A Short Note on the Ambar Charkha

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WHILE the Ambar Charkha as a technological possibility has been studied by many economists* and politicians, there does not seem to have been any attempt at applying the conventional criteria for technological choice to the problem. The object of this note is to do that exercise. I must make it clear that I am not supplying any new information on the subject and all my data are derived from The He-port of the Ambar Charkha Enquiry Committee (1956), Ministry of Production, Government of India. All I wish to do is to present these data in a more manageable form so that they correspond to the conventional economic concepts. Our conclusion will emerge from the data as soon as they are presented in this form.

We have to find out the following values from the available data:

(a) the productivity of labour;

(b) the net value added per unit of output;

(c) the net .surplus per unit of output

(d) the capital/output ratio, and

(e) the rate of surplus per unit of capital investment.

(a) Productivity of labour: There seems to be some scope for argument on the productivity of labour with the Ambar Charkha. 'The Ambar Charkha Programme' published by the All India Khadi and Village Industries Board, Bombay, assumed a productivity (per 8-hour working day) of 8 hanks of yarn. The Report of the Ambar Charkha Enquiry Committee, Ministry of Production, Government of India, 1956, contains the following information.

"The majority (six) view is that the Ambar Charkha can give a production of 6 hanks on the average, from cotton to reeling; one considers it would be 6 to 8; while the others consider that the figure of 6 could probably be somewhat improved upon by more practice and further experimenting. Of the minority (three), one member considers that the figure, on experience and data, so far obtained, should be between 5 and 6 hanks but that there may be great possiblities and room for improvement; one considers it should be 5; and the third that it should be between 4 and 5, but that the experience and data is inadequate. One member has no opinion to express", (p.1).

All this is *very* puzzling. On the whole, however, it appears that about 6 hanks will be the least objectionable assumption to make, which is also what the Enquiry Committee does when it comes to quantitative calculations.

(b) Net value added per unit of output: According to the Enquiry Committee Report, the costs of raw cotton, wastage and handling come to He. 0-14-2, Re. 0-2-2 and Re 0-2-8 respectively per lb of yarn of 18 counts (p 40;, So the total non-wage recurring cost is Rs 1-3-0 per lb. The market price of yarn (mill made) is Rs 1-0-6 per lb. (p 40). We can use this as the price of Ambar yarn also. This would be, if anything, an overestimate as "there is general agreement amongst the Committee that as compared with mill yarn, the productivity of Ambar yarn in weaving is less and may vary from 5 per cent to 25 per cent less than in the case of mill yarn" (p 2). So, in using the price of mil! yarn as the price of Ambar yarn, we are overestimating its contribution, This should be borne in mind.

If costs of depreciation and maintenance are ignored, value added per lb of yarn is, according to the mentioned figures, six and a half annas. Since output per labourer per 8-hour day is 6 hanks (one-third lb) of yarn, value added per worker per day is 2 annas and 2 pies. An average worker is expected to work for 300 days and 2 workers can use an Ambar Charkha set simultaneously; hence gross value added per year is Rs 31-4-0. From this we have to subtract the cost of maintenance and depreciation.

The Committee thinks that an Ambar Charkha can be used for 10 years, so that, ignoring the interest rate, the annual depreciation will be .10 per cent of the cost, of an Ambar Charkha (Rs 100), i e Rs 10. In addition to this, Rs 10 a year has to be spent to maintain' the Charkha during its lifetime, according to the Committee (pp 38-39). So the costs of maintenance and depreciation come to Rs 20 per year, to produce an annual output of 3,000 hanks with 2 workers working for 300 days in a. year and producing 6 hanks per man per day. Hence tile costs of maintenance and depreciation come to about 0.1 anna per hank. After this the Report says, "The Committee's view is that the amount is so insignificant that it need not he taken into consideration in calculating the built-up cost of yarn." (p 39). For our purpose, however, this cannot be neglected, since compared with the value added per hank it is by no means insignificant. Subtracting Rs 20 from Rs 81-4-0, we get Rs 61-4-0 as the net value added per Charkha per year. Net value added per worker per day is 1 anna and 8 pies.

(e) Net surplus per unit of output: Spinning wages per lb of yarn are estimated by the Committee to be, Rs 1-11-0 at Re 0-1-6 per hank (piece rate). So wage cost per worker per day (6 hanks output) is 9 annas. This means that far from creating any surplus, the Ambar Charkha produces Re 0-7-4 deficit per worker per day. Even the recurring cost far exceeds the output flow from the Charkha and its contribution to domestic capital accumulation seems to be very definitely negative. Looking at the same thing from another angle, namely that or 'mopping up the surplus purchasing power' which is supposed to be one of the major roles of hand industries in India to-day, the situation is equally depressing. Even if we leave out the inflationary effects of the capital investment in Ambar Charkha it appears that the situation is quite inflationary, as the value of the recurring output at constant price is less than the extra recurring purchasing power it creates.

The rate of wage per worker per

*For two good discussions see K. A. Naqvi, "Economics or Ambar Charkha," Economic Weekly, July 14, 1956 and V. M. Dandekar, "Rationale of the Ambar Charkha", Economic, Weekly, July 6, 1957.

8-hour day at which there is no such recurring deficit is obviously equal to the net value added per worker per 8- hour day, viz, 1 anna and 8 pies. I think no one would deny that it is an impossible wage even in a country as pour as India.

(d) The capital-output ratio:. The net value added per Charkha per year, we have seen, is Rs 61-4-0. The cost of an Ambar Charkha is Rs 100. So the capital-output ratio is:-

$$c = \frac{100}{61.25} = 1.6$$

Putting it in another way, the output coefficient is:-

$$a = 0.61$$

The value of the output coefficient will be lower if we include the cost of housing. It is true that the worker may not need any extra building if he works in his dwelling house, but it will be idle to pretend that the resultant loss of dwelling space in the already overcrowded rural homes will have no social cost. There are also costs of training and organization.

(e) The rate of surplus per unit of capital investment: The volume of recurring deficit per Charkha per year is equal to the difference between the net value added per year (Rs 61-4-0) and the wage bill per year (Rs 337-8-0 at Re 0-9-0 per day for 300 days to 2 workers). Thus it is Rs 276-4-0. Dividing this by the cost of the Charkha (Rs 100), we find that the rate of surplus per year per unit of capital is minus 276 per cent, equating the capital cost to the value of the Charkha.

It is not necessary to compare this in detail with the factory techniques as the rate of investible surplus in factory spinning is known to be positive and quite high.

The Ambar Charkha programme must have inflationary effects and will affect capital accumulation adversely. Far from creating any flow of surplus, it produces a flow of output whose value is less than even the recurring- costs. In order that the Ambar Charkha might have no recurring adverse effect on the national capital stock, the workers would have to be happy with less than two annas per 8-hour day. Even at the meagre wage of 9 annas per day the rate of investible surplus per unit of capital seems to be minus 276 per cent.

World Bank Loan for Pak I C I C

THE World Bank has approved a loan of $ 4.12 million to help finance the development of private industry in Pakistan. The loan will be made to the Pakistan Industrial Credit and Investment Corporation Limited, a corporation being formed by private Pakistani, British, American and Japanese investors. The Bank will enter into a formal loan agreement when the Corporation is established a few months hence.

The initial share capital of the Corporation will be 21) million rupees ($ 4.2 million). Arrangements have been made for the Pakistani investors to subscribe to 60 per rent of the shares, American and British investors to 15 per cent each and Japanese investors to 10 per cent. The Government of Pakistan will make a 30-year interest-free advance of 30 million rupees to the Corporation; so that the capital resources initially available to the Corporation, from capital subscription, the Government advance and the Bank loan, will be 70 million rupees ($ 14.7 million).

The principal objectives of the Corporation will be to assist in the expansion or modernization of small and medium-sized industries and to help create new ones. To achieve these objectives, the Corporation will make loans and equity investments, and underwrite and distribute securities. It will also help private indue tries to obtain managerial, technical and administrative services and advice. As rapidly as is prudent, the Corporation will sell its loans and .share holdings to other investors to recover its own capital for further investment.

It is expected that the initial Board of Directors of the Corporation will comprise 14 Directors: 10 prominent Pakistani industrialists, businessmen and bankers to represent the Pakistani shareholders, one director each to represent the British, American and Japanese investors, and one Government Director. The General Manager of the Corporation will be Esgo T. Kuiper of the Netherlands, who organized and was the first Managing Director of the Indonesian Industrial Bank. Headquarters of the Corporation will be in Karachi and branches will be established in Lahore and Dacca.

The authorized capital of the Corporation will be 150 million rupees ($ 31.5 million), divided into two million ordinary shares (common stock) and 13 million unclassified shares, all with a par value of 10 rupees ($ 2.10) each. Initially the Corporation will issue only the two million ordinary shares with an aggregate par value of 20 million rupees ($ 4.2 million) which will be offered for subscription at par. The Pakistani Steering Committee is arranging for the sale of 1,200,000 shares (12 million rupees) of capital in Pakistan: 800,000 shares through private placement and 400,000 by public offering. The British investors some of the Eastern Exchange Banks, a number of insurance companies, four industrial concerns and the Commonwealth Development Finance Company Limited—intend to subscribe 30,000 shares (3 million rupees). American investors Bank of America, Henry J Kaiser Company, International Basic Economy Corporation, Transoceanic Development Corporation Limited, and others—intend to subscribe 300,000 share (3 million rupees). The Japanese investing group, consisting of the 12 Japanese foreign exchange banks(intend *to* subscribe 200,000 shares (2 million rupees).

The Government's 30-year interest-free advance of 30 million rupees will be repayable in 15 equal instalments, beginning in the 16th year. This advance will be provided out of funds derived from the sale of commodities provided to Pakistan under United States Government aid.

The proceeds of the $ 4.2 million World Bank loan will be used to pay for imported materials, equipment and services required to carry out industrial projects financed by the Corporation. The loan will be for a term of about 15 years and interest will be determined at the time the loan documents are signed. The Government of Pakistan will guarantee the loan.