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The Economic Rate of Return in Small and Household Manufacturing Industries

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I. INTRODUCTION

Small-scale and Household Manufacturing Industry can contribute to economic development by providing employment; creating jobs with low capital costs; building up a reservoir of skilled and semi-skilled labour; reducing income disparities as small-scale manufacturing is widespread and not concentrated in any specific area or region; developing indigenous technology and raising saving and investment within the country rather than being dependent on external sources. Small-scale manufacturing is also a potential breeding ground for the development of entrepreneurial talent which is of great importance in accelerating the developmental process.

In Pakistan, the importance of the small-scale manufacturing industry has not been given its due recognition. The various five-year plans mention small-scale industry but focus their main attention in other areas. For example, to quote from the First Five-Year Plan (1955–60):

> "Small industries have specific contributions to make to economic development. In the first place it can contribute to the output of needed goods without requiring the organization of large new enterprises or the use of much foreign exchange to finance the import of new equipment. Secondly, it can provide opportunities for employment beyond the narrow boundaries of urban centres. Finally, as history shows, it can perform an important function in promoting growth, providing a training ground for management and labour and spreading industrial knowledge over wide areas". (Government of Pakistan, First Five-Year Plan p. 473).

Statements in a similar vein relating to small-scale manufacturing were repeated in the successive five-year plans.

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Table 1

Growth of Manufacturing Sector

Period	Annual Compound Growth Rate (%)		
	Total	Large Scale	Small Scale
1949-50 – 1959-60	7.7	15.4	2.3
1959-60 – 1969-70	9.9	13.3	2.9
1969-70 – 1979-80	5.4	4.7	7.6
1979-80 – 1984-85	9.4	9.8	8.4
1985-86	7.5	7.2	8.4
1986-87	7.5	7.2	8.4
1987-88	7.6	7.3	8.4
1983–88 (6th Plan)	7.7	7.5	8.4

Source: Government of Pakistan (1987; 1988, p. 109)

Table 2

Share of Different Manufacturing Industries in Value Added and Employment (1983-84)

	Large Scale		Small Scale	
	Value Added	Employ-ment	Value Added	Employ-ment
Food, Beverages & Tobacco Industry	21.8	15.9	28.8	17.1
Textiles	18.6	37.6	20.1	23.4
Leather & Rubber Products	5.0	3.0	1.3	1.1
Chemicals & Chemical Products	17.8	7.8	1.8	1.6
Non-metallic Mineral Products	0.9	3.4	4.9	1.2
Basic Metal, Machinery & Transport Equipment	28.2	20.6	12.9	17.3
Others	6.5	10.7	23.6	27.7
Total	100.0	100.0	100.0	100.0

Source: Government of Pakistan (1987; 1988, p. 112)

Notwithstanding the fact that small-scale industry has not been given a significant role to play in the country's economic development, this sector does contribute greatly to value added in the manufacturing sector (26 percent) to GNP (5.3 percent) and to total exports (18 percent) (Government of Pakistan, Economic Survey 1987-88). Tables 1 and 2 are self-explanatory dealing with growth rates between large-scale manufacturing and small-scale manufacturing. It is clear that for the last four years, small-scale manufacturing has been growing steadily and at a greater rate than large-scale manufacturing. Table 2 gives the share of different manufacturing industries in value added and employment.

Given the contribution that small-scale industry makes to the national economy, the objective of this paper is to assess the economic profitability of small and household manufacturing units. For this purpose, data from the survey of Small and Household Manufacturing Industries 1983-84 are used to calculate the economic profitability of these units. The paper is divided into four sections. After an Introduction, Section II looks at Data and Methodology, Section III presents the results and discusses matters of policy relevance to the small-scale manufacturing industry.

II. METHODOLOGY AND DATA

In this paper, we have calculated our estimates of the economic rates of return for 1983-84 for small-scale industries from the data provided by the Survey of Small and Household Manufacturing Industries for urban areas only. Data were collected on the following items of small and household manufacturing units separately: plant and manchinery; land and building and other fixed assets. Data on employment cost, industrial cost, fuel costs and on miscellaneous costs were also collected. The amount of indirect taxes paid by these small and household manufacturing units is also given. It should, however, be noted that no asset figures in the form of land and building are available for household units and no figures are available for the fuel costs borne by the household units. Also no data were provided for working capital requirements. For our analysis we therefore assumed these to be 10 percent of the total production cost. Data are also provided on the total value of output from which the relevant costs can be deducted to arrive at value added. It should be emphasized that all prices given in the survey are market prices which have to be adjusted by various conversion factors to arrive at economic prices.

The following industries were covered in the survey: Food, Beverages and Tobacco, Textile, Wearing Aparrel and Leather, Wood and Wood Products, Paper and Paper Products, Printing Publishing, Chemicals and Chemical Petroleum, Coal Rubber and Plastic Products Drugs and Pharmaceuticals, other chemical products such as Varnishes, Cosmetics, Soap and Detergent, Non-metallic Mineral Products, Pottery, China and Earthenware, Glass and Glass Products, Iron and Steel Basic

Industries, Non-ferrous Metal Basic Industries, Electrical Machinery, Apparatus, Appliances and Supplies, Scientific Instruments, Optical Instruments Handicrafts, Sports and Athletic Goods, and Other Manufacturing Industries.

However, repair and service establishments which dealt in shoes, cycles, watches and clocks, radio and television, motor cars, and domestic electric appliances were not covered in this survey. These activities are mainly directed to the domestic consumer market. Only activities that had industrial applications such as repair of industrial plant and machinery were defined as manufacturing activity and included in the survey.

Sufficient data are available in the survey from which we can calculate the net profit after subtracting production and wage costs from total output, net of indirect taxation. This net profit, when divided by the capital stock, gives the rate of return,[1] which is an average figure and is based on market prices.

Conversion Factors

The major items whose market prices are to be adjusted into border prices are given below in three separate categories. These are traded items; non-traded items and skilled and unskilled labour. In the first category items such as fuel and gross output are included for adjustment purposes. In the category items such as land and buildings, electricity and depreciation are included. The third category adjusts the market prices of wages/salaries paid to unskilled and skilled labour. The numeraine in our exercise to determine the economic rate of return is border prices which are expressed in domestic currency at the official exchange rate.

The following three conversion factors have been used to adjust for market price distortions:

1. Standard Conversion Factor;
2. Shadow Wage Rates; and
3. A ratio of value added at world prices to value added at market prices.

If the numeraire is border prices expressed in domestic currency at the official exchange rate, then all inputs and outputs have to be valued in terms of world prices. For estimating the costs of producing non-traded goods at world prices we need a specific conversion factor which is the ratio of the shadow price of a good to its domestic price. In practice, due to the lack of appropriate data, an average conversion factor i.e., the Standard Conversion Factor is made use of.

[1]The calculation of the rate of return in this paper is based on the methodology followed in our earlier paper by the authors (1986).

Standard Conversion Factor

The Standard Conversion Factor (SCF), which is an average relationship,[2] is the ratio of the sum of imports and exports at border prices to the sum of imports at border prices plus import taxes and exports at border prices minus export taxes. In algebraic terms it is expressed as follows:

$$SCF = \frac{(T+M)}{(M+Tm)+(X-Tx)}$$

where

M is the c.i.f. value of visible imports;
X is the f.o.b. value of visible exports;
Tm is the value of total import duties; and
Tx is the value of total export taxes minus export subsidies.

It has been estimated to be 0.85 (Weiss 1979) and .909 (Squire, Little and Durdag 1979). In the absence of specific conversion factors for various non-trading items, the SCF has been made use of frequently. It should be stressed that such frequent use of conversion factors based on average relationships like the SCF is not recommended in the literature; it is suggested that the SCF be used only for minor non-traded goods, and items for which detailed information is lacking. However, many published case studies have had to rely significantly upon a SCF (Stewart 1978) and this was the experience of the Pakistan Study (Weiss 1979).

Shadow Wage Rates

Market labour costs have been adjusted by a shadow wage rate of 0.75. This rate has been based on the World Bank's revised estimates of the economic value of labour in the uncontrolled sector which consists of mostly small and household manufacturing. It is also to be noted that in our study a large proportion of the labour force is unpaid, mainly household workers helping out. A labour cost has thus been imputed to these workers by multiplying the average monthly wage by the number of workers in both household and small-scale manufacturing. These costs are then added to the actual wage costs already given in the survey to arrive at the total wage cost, admittedly a rough and ready procedure.

A ratio of value added at world prices to value added at market prices has been

[2] See Squire and van der Tak [(1975) and Bruce (1976)].

Table 3

Economic Rate of Return in Small-scale Manufacturing

	Market Values[1] (000 Rs) (I)	Conversion Factor (II)	Economic Value (000 Rs) (III)
(A) Capital Account			
(a) Fixed Assets			
(i) Plant and Machinery	1,936,695	.63[2]	1,220,118.00
(ii) Land and Buildings	2,514,620	.91[3]	2,228,304.00
(iii) Other Assets	127,416	.91[3]	115,949.00
(b) Depreciation	330,809	.91[3]	301,036.00
Total A (a + b)	4,909,540		3,925,407.00
(B) Production Cost			
(a) Employment Cost			
(i) Paid Labour	1,307,515		
(ii) Imputed to Unpaid Labour	165,145		
Total (a)	1,472,660	.75[4] (.91)[3]	1,005,094.00
(b) Fuel Costs			
(i) Electricity	494,505	2[5]	989,010.00
(ii) Gas	39,531	2[5]	79,062.00
(iii) Other Fuel	103,792	2[5]	207,584.00
Total (b)	637,828	2[5]	1,275,656.00
(C) Other Costs	225,701	.91[3]	205,388.00
(D) Raw Materials	9,869,879	.63[2]	6,218,024.00
(E) Working Capital			
(10 Percent of Product Cost)	1,220,607	.63	768,982.00
(F) Indirect Taxation (Rs)	9,046,520		
(G) Gross Output			
(i) Exported (18%)	3,318,148		
(ii) Domestic Consumption	15,116,007		
Total (D)	18,434,155	.55[6]	10,138,785.00
(H) Value Added	7,709,793		2,439,717.00

$$\text{Economic Rate of Return} = \frac{\text{Value Added} - \text{Wage Cost}}{\text{Capital Cost}} = \frac{768,982}{3,925,407} = 16.9\%$$

Notes: [1]All values under column I have been taken from the Survey of Small and Household Manufacturing Industry (Urban) 1983-84.

[2] The overall average tariff rate.

[3] The standard conversion factor estimated by the World Bank.

[4] The shadow wage rate.

[5] Doubling of fuel prices as per rough rule of thumb by the Planning and Development Division, Government of Pakistan.

[6] The ratio of value added at world prices to value added at domestic prices.

Table 4

Economic Rate of Return in Household Manufacturing

	Market Values[1] (000 Rs) (I)	Conversion Factor (II)	Economic Value (000 Rs) (III)
(A) Capital Account			
(a) Fixed Assets			
(i) Plant and Machinery	494,143	.63[2]	311,310.00
(ii) Land and Buildings	–		
(iii) Other Assets	508,545	.91[3]	462,776.00
(b) Depreciation	99,226	.91[3]	90,296.00
Total (a + b)	1,101,914		864,382.00
(B) Production Cost			
(a) Employment Cost			
(i) Paid Labour	83,608		
(ii) Imputed to Unpaid Labour	58,879		
Total (a)	142,487	.75[4] (.91)[3]	97,247.00
(b) Fuel Costs			
(i) Electricity			
(ii) Gas			
(iii) Other Fuel			
Total (b)			
(C) Other Costs	29,046	.91[3]	26,432.00
(D) Industrial Costs	1,356,839	.63[2]	854,809.00
(E) Working Capital			
(10 Percent of Production Cost)	128,837	.63	96,287.00
(F) Indirect Taxation (Rs)	571,179		
(G) Gross Output			
(i) Exported (18%)			
(ii) Domestic Consumption			
Total (D)	2,264,846	.55[5]	1,245,665.00
(H) Value Added	879,552		170,890.00

$$\text{Economic Rate of Return} = \frac{\text{Value Added} - \text{Wage Costs}}{\text{Capital Stock}} = \frac{96,287}{846,382} = 19.7\%$$

Notes: [1]All values under column I have been taken from the Survey of Small and Household Manufacturing Industry (Urban) 1983-84.

[2] The overall average tariff rate.

[3] The standard conversion factor.

[4] The shadow wage rate.

[5] The ratio of value added at world prices to value added at domestic prices.

used in order to allow for domestic price distortions. This ratio is .55, based on an unpublished study done at PIDE.

III. RESULTS

Table 3 presents the economic rate of return for Small-scale Manufacturing. Table 4 does the same for Household Manufacturing. In both the tables market prices have been adjusted by the use of the relevant conversion factor to their economic values. For example, tradeable and traded goods have been adjusted by the average tariff rate (.63): plant and machinery and raw materials fall in this category. Gross output, net of indirect taxation has been adjusted by the ratio of value added at world prices to value added at domestic prices (.55). Fuel and electricity charges, where available, have been adjusted by doubling the market prices, to arrive at their economic price, a rough rule of thumb employed by the Planning and Development Division, Government of Pakistan. The Standard Conversion Factor (SCF) was used against those items that are considered to be non-traded, e.g. Land and Building, Other Costs etc. The shadow wage rate used was .75.

For small-scale manufacturing the rate of return was 16.9 percent. For household manufacturing, the economic rate of return was 19.7 percent. We should like to point out that these rates are just approximations – given that the data on which these estimates are based were of low quality.

One of the major factors affecting data quality was the level of education, given that a large proportion of those surveyed were uneducated and hence would not have responded appropriately to the questionnaire. They would not have appreciated the significance for which the data were being collected. Also, small and household manufacturing units do not maintain accounts of their transactions over the year. Again, data on fixed assets is based on oral estimates supplied by the respondents themselves rather than on any documentary evidence. Finally, figures on employment cost, industrial cost, other costs and the value of production were collected mainly on the costs etc. that prevailed in the previous month. These figures were then multiplied by twelve to arrive at annual figures for costs incurred and the value of production produced. Thus, given these shortcomings of the data base, the economic rates of return estimated should be treated with some caution. Much more work remains to be done, in particular in improving the data base, before more meaningful analysis can be conducted.

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Comments on "The Economic Rate of Return in Small and Household Manufacturing Industries"

The authors begin by underlining the importance of small-scale (SS) and household (H) manufacturing industries (MI) and point out that, beside being paid lip service, these industries have generally been neglected by the policy-makers. They then try to substantiate their point by estimating the social – which, contrary to their usage in a previous paper, they now opt to call economic – rates of return for those industries. Since their estimated rates of return turn out to be fairly high (in the 30 to 36 percent range) therefore their conclusion is that SS, and HMI need more attention of the policy-makers. While it may be true that SS, and HMI deserve more encouragement the present paper does not support such a conclusion when subjected to a closer scrutiny.

First and foremost the authors do not compare and contrast the present rates of return with those obtained in the other sectors of the economy, not even with their own estimates for large-scale manufacturing industries (LSMI) (Sahibzada and Mahmood 1986). Since we do not have any idea of the alternative rates of return (the opportunity cost of funds), no meaningful conclusions could be derived by looking at the estimated rates of return *per se.*[1]

It seems appropriate to compare their current estimates with those that they obtained for LSMI (which are in the 16 to 19 percent range). When we attempt to do this we quickly discover that these two estimates are not readily comparable. This is because in the present estimation, unlike the previous ones, 'working capital' has not been accounted for. We are not offered any explanation for such an omission. My own exercise with their previous work shows that if the working capital, which accounts for almost 45 percent of the total capital stock is excluded, the rates of return estimates (in the neighbourhood of 33 percent) turn out to be more or less identical to the present estimates, and it becomes difficult to support the hypothesis that SS, and HMI have been neglected.

[1]Since the authors have adopted the same methodology as in their previous work (*ibid*), comments on their methodology by K. Sarmad are relevant to the present paper. See Khwaja Sarmad, (1986), "Comments on Social Rates of Return in Pakistan's Large-scale Manufacturing Sector". *Pakistan Development Review.* Vol. XXV, No. 4. pp. 905–6.

Should we then draw the conclusion, assuming working capital to constitute the same proportion of total capital stock in both the SS, and HMI, and the LSMI, that the competitive capital market has tended to equalize the rates of return across these industries? Such a conclusion is far from warranted. Actually, the present estimates do not seem to be very reliable, primarily due to the data base being used. Though the authors have warned about the unreliability of the data yet they have not carefully analysed the data to provide an idea of the margin of unreliability. For example, their data yield capital-output ratios of 1.61 and HMI respectively without the working capital (the latter does not even include land and building assets. The comparable figure for LSMI from their earlier study turns out to be 1.79 without the working capital (with working capital it is 3.18). This means, that even if we make the generous assumption that value added per worker is the same in both the LSMI and the SS and HMI (which clearly is unrealistic), the small-scale manufacturing industry is roughly as capital-intensive as the LSMI, while the household manufacturing is even more cpaital-intensive than that.

Another indication of the unreliability of data is provided by the estimates of private rates of return (which the authors fail to provide). These estimates are 127 percent and 67 percent for SS and HMI respectively. These are, of course, without including working capital. Even when we make a liberal adjustment for working capital (allowing it to be 45 percent of the total capital stock), we get an estimate of more than 87 percent for small-scale manufacturing industry. But then we do not observe much rush of investment into this industry.

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