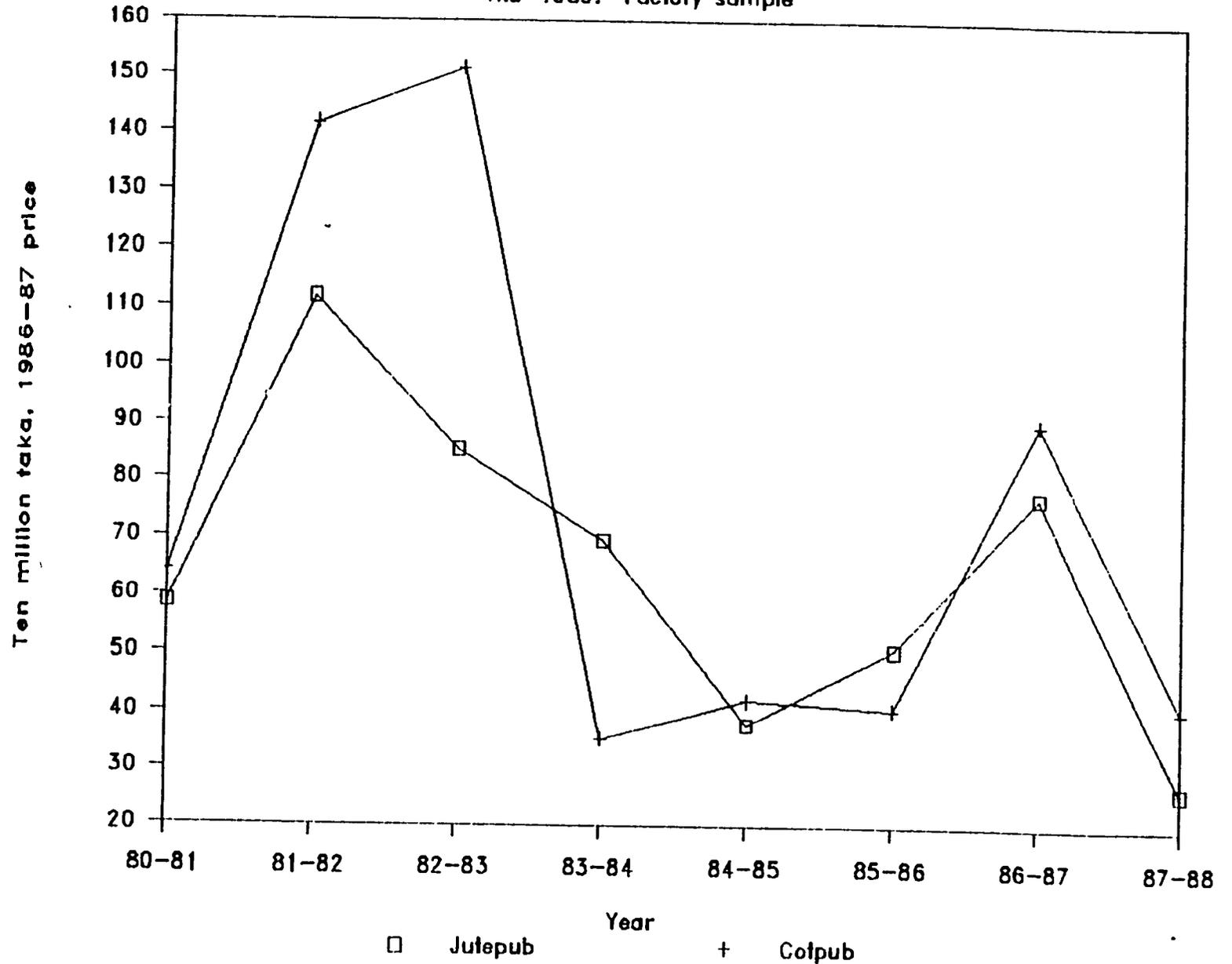


Fig.H2.--Investment in public jute and cotton textile mills, HIS Factory Sample 1987-88 (Millions of 1986-87 takas)

Source: Table H7, Cols 1 and 2

Fig. --Investment of mfg. firms

HIS-1989: Factory sample

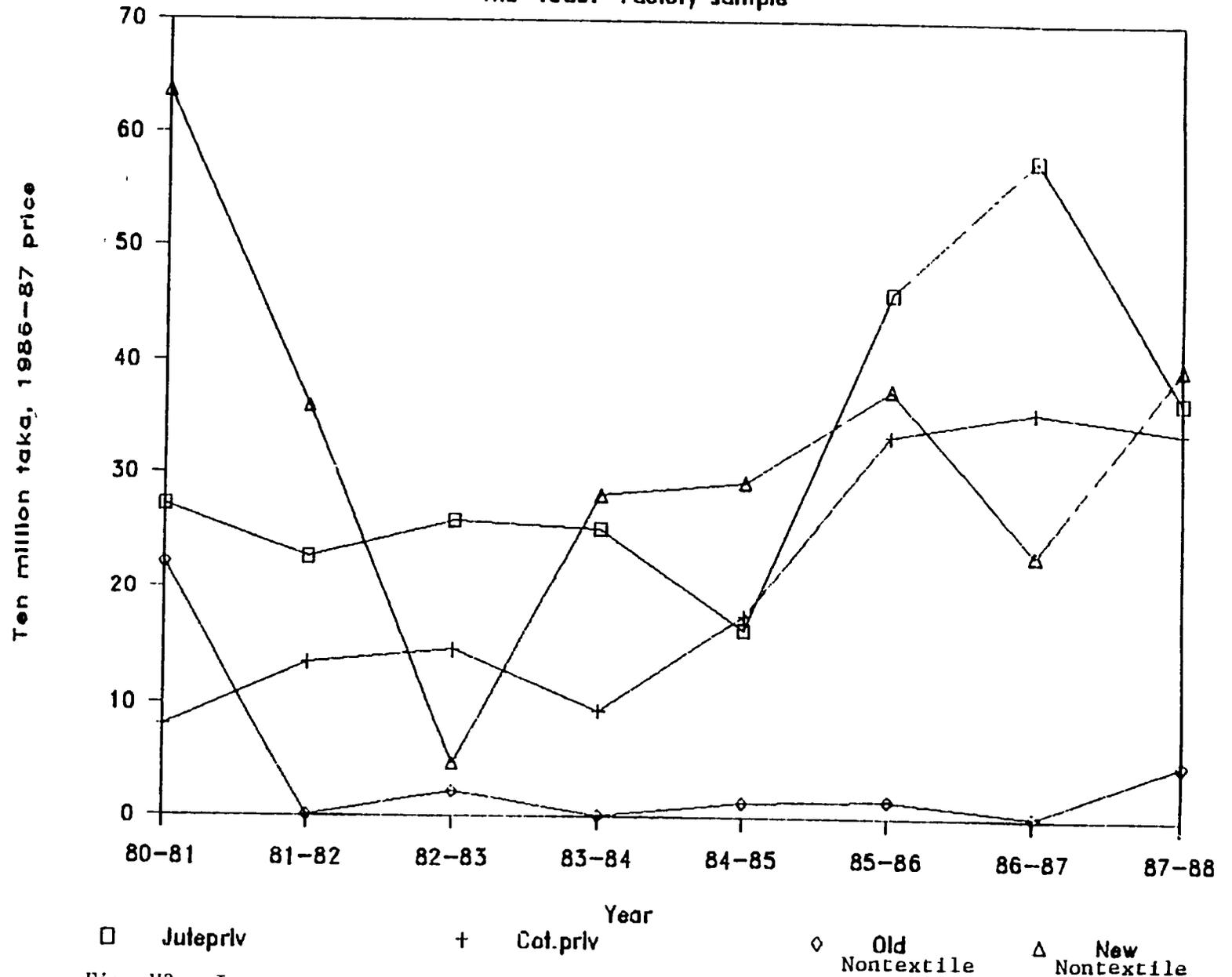


Fig. H3.--Investment in private firms: jute, cotton, nontextile old, and nontextile new firms, HIS Factory Sample, data for 1987-88 (Millions of 1986-87 Lakas)
Source: Table H7, Cols. 3 through 6.

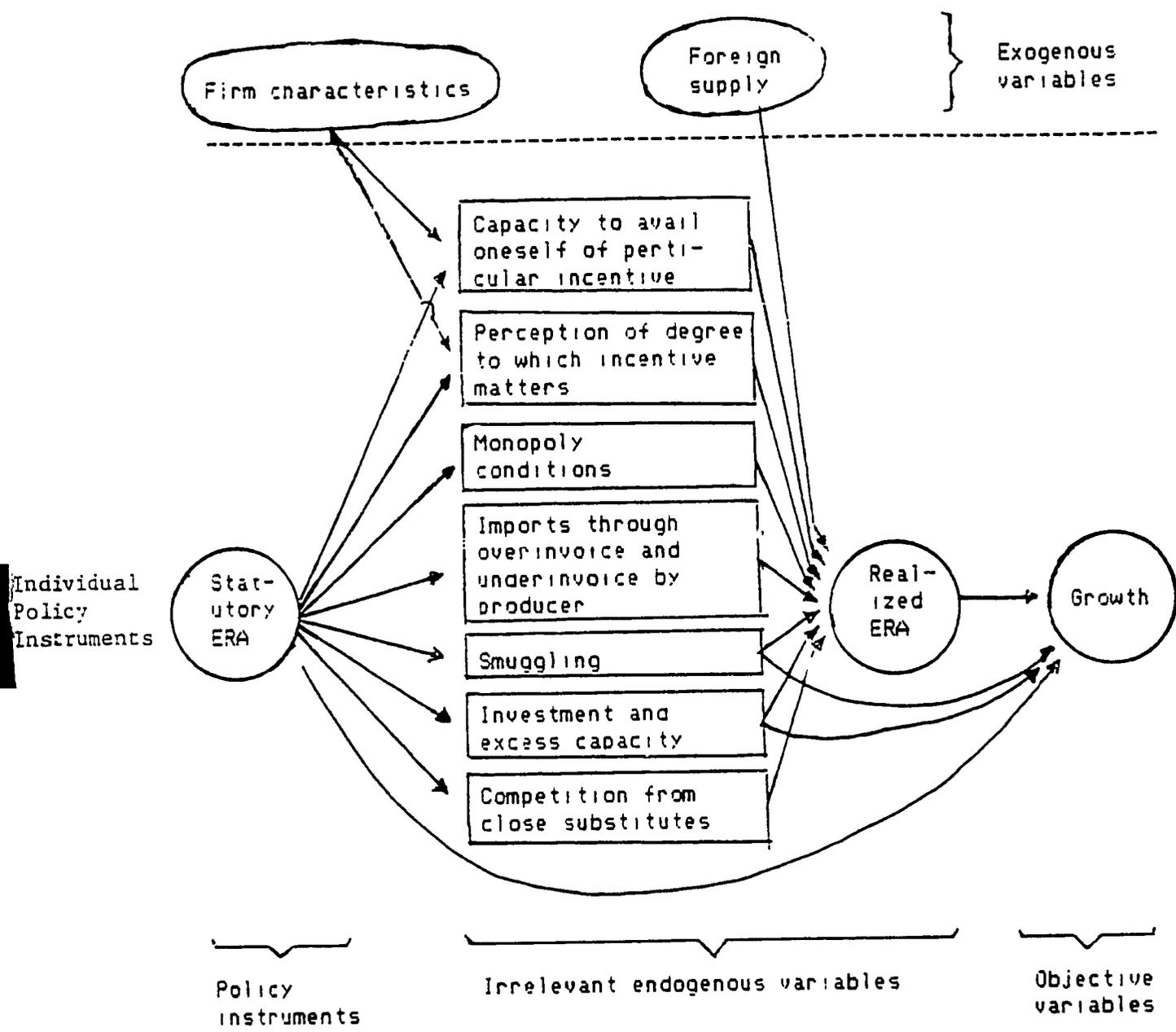


Fig. H .--Flow chart relating SERA, the effects of firm and industry characteristics, RERA, and objectives of policies

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APPENDICES

Appendix HA

AN IDENTIFICATION OF DYNAMIC SECTORS

Evidence from Existing Data

In Tables H1 and H2 are reported annual incremental rates of expansion of establishments and of employment, respectively, developed from the Economic Census, 1986 (earlier reported in Working Paper No. 12). These rates were computed separately for 3 epochs: (1) the post-Independence, war-ravaged period from 1971 through 1975; (2) the reconstruction period of 1976 through 1981, which saw an incipient progress from nationalization and centralized planning to moderate liberalization and decentralization; and (3) a period of significant advance toward liberalization and privatization ushered in by the New Industrial Policy of 1982 (NIP82).

Definition of rates of growth used here

The rates reported in Tables H1 and H2 are simple mean values for different epochs based on year-to-year rates of entry of new establishments and change in new employment with respect to the new entries and employment of the previous year. Note that in the denominator is the new number of establishments and new employment created in the previous year and not total, cumulated magnitude of that year. We use the incremental rates of growth instead of the annual rate of expansion of total

magnitudes, because we have data on new establishments and incremental employment only. Accordingly, the measure used here gives higher rates than would the conventional measure. Caution is therefore needed against misinterpreting the present incremental rates as the rates of growth of total establishments and employment. The main purpose that these calculations serve is to identify high growth sectors from low growth sectors.

Criteria of identifying growth sectors

Tables H1 and H2 contain condensed information for the identification of growth sectors over a period of 15 years, at the 4-digit industry. The results of the application of as many as seven criteria or indicators of dynamism are summarized in Tables H1 and H2 to identify growth sectors and dynamic size-classes. These 7 criteria with their symbols as used in Table H1 and H2 for the attainment of the magnitudes described in the footnote to Table H1 are listed below:

- a) expansion in the number of new establishment:
higher the better (Symbol: first*)
- b) growth of employment resulting from new establishments:
higher the better (Symbol: second*)
- c) growth of investment: higher the better (Symbol:€)
- d) import content: lower the better, ceteris paribus
(Symbol: #)
- e) total factor productivity: higher the better (Symbol:\$)
- f) effective rates of assistance: lower the better,
ceteris paribus (Symbol: &)

g) predominance of small enterprises in industry:

provisionally assuming that the small is beautiful

(Symbol: S)

We begin with the rates of growth of establishments and employment as the base series, starting from the pre-Independence year (as the base) and ending in 1986. From this piece of information, we can rank 291 four-digit industries from high growth potential to low. The first panel of Table H1 and H2 lists those industries which experienced the higher of the rates of growth of the 3 epochs in Epoch 1: Panel 2 those which expanded at higher rates in Epoch 2: and Panel 3 those which attained higher rates of growth in Epoch 3. The industries are separately listed by Code 3: manufacturing industries and Code 6: trade and commerce.

As may be seen from these tables, there are a total of 77 four-digit manufacturing industries (Code 3) in Epoch 3. Of these, 53 in Epoch 1 and 34 in Epoch 2 either did not exist or had lower rates of expansion than those in Epoch 3. In general, therefore, growth industries were defined as follows: (A) for old industries, i.e., those which appear in all the 3 epochs, growth industries are defined as those which attained at least 10 percent rate of growth and a higher of the three mean rates of growth during the entire period of 1972 to 1986 than during either of Epochs 1 and 2. (B) In the case of those industries which appear in Epoch 3 but in no more than one of the previous

two epochs, we defined only those as growth industries in which the rate of growth was at least 15 percent and was higher in Epoch 3. (C) Those which attained at least 10 percent mean rate of growth during the entire period.

Criterion 1 and 2: Growth of establishments and employment (the *'s).--It may be seen that out of a total of 284 manufacturing and trade firms, 51 expanded at a higher rate during Epoch 1, 56 during Epoch 2, and 177 during Epoch 3. Of the latter, 87 (53 in manufacturing and 34 in trade) are the ones which attained annual rates of expansion of 15% or higher. The first asterisk in Tables H1 and H2 identifies growth industries according to the expansion of units and the second star according to employment expansion.

To obtain a broad perception of the number of firms that entered manufacturing industries in comparison to trade and commerce during each of the 3 epochs, see Table H2a. The rate of growth of industry was significantly higher during Epoch 2 than other epochs. The trade sector grew at a faster rate during the third epoch than the manufacturing sector. Over the entire period, the trade sector grew faster than industry, both in terms of units and employment.

The industries in which both establishments and employment increased at rates 15% or higher during Epoch 3, are identified by two stars (**) in Tables H1 and H2. It may be noted that about half of these industries are new, that is, they did not appear in the earlier two epochs. The noted high rates of growth

of the new industries of Epoch 3 may, however, be misleading, as they start from a low base. By way of correction, therefore, we omitted the first year in each case. Then we computed the year-to-year rates of growth (from which the mean epoch rates were calculated) for those industries which existed for at least 3 years of the 5-year epoch.

As many as 18 manufacturing industries attained rates of expansion of 15 percent in both the number of establishments and employment during Epoch 3. The two-star industries are noted below for ready reference:

- 3110: Fruits and Vegetable Processing
- 3115: Hydrogenated Vegetable Oils
- 3315: Bamboo products
- 3319: Wood, Cork Products, nec
- 3321: Wooden Furniture
- 3514: Fertilizer Manufacturing
- 3515: Pesticides and Insecticides
- 3570: Polythene Products
- 3659: Non-Metallic Minerals, nec, but they satisfy no other criterion
- 3719: Iron and Steel Industries
- 3722: Basic Copper and Copper Alloys
- 3805: Structural Metal Products
- 3833: Electrical Appliances
- 3846: Cycles and pedicabs
- 3862: Optical Goods
- 3921: Sports and Athletic Goods
- 3937: Pens and Other Articles

Particular note may be taken of food-processing industries 311 and 3115. More supporting evidence about the performance and potential of the food-processing components of agri-based industries (Code 31) will come out in subsequent sections.

Criterion 3: Investment (@).--Next we calculate the rates of growth of investment in various industries from the DI data. The industries which attained at least 15% mean annual incremental rate of growth of sanctioned investment in real terms, during Epoch 3, are marked by symbol @. It may be seen that 12 of the industries in Table H1 and only 3 in Table H2 appear with one or two *'s and an @. Three industries of Table H2 have two stars and an @. These industries are: 3115: Hydrogenated Vegetable Oils, 3221: Ready-Made Garments, and 3515: Pesticides and Insecticides. There are several other industries with @ mark which have respectable rates of growth of establishments and employment in, though not greater than 15%.

Criterion 4. Total-factor productivity, (#).--The results of positive total-factor productivity are superimposed upon the three growth rates of the preceding criteria. The industries that pass all the four tests include 3115: Hydrogenated Vegetable Oils and 3515: Pesticides and Insecticides. Several others, however, pass 3 of the 4 tests, as may be seen from Tables H1 and H2.

Criterion 5: Low import content (#).--We have data on the import content of investment only. Those industries in the DI data whose import component of investment is below 10% are marked by sign # in Table H1 and H2. Somewhat puzzlingly, this feature

raises the number of tests passed to 3 or 4 mainly by machinery-making industries (Code 33), for instance, 3822: Agricultural Mechanical Equipment; 3824: Textile Machinery; 3825: Industrial Machinery; 3833: Electrical Appliances and Fans; and 3834: Insulated Wires and Cables. The only other industry in this class is 3691: Bricks and Tiles. Perhaps these import-substitution industries of textile and industrial machinery use largely parts and tools produced by domestic blacksmiths from scrap, etc. Further exploration in the industries which are coming out foreign-exchange saving in investment is in order.

Criterion 6: Predominantly small-scale structure (S).--The predominance of small enterprises in an industry was judged by a careful inspection of the tabulation of industries by size-class. Most establishments in leather footwear, textile apparel, furniture, printing, rubber products, and metal works are small. Many of the present food-processing industries of Bangladesh are not really small, but many potential lines of products are small.

Criterion 7: Low effective rate of assistance (ERA) as a desirable criterion (%).--Finally we look at the calculated ERAs for different 4-digit industries. We consider that if an industry does well without too much assistance, it has high viability to survive and face competition. Lower the ERA the more they are discriminated against by policies. If discriminated industries nevertheless do well, they are likely to be dynamic.

Noteworthy in this category among manufacturing industries are 3115: hydrogenated vegetable oils, 3221: ready-made garments, 3515: pesticides and insecticides, 3551: tires and

tubes, 3712: iron and steel foundries, and 3803: Metal and
woodwork machines.

The industries that satisfy at least 4 of the 7 desirable
growth criteria are the following:

- 3113 Fruits and Vegetable
- 3115 Hydrogenated Vegetable Oils
- 3321 Wooden Furniture
- 3515 Pesticides, Insecticides
- 3559 Rubber Products
- 3572 Polythene Products
- 3802 Hand and Edge Tools
- 3805 Structural Metal Products
- 3823 Metal and Woodwork Machines
- 3937 Pens and Other Articles

There are several more which satisfy at least 3 of the
criteria, a majority of whom are close to the industries just
listed.

a. Processing dynamic subsector: food processing industries.--

Processed food products are highly protected but not so highly as
cash-crop agri-based industries, such as sugar, tobacco products,
paper, leather, wood, handloom cloth, basic metals, metal
products, and transport equipment. Some of these industries have
expanded appreciably. While others have not done so well, as may
be seen from Table H1 and H2. Most food-processing industries
tend to be small. Most agri-based nonfood industries are large.
Special note should be taken of industries coded 3113: food and
vegetable processing; 3115: hydrogenated vegetable oils; 3117:

inedible oils, 3128: edible salt; 3130: confectioneries; 3131: bakery products; and 3139: miscellaneous food products. Since food-processing industries have several other backward-linkage, growth-promoting, and import-substituting characteristics, these industries deserve a higher priority in ADP resource allocation than has heretofore been the case.

Table HA1.--Industries that expanded at a faster rate in Epoch 3
in terms of workers

Ind Code	Epoch 1	Epoch 2	Epoch 3	Entire Period	Industry Name
A. Manufacturing					
3000	0	0	12.61 s	4.20	3 Manufacturing N.A.D.
3113	9.95	0	40.8 **e\$e	16.92	3 Fruits and vegetables
3115	0	0	28.9 **e\$e	10.00	3 Hydrogenated veg. oils
3121	0	6.22	11.58 s	5.93	3 Gur
3141	0	0	0.16 e	0.05	3 Cigarettes
3145	0	3.22	6.65 \$H	3.29	3 Zarda and quivam
3149	0	5.04	8.38 s	4.47	3 Tobacco manufacturing
3211	0.54	1.76	2.03 eH	1.44	3 Cotton textiles
3212	0	0	24.82 *\$	8.27	3 Woolen textiles
3215	0	0.66	3.94 e\$	1.53	3 Narrow fabrics
3222	0.29	0.74	2.26 s	1.10	3 Made up text. ex. W.apparel
3224	0	0.06	0.41 \$	0.17	3 Carpets and rugs
3225	0	0	4.59	1.53	3 Cordage, rope & twine
3226	0	0.18	0.5 \$	0.23	3 Spooling & thread ball
3229	0	0.5	1.67	0.24	3 Textiles manufacturing n.e.c.
3231	0.01	0.52	4.28 \$e	1.60	3 Ready made garments
3239	0.55	0	4.6	1.72	3 Wearing apparel nec ex. footwear
3251	3.05	2.56	9.02 \$Hs	4.88	3 Leather footwear
3259	0	0	20.61 *	6.87	3 Other footwear nec. rubber, plas
3262	0	0	5.06	1.69	3 Pressing & baling of jute
3271	10.18	19.85	24.67 *s	18.23	3 Embroidery on text. & wearing app
3311	8.61	9.93	11.6 eHs	10.05	3 Saw and planing mills
3311	0	0.54	1.65 \$	0.73	3 Hard board and its prod.
3315	1.49	4.67	16.7 **s	7.61	3 Structural products of bamboo
3316	0	0	11.43	3.81	3 Cork & its products
3319	6.39	15.37	18.69 **s	13.48	3 Wood, cork products nec.
3321	9.83	11.78	17.57 **e\$e	13.06	3 Wooden furniture
3323	0	3.14	25.55 *	9.56	3 Cane and bamboo furniture
3411	0	0	1.07 e\$	0.36	3 Pulp and paper
3413	2.91	1.25	3.95 e\$	2.70	3 Articles of pulp pap bord
3421	0	1.34	5.93 \$	2.42	3 Printing of newspaper
3423	3.49	4.06	8.36 s	5.30	3 Printing and publ booh
3425	3.65	3.4	11.36 s	6.14	3 Book binding and etc.
3429	0	0.5	1.21 s	0.57	3 Printing, publishing nec.
3512	0	19.38	35.64 **	18.67	3 Unani medicine
3514	0	0	17.95 **e	5.98	3 Homoeopathic medicine
3521	0	0	3.58	1.19	3 Acids, alkalies & salt
3525	0	0	14.72 **e\$e	4.93	3 Pesticides, insecticides
3532	0	0.52	1.52 H	7.13	3 Perfumes & cosmetics
3533	1.1	6.44	9.13 e\$	3.56	3 Soap & detergents
3535	0	0	0.56 e\$e	0.19	3 Matches manufacturing
3537	0	8.82	9.17 \$	6.00	3 Candle manufacturing
3551	0	0	3.31 \$e	1.10	3 Tar alkatra
3561	0	0.66	6.04 \$e	2.23	3 Tyres & tubes
3569	0.39	3.1	9.5 eH\$e	4.33	3 Rubber products
3572	0	16.13	20.85 **e\$e	12.43	3 Polythene products
3621	0	0	0.27	0.09	3 Glass manufacturing
3691	0.8	2.78	9.93 eH	4.50	3 Bricks tiles & clay prod
3694	2.3	0	2.55 s	1.62	3 Lime, plaster & other product
3699	0	0	51.21 **	20.40	3 Non-metallic mineral nec.
3712	0.59	4.68	5.19 \$H\$	3.49	3 Iron and steel foundries
3713	0	2.89	7.24	3.38	3 Iron & Steel rerolling
3719	0	0	80.2 **s	26.73	3 Iron & steel industries
3722	0	0	18.08 **	6.03	3 Basic copper and copper alloys
3811	0	0	16.94 *	5.65	3 Cutlery
3812	5.65	5.4	6.94 eH\$e	6.00	3 Hand & edge tools
3815	18.08	11.34	20.71 **e\$e	16.71	3 Structural metal prod
3816	1.57	0.93	11.36	4.52	3 Metal stamping, coating etc.
3822	0	1.32	6.01	2.44	3 Utensils - steel
3823	7.18	4.65	13.79 \$H\$	8.54	3 Metal barrels & drums
3824	0	6.79	7.22 \$s	4.69	3 Tin cans & tinware
3825	7.3	0.58	11.37 \$e	6.42	3 Metal trunks
3826	2.63	4.92	6.4 e\$e	4.65	3 Bolts, nuts & rivets
3828	0	1.39	7.28 s	2.89	3 Safes and vaults
3829	0	4.66	9.87 \$H\$	4.84	3 Fabricated metal products nec

Table HA1--Contd.

3811	0	0	13.75	\$	4.60	3	Engines & turbines
3812	0	0.53	6.55	s	2.49	3	Agri machinery equip
3813	0	0	17.26	**\$	5.75	3	Metal & wood work machine
3814	0	C	3.25	#	1.08	3	Textile machinery
3819	0.41	2.16	6.53	\$4	3.15	3	Machinery & equip nec.
3811	0	2.37	3.76	s	2.04	3	Elect. industrial machinery
3841	0	0.69	8.59	#	3.09	3	Electrical appliances
3844	0	1.87	13.73	#	5.20	3	Insulated wire & cables
3845	0	0	1.61	\$.54	3	Electrical bulbs & tubes
3846	1.83	3.8	9.54	\$@	5.06	3	Batteries
3851	5.38	6.59	15.31	*#	9.09	3	Motor vehicles
3856	13.13	0.71	20.38	**\$	11.41	3	Cycles & pedicabs
3858	9.59	2.44	13.45	s	8.49	3	Animal and hand-drawn carts
3872	0	0	18.23	**#	6.08	3	Optical goods
3911	0	0	0.87		0.29	3	Wood, cane & bamboo handicrafts
3912	18.92	0	34.9	s	17.94	3	Paper & paper prod. handicraft
3921	0	0	22.42	**	9.47	3	Sports & athletic goods
3937	9.95	17.76	22.89	**\$s	16.87	3	Pens and other articles
3938	0	0	7.02	\$s	2.34	3	Umbrella & walking sticks
3939	0	0	13.46		4.49	3	Buttons, studs, fastener
3943	6.59	9.76	10.37	s	9.91	3	Bangles(ex. precious metals)

^aThe symbols are defined in the text. Briefly:

1. First * = Industries in which the number of establishments grew at a higher rate in Epoch 3 than in the previous two epochs and attained at least a 10 percent incremental rate of expansion of establishments during the entire period
2. Second * = Industries in which employment grew at a higher rate in Epoch 3 than in the previous two epochs and attained at least 10 percent incremental rate of growth of employment during the entire period
3. @ = Industries that attained at least 15 percent mean annual incremental rate of growth of investment
4. \$ = Industries whose TFP index of the period 1974-75 through 1983-84 exceeded unity
5. # = Industries with import content of investment below 10 percent
6. S = Industries with predominantly small establishments
7. & = Industries that are below the median ERA

Table MA2 .--Industries that expanded at a faster rate in Epoch 3 in terms of units (No. of establishments)

Ind Code	Epoch 1	Epoch 2	Epoch 3	Entire Period	Name of Industry
3000	0	0	12.61 s	4.20	3 Manufacturing N.A.D.
3113	9.95	0	40.8 **es\$	16.92	3 Fruits and vegetables
3115	0	0	28.7 **es\$	10.00	3 Hydrogenated veg. oils
3121	0	6.22	11.58 s	5.93	3 Gur
3141	0	0	0.16 \$	0.05	3 Cigarettes
3145	0	3.22	6.65 \$	3.29	3 Zarda and quivam
3149	0	5.04	8.38 s	4.47	3 Tobacco manufacturing
3211	0.54	1.76	2.03 \$	1.41	3 Cotton textiles
3212	0	0	24.87 \$	3.27	3 Woolen textiles
3215	0	0.66	3.91 \$	1.53	3 Narrow fabrics
3222	0.29	0.74	2.76 s	1.10	3 Made up text. ex. W. apparel
3271	0	0.05	0.41 \$	0.17	3 Carpets and rugs
3275	0	0	4.50	1.53	3 Cordage, rope & twine
3226	0	0.18	0.5 \$	0.23	3 Spooling & thread ball
3229	0	0.5	1.67	0.24	3 Textiles manufacturing n.e.c.
3231	0.01	0.52	4.28 \$	1.60	3 Ready made garments
3239	0.55	0	4.6	1.72	3 Wearing apparel nec ex. footwear
3251	3.05	1.56	9.02 \$s	4.88	3 Leather footwear
3259	0	0	20.61 *	6.87	3 Other footwear nec. rubber, plast
3262	0	0	5.0%	1.69	3 Pressing & baling of jute
3271	10.19	1.85	24.67 *s	18.23	3 Embroidery on text. & wearing appa
3311	8.61	2.93	11.6 \$s	10.05	3 Saw and planing mills
3314	0	0.54	1.65 \$	0.73	3 Hard board and its prod.
3315	1.49	4.67	16.7 **s	7.61	3 Structural products of bamboo
3316	0	0	11.43	3.81	3 Cork & its products
3319	6.39	15.37	18.69 **s	13.48	3 Wood, cork products nec.
3321	9.83	11.78	17.57 **es	13.06	3 Wooden furniture
3323	0	1.14	25.55 *	9.56	3 Cane and bamboo furniture
3411	0	0	1.07 \$	0.36	3 Pulp and paper
3413	2.91	1.75	3.95 \$s	2.70	3 Articles of pulp pap bord
3421	0	1.31	5.93 \$	2.42	3 Printing of newspaper
3423	3.49	4.06	8.36 s	5.30	3 Printing and publ book
3425	3.65	3.4	11.36 s	6.14	3 Book binding and etc.
3429	0	0.5	1.21 s	0.57	3 Printing, publishing nec.
3512	0	19.38	36.64 **	18.67	3 Unani medicine
3514	0	0	17.95 **e	5.98	3 Homoeopathic medicine
3521	0	0	3.58	1.19	3 Acids, alkalis & salt
3525	0	0	14.78 **es\$	4.93	3 Pesticides, insecticides
3532	0	0.62	1.52 \$	7.13	3 Perfumes & cosmetics
3533	1.1	6.44	9.13 \$s	3.56	3 Soap & detergents
3535	0	0	0.56 \$s\$	0.19	3 Matches manufacturing
3537	0	2.82	9.17 \$	6.00	3 Candle manufacturing
3551	0	0	3.31 \$&	1.10	3 Tar alkatra
3561	0	0.66	6.04 \$&	2.23	3 Tyres & tubes
3569	0.39	1.1	7.5 \$s\$	4.33	3 Rubber products
3572	0	16.13	20.85 **\$s	12.43	3 Polythene products
3621	0	0	0.27	0.09	3 Glass manufacturing
3691	0.8	2.78	9.93 \$	4.50	3 Bricks tiles & clay prod
3694	2.3	0	2.55 s	1.62	3 Lime, plaster & other product
3699	0	0	61.21 **	20.40	3 Non-metallic mineral nec.
3712	0.59	4.68	5.19 \$s\$	3.49	3 Iron and steel foundries
3713	0	2.89	7.24	3.78	3 Iron & Steel rerolling
3719	0	0	80.2 **\$	26.73	3 Iron & steel industries
3722	0	0	18.08 **	6.03	3 Basic copper and copper alloys
3811	0	0	16.94 *	5.65	3 Cutlery
3812	5.65	5.4	6.94 \$s\$	6.00	3 Hand & edge tools
3815	18.08	11.34	20.71 **\$s	16.71	3 Structural metal prod
3816	1.57	0.93	11.36	4.52	3 Metal stamping, coating etc.
3822	0	1.32	6.01	2.44	3 Utensils - steel
3823	7.18	1.65	13.79 \$s	8.54	3 Metal barrels & drums
3824	0	6.79	7.22 \$s	4.69	3 Tin cans & tinware
3825	7.3	0.58	11.17 \$s	6.42	3 Metal trunks
3826	2.63	1.92	6.4 \$s\$	4.65	3 Bolts, nuts & rivets
3828	0	0	7.25 \$	2.89	3 Safes and vaults
3829	0	1.66	9.97 \$s	4.84	3 Fabricated metal products nec

Table HA2--Contd.

3811	0	0	11.75	\$	4.60	3	Engines & turbines
3812	0	0.84	6.58	s	2.49	3	Agri machinery equip
3833	0	0	17.26	**\$4s	5.75	3	Metal & wood work machine
3834	0	0	3.25	#	1.08	3	Textile machinery
3839	0.44	2.18	6.57	\$#	3.15	3	Machinery & equip nec.
3841	0	2.37	3.76	s	2.04	3	Elect. industrial machinery
3843	0	0.69	8.59	#	3.09	3	Electrical appliances
3844	0	1.87	13.73	#	5.20	3	Insulated wire & cables
3845	0	0	1.61	\$.54	3	Electrical bulbs & tubes
3846	1.83	3.8	9.54	\$@#	5.06	3	Batteries
3854	5.38	6.59	15.31	*#	9.09	3	Motor vehicles
3856	13.13	0.71	20.38	**\$	11.41	3	Cycles & pedicabs
3858	9.59	2.44	13.45	s	8.49	3	Animal and hand-drawn carts
3872	0	0	18.23	**#	6.08	3	Optical goods
3911	0	0	0.87		0.29	3	Wood, cane & bamboo handicrafts
3912	18.92	0	34.9	s	17.94	3	Paper & paper prod. handicraft
3921	0	0	22.42	**	9.47	3	Sports & athletic goods
3937	9.95	17.76	22.89	**\$s	16.87	3	Pens and other articles
3938	0	0	7.02	\$s	2.34	3	Umbrella & walking sticks
3939	0	0	13.46		4.49	3	Buttons, studs, fastener
3943	6.59	9.76	10.37	s	9.91	3	Bangles(ex. precious metals)

^aThe symbols are defined in the text. Briefly:

1. First * = Industries in which the number of establishments grew at a higher rate in Epoch 3 than in the previous two epochs and attained at least a 10 percent incremental rate of expansion of establishments during the entire period
2. Second * = Industries in which employment grew at a higher rate in Epoch 3 than in the previous two epochs and attained at least 10 percent incremental rate of growth of employment during the entire period
3. @ = Industries that attained at least 15 percent mean annual incremental rate of growth of investment
4. \$ = Industries whose TFP index of the period 1974-75 through 1983-84 exceeded unity
5. # = Industries with import content of investment below 10 percent
6. S = Industries with predominantly small establishments
7. & = Industries that are below the median ERA

APPENDIX HB

GOOD AND BAD YEARS IN THE 1980s

Table HA3.--ood and bad years of the 1980s as perceived by entrepreneurs, HIS
Factory Sector

Subsector	Year	GOOD (1)	BAD (2)	NORMAL (3)	Can't recall		5 as % Of 6 (7)
					(1+2+3) (4)	(4+5) (5)	
Agrobased	81	31	7	5	4	43	47 91.49
Agrobased	82	31	6	8	2	45	47 95.74
Agrobased	83	31	3	17	1	51	52 98.06
Agrobased	84	22	5	27	1	54	55 98.16
Agrobased	85	16	5	36	2	57	59 96.61
Agrobased	86	17	9	37	1	63	64 98.44
Agrobased	87	13	16	37	1	66	67 98.51
Agrobased	88	18	28	29		75	75 100.00
Mean		22.38	9.88	24.50	1.71		
Electronic	81	1	1	1		3	3 100.00
Electronic	82		2	1		3	3 100.00
Electronic	83		3	1		4	4 100.00
Electronic	84	1	3			4	4 100.00
Electronic	85		4			4	4 100.00
Electronic	86	2	3	1		6	6 100.00
Electronic	87	3	4	1		8	8 100.00
Electronic	88	4	3	1		8	8 100.00
Mean		2.20	2.88	1.00			
Electrical apparatus	81	8	1	1		10	10 100.00
Electrical apparatus	82	9	2	2		13	13 100.00
Electrical apparatus	83	7	4	3		14	14 100.00
Electrical apparatus	84	6	4	6		16	16 100.00
Electrical apparatus	85	7	3	8		18	18 100.00
Electrical apparatus	86	6	5	11	1	22	23 95.65
Electrical apparatus	87	3	7	15		25	25 100.00
Electrical apparatus	88	4	10	15		29	29 100.00
Mean		6.25	4.50	7.63	1.00		
Wooden furniture	81	8		5		13	13 100.00
Wooden furniture	82	7	2	5		14	14 100.00
Wooden furniture	83	5	1	10		16	16 100.00
Wooden furniture	84	8		11		19	19 100.00
Wooden furniture	85	10	2	10		22	22 100.00
Wooden furniture	86	12		13		25	25 100.00
Wooden furniture	87	13	6	18		37	37 100.00
Wooden furniture	88	10	16	14		40	40 100.00
Mean		9.13	5.40	10.75			
Readymade garments	81						
Readymade garments	82						
Readymade garments	83						
Readymade garments	84	1		2		3	3 100.00
Readymade garments	85	4	1	1		6	6 100.00
Readymade garments	86	2	4			6	6 100.00
Readymade garments	87	3	3	1		7	7 100.00
Readymade garments	88	4	1	2		7	7 100.00
Mean		2.80	2.25	1.50			

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Table HA3--Contd.

Subsector	Year	GOOD (1)	BAD (2)	NORMAL (3)	Can't		5 as	
					recall (4)	(1+2+3) (5)	(4+5) (6)	% Of 6 (7)
Tanning & Leather	81	9	2	1		12	12	100.00
Tanning & Leather	82	9	2	1		12	12	100.00
Tanning & Leather	83	10	1	2		13	13	100.00
Tanning & Leather	84	9	2	3		14	14	100.00
Tanning & Leather	85	6	3	6		15	15	100.00
Tanning & Leather	86	6	4	6		16	16	100.00
Tanning & Leather	87	10	1	7		18	18	100.00
Tanning & Leather	88	10	8	2		20	20	100.00
Mean		8.63	2.88	3.50				
Fish and sea food	81	3	1	1		5	5	100.00
Fish and sea food	82	3	2			5	5	100.00
Fish and sea food	83	4		1		5	5	100.00
Fish and sea food	84	3	1	2		6	6	100.00
Fish and sea food	85	3	4	1		8	8	100.00
Fish and sea food	86	5	1	4		10	10	100.00
Fish and sea food	87	4	2	4		10	10	100.00
Fish and sea food	88	3	2	5		10	10	100.00
Mean		3.50	1.86	2.57				
Light mech. Engg.	81	33	1	18	5	52	57	91.23
Light mech. Engg.	82	34	3	19	6	56	62	90.32
Light mech. Engg.	83	33	7	23	4	63	67	94.03
Light mech. Engg.	84	31	12	24	4	67	71	94.37
Light mech. Engg.	85	31	11	31	3	73	76	96.05
Light mech. Engg.	86	28	13	39	1	80	81	98.77
Light mech. Engg.	87	25	24	37		86	86	100.00
Light mech. Engg.	88	21	35	35		91	91	100.00
Mean		29.50	13.25	28.25	3.83			
Jute Textile	81	8	9	2	2	19	21	90.48
Jute Textile	82	4	12	4	2	20	22	90.91
Jute Textile	83	5	13	8	3	26	29	89.66
Jute Textile	84	3	17	7	2	27	29	93.10
Jute Textile	85	1	23	4	1	28	29	96.55
Jute Textile	86	1	26	2		29	29	100.00
Jute Textile	87	5	21	3		29	29	100.00
Jute Textile	88	1	25	3		29	29	100.00
Mean		3.50	18.25	4.13	2.00			
Cotton Textile	81	9	6	3	2	18	20	90.00
Cotton Textile	82	5	12	4	2	21	23	91.30
Cotton Textile	83	6	7	11	2	24	26	92.31
Cotton Textile	84	14	3	9	1	26	27	96.30
Cotton Textile	85	10	8	8	1	26	27	96.30
Cotton Textile	86	5	14	6	1	28	29	96.55
Cotton Textile	87	7	14	8		29	29	100.00
Cotton Textile	88	5	17	7		29	29	100.00
Mean		8.00	10.13	7.00	1.50			

Fig ^{HAI} -- Perceived performance of ind. '

Agrobased; HIID/IND sample

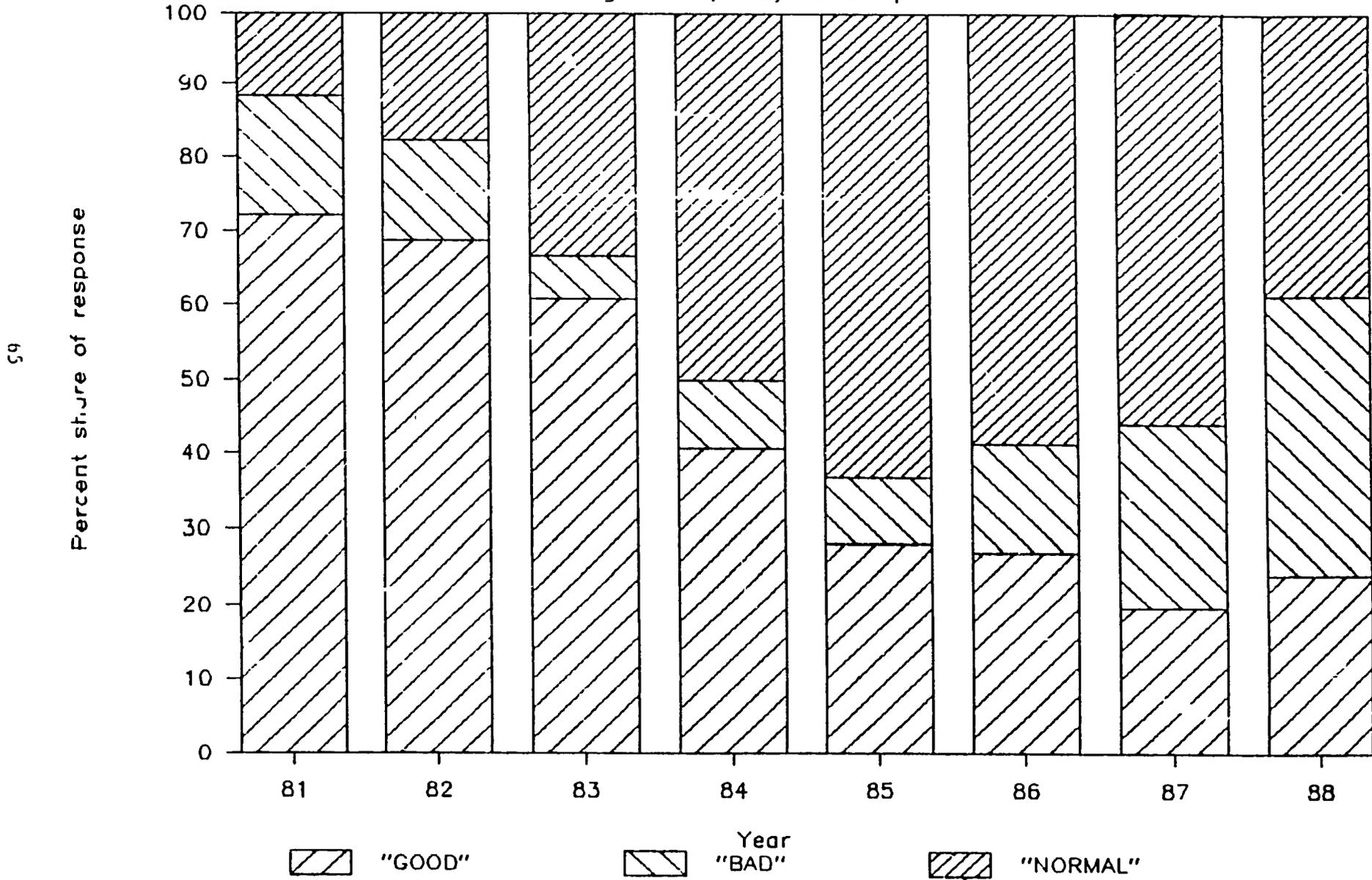


Fig ^{HA2}-- Perceived performance of ind.

Electronic; HIID/IND sample

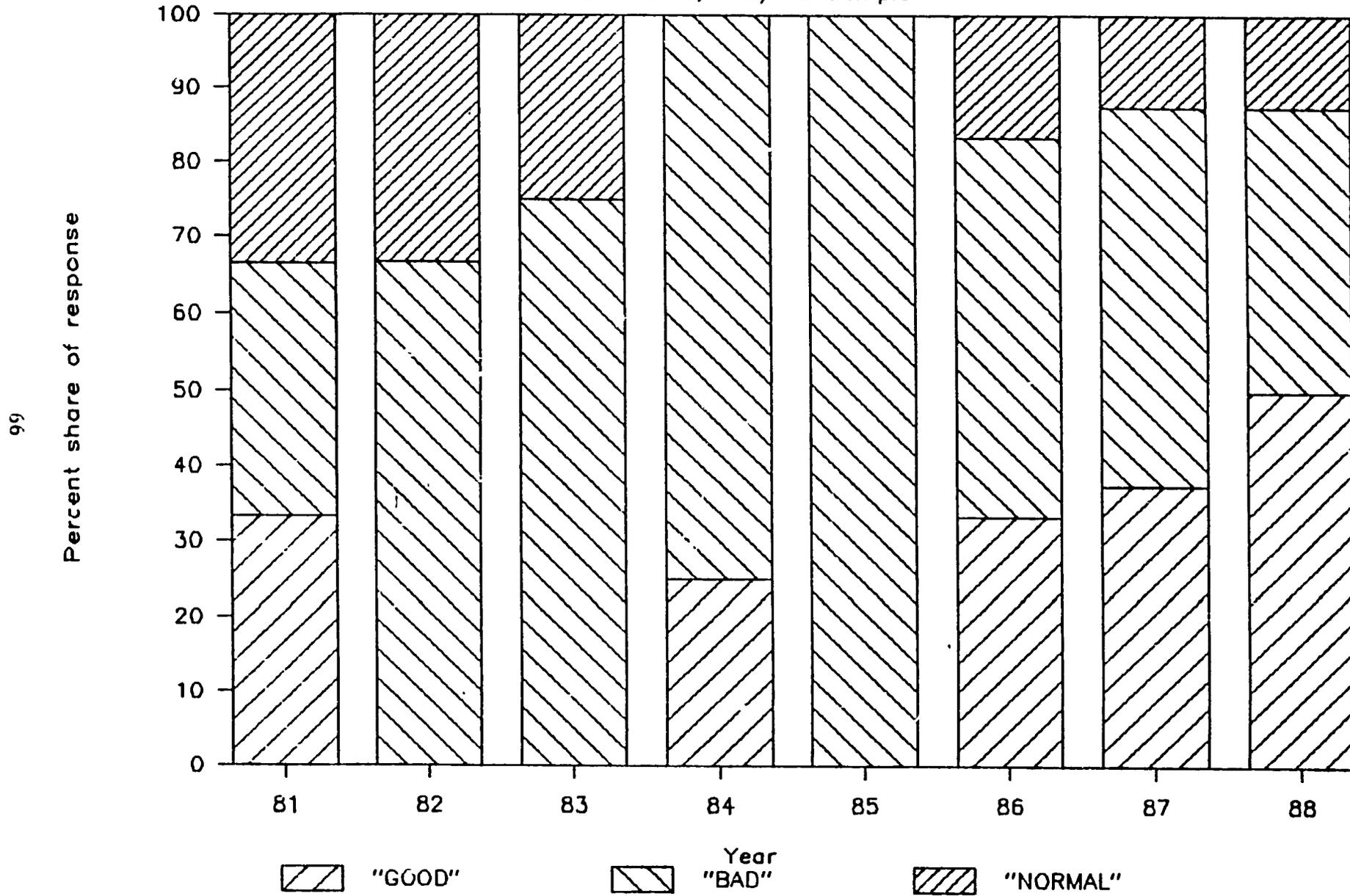


Fig 4.9² -- Perceived performance of ind.

Electrical apparatus; HIID/IND sample

4.9
Percent share of response

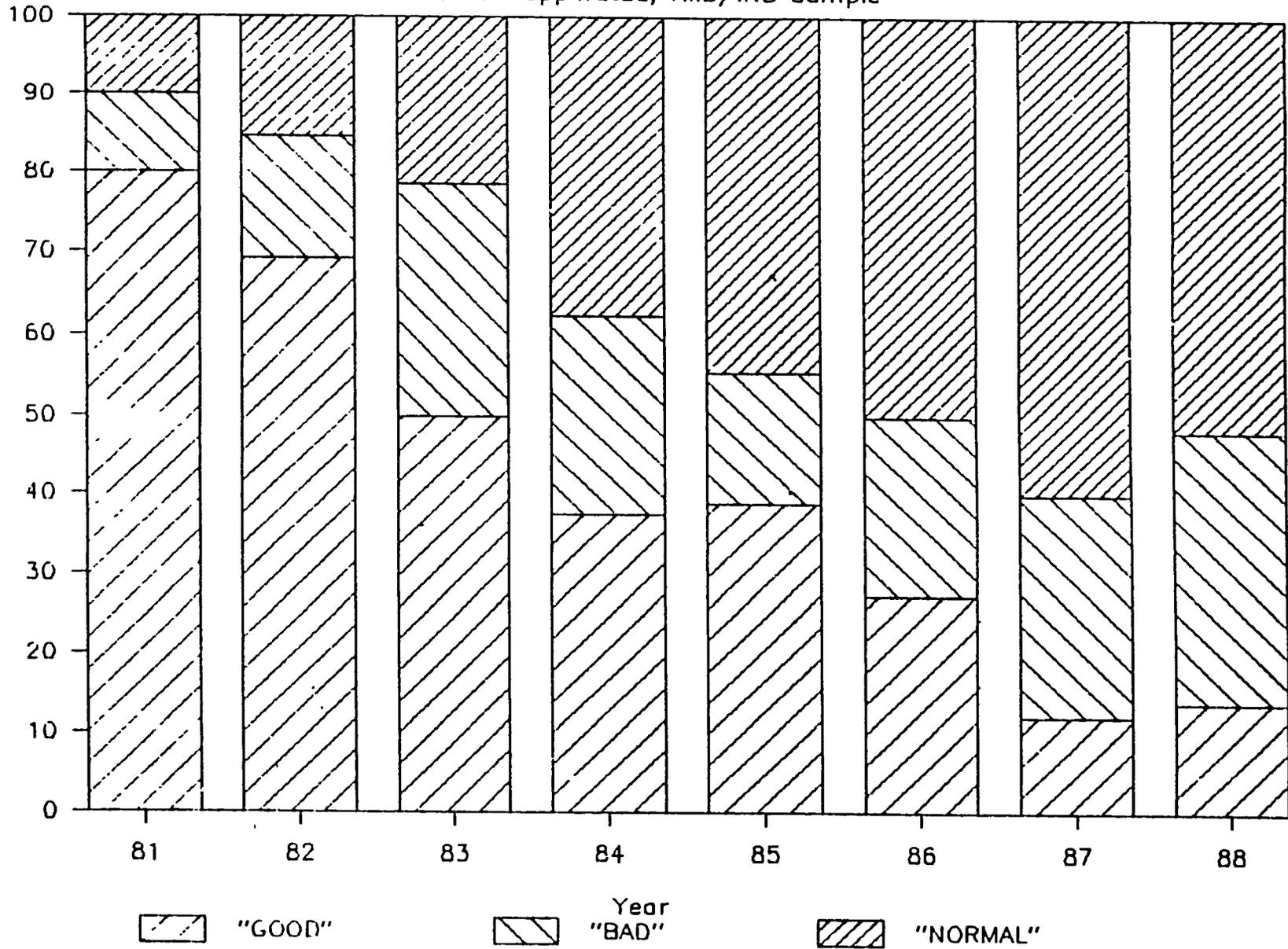


Fig #A4-- Perceived performance of ind.'

Light mech Engg.; HIID/IND sample

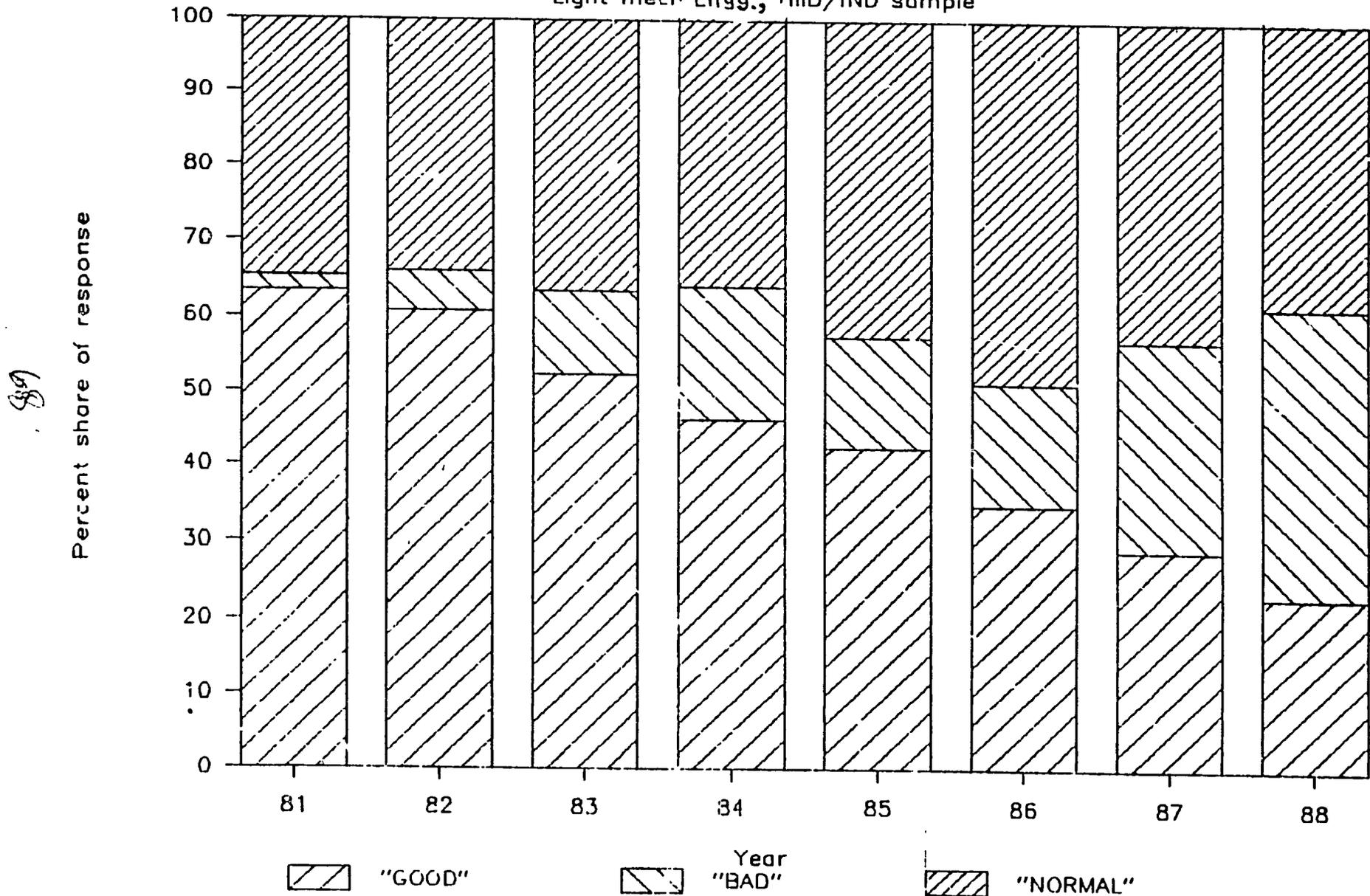


Fig 11A5 -- Perceived performance of ind.

Fish & sea food; HIID/IND sample

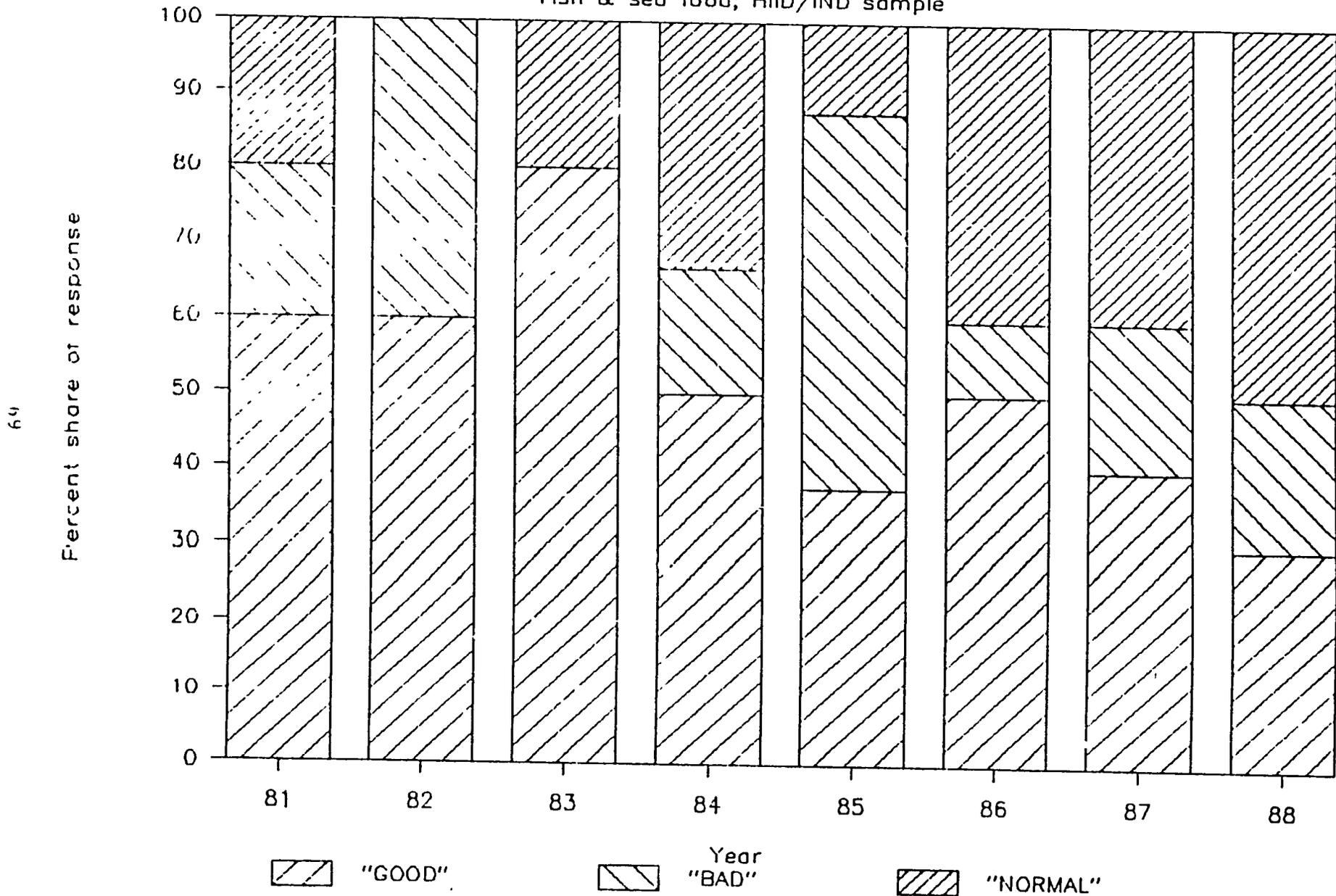


Fig ^{HAG} -- Perceived performance of ind.

Readymade garments; HIID/IND sample

O.L.

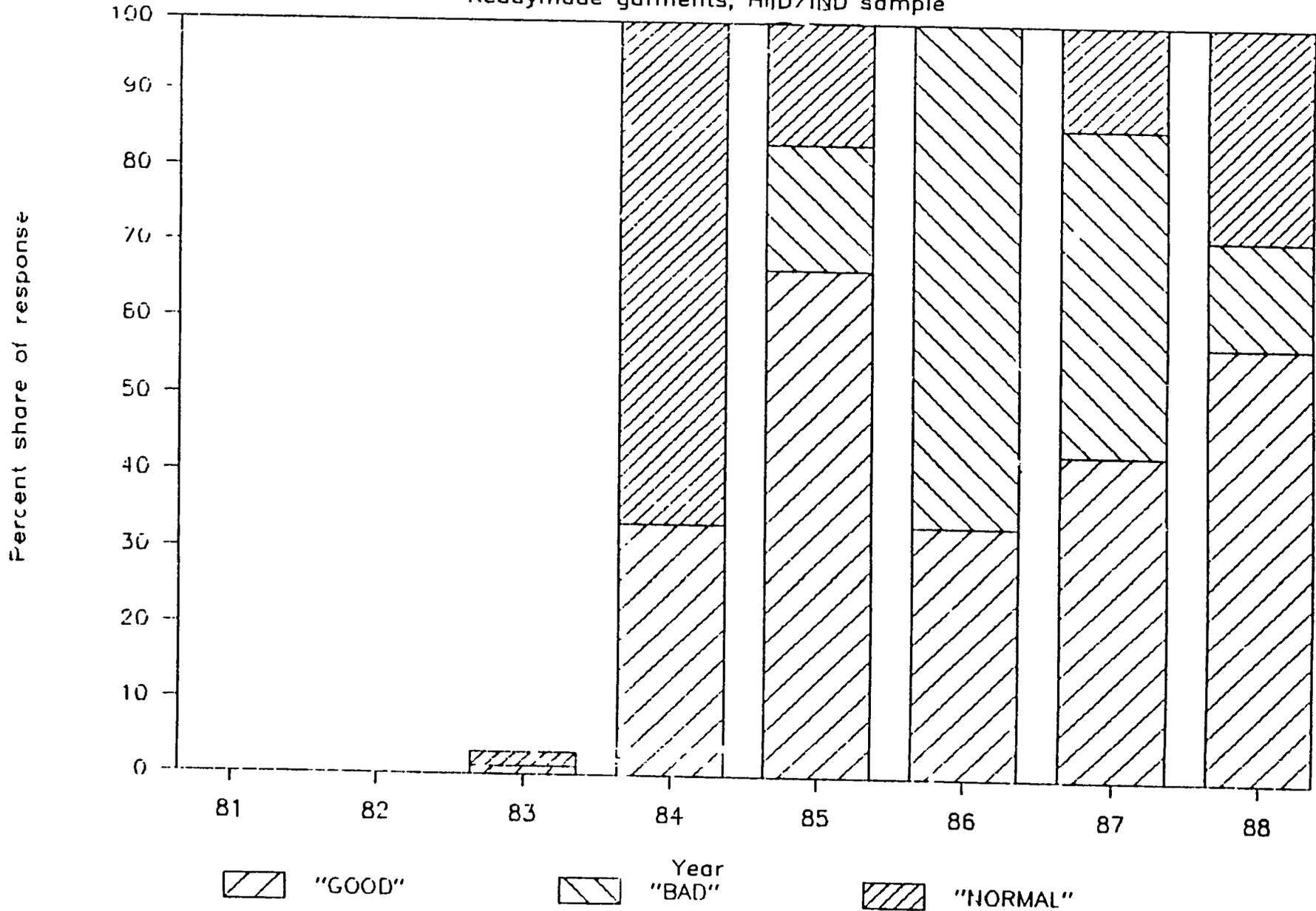


Fig 11.7 -- Perceived performance of ind.¹

Wooden furniture; HIID/IND sample

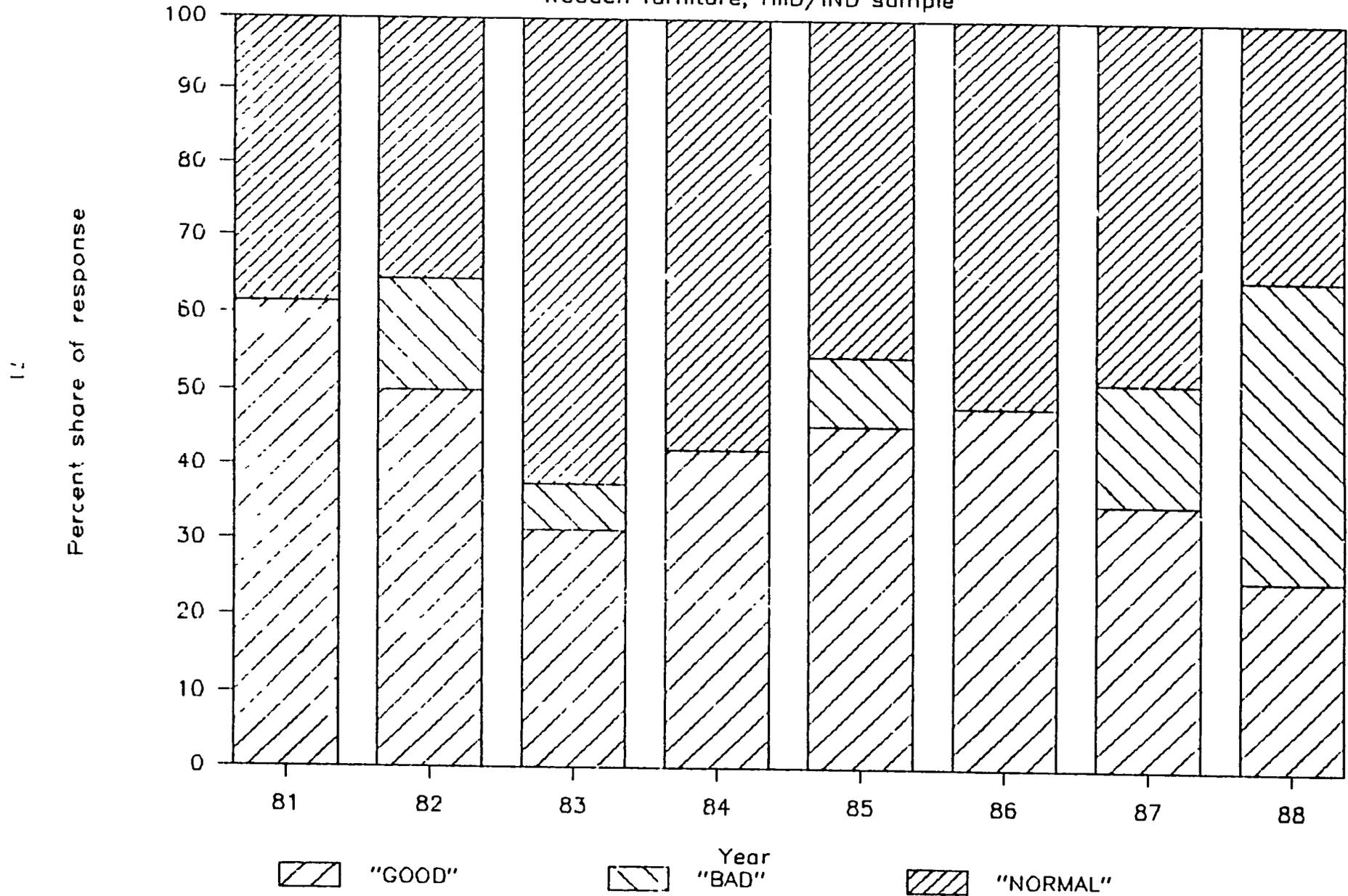


Fig 11A8 -- Perceived performance of ind.

Tanning & Leather; HIID/IND sample

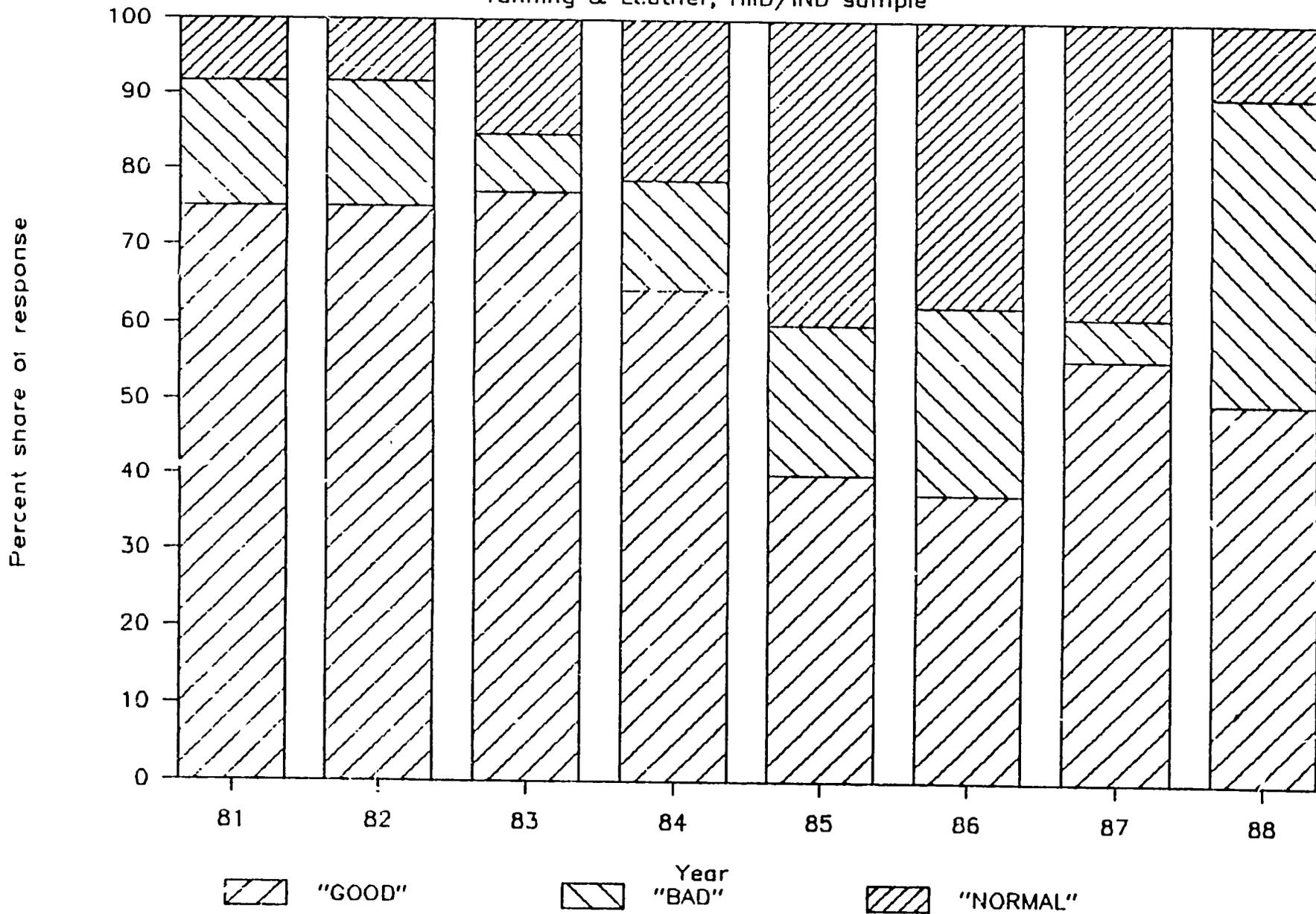


Fig 1A9-- Perceived performance of ind.

Cotton Textile; HIID/IND sample

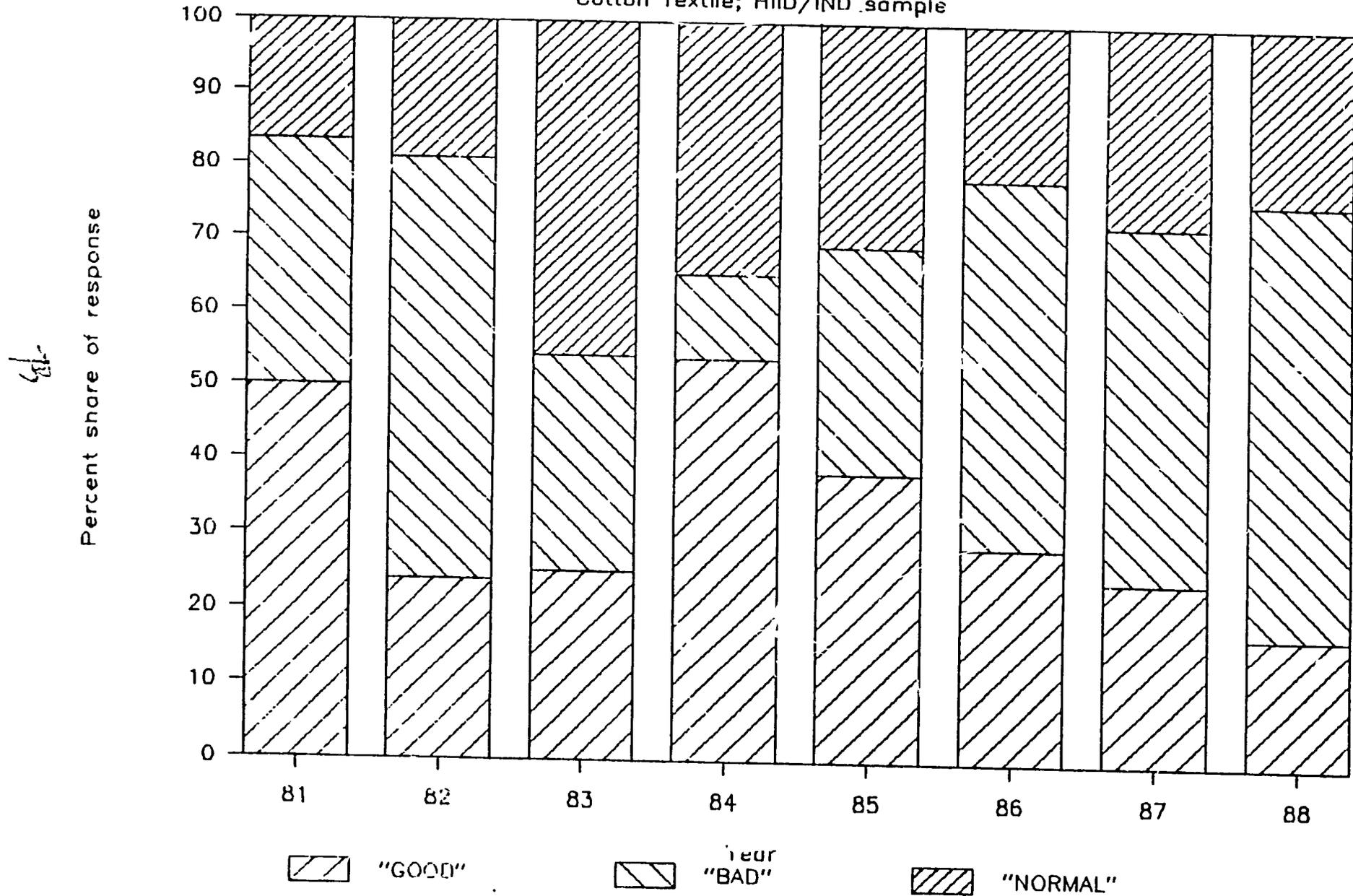
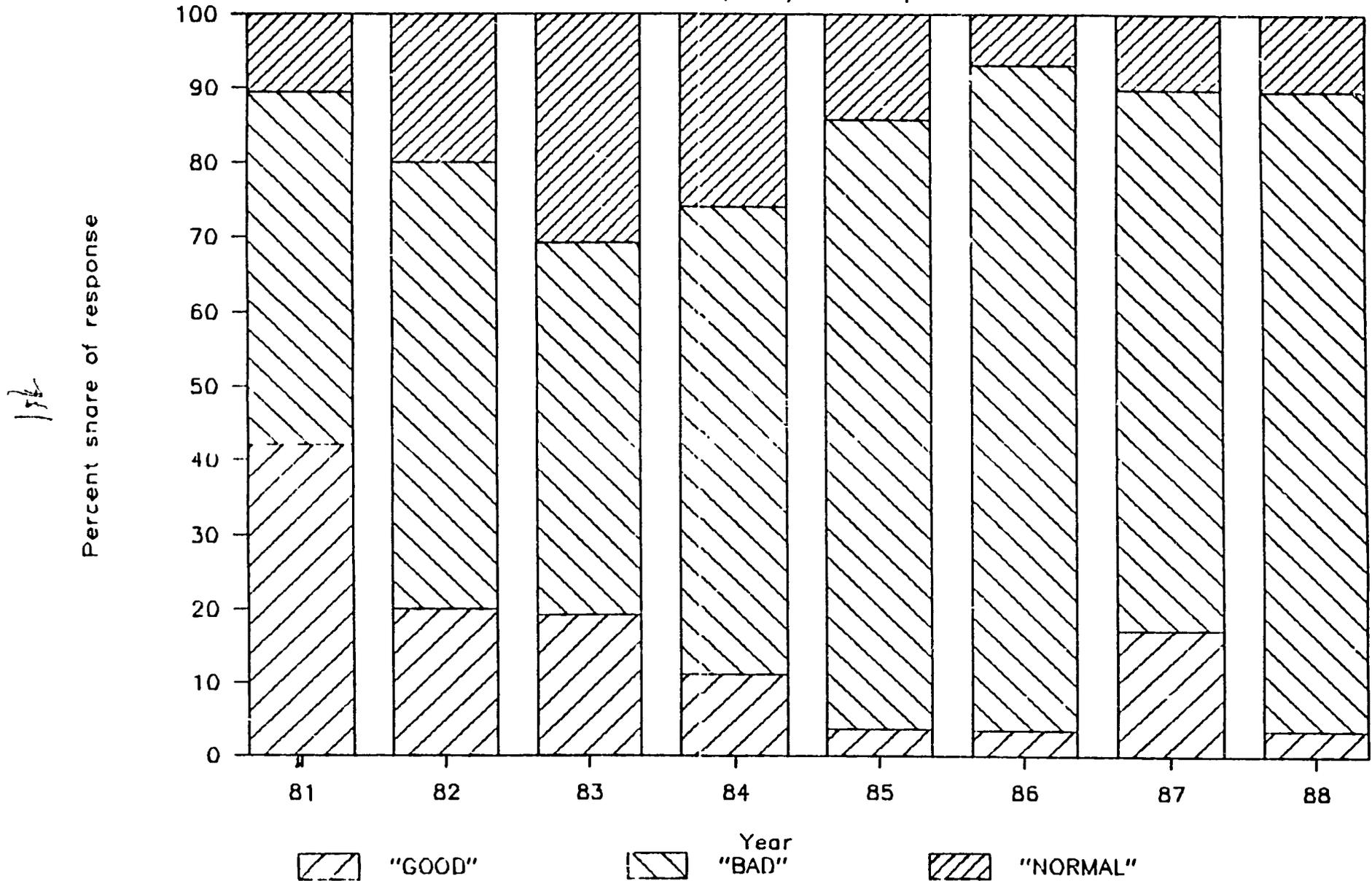


Fig ^{HAID} -- Perceived performance of ind.

Jute Textile; HIID/IND sample



APPENDIX HC
VARIABLE DEFINITIONS

For precise definitions of variables, see the HLD/ZSEPP Project's Tabulation Formats.

- Q = Major and minor products of the factory plus income from subcontracting
- K = Fixed capital. Estimated sale value of the existing assets (land, buildings, machinery, and other fixed assets)
- KK = K plus working capital
- L = Labor = full-time workers plus full-time-equivalent of part-time workers. A part-time worker was assumed equivalent to half full-time worker. In this table all categories of workers (including female workers) are added for aggregation
- RM = Raw materials, including raw material for fabrication; chemicals, dyes, and lubricants, and spare parts only.
- MC = Material cost (also loosely denoted as raw materials) which includes raw materials proper, chemicals, dyes and lubricants, spare parts, fuels, packing materials, and related other supplies. Marketing and tax costs are excluded.
- VA = $Q - MC$
- X = Exports
- I = Investment

INV Ratio = Ratio of the domestic component of investment
to total investment

RM Ratio = ratio of domestic raw materials to the corres-
ponding total raw materials. For this purpose

LM = Male labor, manyears

LF = Female labor, personyears

RR = Rate of return = $(VA-WB)/KK$, where WB stands
for wage bill

S = Small sector = the ratio of units with fewer than
20 workers to those of all units

G = Annual geometric rate of growth of the specified
variable to the final 2 years, 1986-88, of the
HIID/IND Sample Survey period, with the initial
2 years (generally 1980-82), as the base. When
there are no nonzero values for 1980-82, the
earliest two years with nonzero values are
employed as the base period values. These rates
are not always meaningful, inasmuch as some varia-
bles have large ups and downs from year to year,
such as investment. Moreover, the response rate
may change.

In view of this, we generally divided the subsector
concerned into units which existed before 1980-81 and
called them "old," and those which entered after
1979-80. We denoted the latter new. From among the
"old" units only those were included in the

calculation of growth rates which reported information for 1980-81 and supplied data for each subsequent year. In other words, only the 1980-81 cohort of reporting units of old firms was included for the calculation of growth rates. On the other hand, all "new" units were duly taken into account irrespective of the year of entry.

GL = Annual rate of change of labor, as defined above
 GS = Annual rate of change of sales, as defined above
 GI = Annual rate of change of investment, as defined above

GU = Annual rate of change of units as defined above

r = Rank = All ratios are defined in such a way that the higher the value the more preferred the ratio

R = $\wedge \prod_i r_i$ = the composite rank of the ranks of

all the 15 ratios.

APPENDIX HE
 BASIC AGGREGATE VARIABLES
 OF H:ID/IND FACTORY ESTABLISHMENT SURVEY
 (Data for 1987-88)

Deflated values (1986-87 Prices) of selected variables by 10 subsectors, HIS:Factory Establishments

	Q	K	RM	VA	L	I	Cases
Total 10 Subsector	1211600000	6000111951	8102791485	4013697721	121133	249441771	340
1 Agrobased	363451435	184307515	321724910	41726525	1505	3424815	76
2 Electronics	106009595	68744401	78321117	27688459	378	1131836	9
3 Electrical apparatus	97755701	92319493	69548839	28206862	623	1590555	29
4 Wooden furniture	74695812	38679045	44759297	29936515	635	147863	40
5 Readymade garments	191580758	56285210	137699563	53881195	1473	4381650	7
6 Tanning & Leather	1565149519	602328680	1154900782	410248737	1136	69588413	23
7 Fish & sea food	750001323	317960943	681602884	68398439	1557	1236680	10
8 Light Mech. Engg	405426017	302133019	214748276	19077742	2059	3386661	91
9 Jute	4639602854	272034228	2955685279	1683917575	78461	69600145	29
10 Textiles	3922816191	1637009377	2443800518	1479015673	33309	94953151	29

Deflated values (1986-87 Prices) of selected variables by 77 subsectors, HIS.Factory Establishments

	G	K	RM	VA	L	I	Cases
Total 77 Subsector	12911006700	6738784851	8622076641	4289067047	128244	267114936	592
3112 Dairy, ice plant	7661682	19002665	4113786	3547895	109	87740	8
3114 Fish and Sea Foods	750001323	317960943	681602884	68398439	1557	1236680	10
3116 Edible Oils	36678316	18855540	51182166	-14503850	133	36380	6
3118 Grain milling(Flour)	75003052	51550059	68882083	6120969	121	2505150	9
3119 Rice milling	49544355	20034252	45030699	4513656	264	383381	13
3121 Grain mill products	3327133	607332	3122046	205087	6	0	1
3122 Bakery products	97154270	29349886	77851264	19303005	501	172484	26
3125 Confectionaries	1956345	440626	1786356	169989	18	53500	3
3128 Edible Salt	92126283	24467155	69756510	22369773	353	186180	10
3141 Cigarettes	9584247	1181729	4248411	5335835	217	535	2
3142 Cigers and cheroots	1808033	930098	837222	970811	46	2675	2
3201 Cotton Textiles	3922816191	1637009377	2443800518	1479015673	33309	94953151	29
3202 Woolen Textiles	48257246	149684106	31775351	16481895	268	218597	1
3203 Jute Textiles	4639602854	2720344228	2955685279	1683917575	78461	69600145	29
3204 Silk & synth Text	164884889	81766891	92676674	72208215	748	3268334	8
3205 Narrow Fabrics	1498000	770400	956163	541837	93	32100	1
3206 Handloom Textiles	83147121	17427274	71885485	11261637	1445	1654086	55
3207 Dyeing, Bleach Text	847440	7559550	376908	470533	17	0	1
3213 Knitting mills	46716975	39346238	37851149	8865825	496	353191	40
3215 Cordage,Rope,Twine	13161000	2555160	9983100	3177900	15	0	1
3216 Spool & Thread Ball	13374016	8956970	11494990	1879026	122	192600	6
3219 Textile manufac	793847	3727880	569655	224192	20	15258	1
3221 Ready made Garment	191580758	56285210	137699563	53881195	1473	4381650	7
3223 Local Garment	31575326	15250978	17355688	14219638	447	5073138	27
3231 Tanning & Finish	1236914661	369274655	847728076	389186585	654	28012600	13
3233 Leather Products	325485761	230839660	305889674	19596087	434	41574850	3
3241 Leather Footwear	2749098	2214365	1283032	1466066	48	963	4
3253 Jute press & bail	1662780	3691661	533823	1128957	95	0	2
3311 Saw & planing mill	51455278	35244837	30352904	21102374	165	720110	8
3312 Plywood & ply prod	3959000	4237200	2340989	1618011	56	267500	1
3321 Wooden furniture	74695812	38679045	44759297	29936515	635	147863	40
3422 Print & publish Boo	30741564	91907490	20682503	10059061	377	2282845	20
3425 Book Bind,other art	759328	1844423	447808	311520	22	48150	3
3501 Allopath & Medicine	52168374	79133990	32294962	19873413	257	2300500	4
3504 Homeopant,Bio-chem	385200	995100	133001	252199	14	16050	1
3515 Pesti, insecta	1868830	665540	358236	1510594	9	0	1
3516 Resins,plastic mat	3531000	1947400	3352524	178476	9	21400	1
3521 Paints & varnishes	7427251	2677001	4887134	2540117	32	75863	1
3523 Soap and detergent	19976579	2442810	15281868	4694711	39	0	2
3525 Matches manufact	47908180	32142800	17178850	30729330	536	0	1
3527 Candle manuf	1372275	658692	1233410	138865	10	0	1
3528 Tar, alkatra mfg.	2334473	602410	1569316	705157	8	0	1

Deflated values (1986-87 Prices) of selected variables by 77 subsectors, MIS, Factory Establishments

	Q	K	RM	VA	L	I	Cases
3552 Rebuild, Tyres, Tube	6553750	4522355	5071800	1481950	38	0	2
3559 Rubber prod n.e.c.	10742800	7376580	8588890	2153910	73	107000	4
3569 Misc. plastic prod	58379002	36735561	47107205	11271797	207	81748	15
3612 China and ceramic	13556900	15383390	7495243	6061657	328	177620	5
3622 Glass product mfg.	9095000	2755250	3913953	5181047	129	535000	1
3691 Bricks, Tiles, clay	2681420	1936807	1464124	1217296	193	48899	3
3712 Iron, Steel foundry	2342230	1167905	2064651	277579	22	0	3
3713 Iron, Steel Re-roll	6420000	3638000	5133860	1286140	65	0	1
3801 Cutlery	5509066	1369600	4624540	884526	16	0	1
3802 Hand & Edge tools	5771997	2110789	3198007	2573990	90	45154	6
3804 Furnit, Fixtur, metal	33992670	22753443	19107465	14885204	303	702990	20
3805 Struc metal prod	166398546	38338742	44727375	121671171	498	32314	13
3807 Heat, Cook equip.	43721805	5554370	32739967	10981838	124	381990	7
3808 Wire products	133750	109140	128400	5350	5	0	1
3809 Utensil-aluminium	46234700	21195756	39472253	6761447	127	0	3
3815 Metal Trunks	1926000	3944020	1373773	552227	40	0	1
3817 Plumb equip (san wr)	18297000	3730020	15162462	3134538	102	8560	2
3819 Fabric metal prod nec	40475607	85046732	29083309	11392298	318	38012	15
3822 Agri. machi equip.	18000343	40028165	13550508	4449835	149	508250	5
3824 Textile machinery	14430020	30642660	8806107	5623913	96	52692	4
3825 Industrial mach	12353150	42200265	5746735	6600415	136	795010	7
3829 Machi, equip n.e.c.	3690430	6478957	1650914	2039516	72	535	7
3832 Radio and Televisio	106009595	68744401	78321137	27688459	378	1131830	9
3833 Electric applia (Fan	1711337	476150	1614630	96707	13	26750	1
3834 Insulat wire, cable	4628296	1469110	4040213	588083	15	13917	2
3835 Electric bulb, tube	16488700	12668800	6568971	9919729	96	107000	2
3836 Batteries	15640229	5569243	12393189	3247039	33	0	3
3839 Electric appar nec	59287140	72136190	44931836	14355304	466	1442895	21
3846 Cycles and pedicab	13722750	58514726	7687522	6035228	134	16050	2
3862 Optical goods	535000	286760	257172	277828	8	0	1
3937 Pens, other article	3180682	3625160	2070897	1109785	30	107000	2
3949 Other manu ind (B&B)	12501885	1896682	7277195	5224690	179	7790	4
3950 Lane Products	1016500	223630	414390	602410	48	0	1
4411 Mat Making	44940	83674	37043	7897	1	32	1
4412 Jewelleries (G Smith	7174307	1808193	5418846	1755459	79	9095	14