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IMPACT OF EMBODIED TECHNOLOGY TRANSFER ON THE PRICE - WAGE - INTEREST STRUCTURE

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Abstract

The ordinary characteristic of developing countries is that they export agricultural and mining products and import manufactured goods. Nevertheless, a limit to their development is quickly reached given that land and minerals are fixed resources. The way out for further development is based on the progressive transfer of production techniques from the developed countries.

In case the industrialising developing countries out to meet the extra foreign exchange requirements by exporting to the developed countries those goods produced by means of the transferred technologies, the impact of the embodied technology transfer on the price - wage - interest structure is the imposition of an upper bound. However, this bound varies depending on the layer of techniques to which it belongs (JEL, C67, 014).

1. Introduction

The usual practice in input-output analysis requires the compilation of input-output tables representing the average production techniques in the economy. Nevertheless, the knowledge of the average coefficients not only provides a thin data base for planning exercises but also plagues the economic forecasters who have to translate their estimates of extra investment, consumption, exports or government expenditure into outputs of various industries and employment generated by them.

As Leontief pointed out (Leontief, W. W., 1982), in a state of technical change in the economy, there are various layers of techniques working simultaneously with different requirements in inputs, labour and working stocks and, hence, with different productivities and residuals.

The technique with the largest residual is the best practice technique, which should be used in translating the extra final demand of macro- models (Carter, A. P., 1970). The technique with zero residual is the least efficient technique, which is in operation because the demand at the prevailing price system exceeds the total capacities of all the more efficient techniques (Mathur, P. N., 1963 and 1977).

In a competitive environment, the least efficient technique is the one determining the price - wage - interest structure, and should be used in assessing the incidence of obsolence, unemployment etc. with the pace of innovations and the changing macro- economic conditions (Mathur, P. N and Livas, P., 1989).

Thus, the knowledge of both best practice and least efficient coefficients is more essential than that of the average coefficients for disaggregating planning and forecasting as well as for exercising the proper economic policy (Mathur, P. N. and Livas, P., 1989).

As a matter of fact, the intention in this paper is to extend the analysis of layers of techniques to the industrialisation of developing countries by ascertaining the impact of embodied technological transfer on their development through the price - wage - interest structure.

The next section makes a quick review of the embodied technology. Then we set up a mathematical model in order to take account of the situation, and examine how this model with the layers of techniques can handle the problem of industrialisation. The whole procedure is illustrated by means of a hypothetical simple example and is followed by some concluding observations and remarks.

2. Embodied Technology

There are two types of technical change, the embodied and disembodied technical change, whose primary aim is the reduction of the production cost. Moreover, the embodied technical change is distinguished into the continuous and discontinuous one meaning the technical advance in the capital equipment.

When a new technology is embodied in the capital equipment, the equipment of the old technique also remains producing for a certain time, though by the nature of things it is likely to be earning lesser returns. The very fact that the new technology requires an accumulation of the corresponding capital will allow for the old technology to be in use for some time, that is until the time that the accumulated new capital becomes sufficient to meet with the total demand Subsequently, investment of various techniques will work with different efficiencies and, hence, with different requirements in inputs, labour and working stocks to produce a unit of output.

The above - mentioned make clear that it is not necessary to assume, as Schumpeter (Schumpeter, J. A., 1934) and Galbraith (Galbraith J. K., 1952) do, that there must be monopoly power with the firm to prevent its capital equipment embodying old technology from becoming obsolete due to new innovations. Up until the time that sufficient equipment of new technology is not accumulated, the equipment of technology will go on producing. Once sufficient new capital is accumulated, no amount of monopoly power can prevent the old equipment from being pushed out to the scrap heap, as the demand will be met cheaply by the processes employing the new capital equipment.

If the industry is under monopolistic control, the monopolist will not find it to his advantage to go on using the old capital which procudes at a higher cost. In fact new capacity will be installed when the cost advantage outweights the loss of abandoning some old working capacity; or there is sufficient extra demand to justify it, and the extra revenues generated by increasing prices to equate this extra demand with supply are expected to be less than those achieved by increasing capacity. Nonetheless, the monopolist may delay, purposely, the process of new capital accumulation thereby giving more time for the old capital goods to survive economically than would have been otherwise possible.

If the industry is working in a competitive environment, the firm possessing the technologically advanced outfit, which leads to the reduction of the production cost, would have to see that others with old capital equipment stop producing so that it can use its modern capital to the fullest capacity. This can be achieved by reducing the price of the product in such a way that production from the capital of old technology becomes loss making. The monopolist, however, needs not reduce the price to achieve this objective. He can switch off the machines of old technology without reducing the price to such an extent as to make its use unprofitable.

3. Price - Wage - Interest Structure

The fixed capital embodies the technology of the time when it was installed. This embodied technology remains almost the same up to the time the quipment embodying it is scrapped. Furthermore, at a particular time, capital equipment installed at different past dates will be working simultaneously having, of course, different productivities and residuals. Thus, in a state of technical change, the developed economies have got in situ various amounts of fixed capital equipment belonging to different layers of techniques.

Let Aj^k and Li^k stand for the column vectors of the commodity and labour inputs respectively per unit of production of the jth commodity by the kth technique. Moreover, let ${}^fB^k$ and ${}^wk^k$ give the column vectors of the fixed and working capital stok requirements respectively per unit of production of the jth commodity by the kth technique. And, finally, let there be m techniques working to produce the jth commodity. Then, the price - wage - interest structure will be such that

$$p_j = p_1 a_{il}^k + p_2 a_{2j}^k + \dots + p_i a_{ij}^k + \dots + p_n a_{nj}^k + w\,(l_{1j}^k + l_{2j}^k + \dots + l_{nj}^k) +$$
$$+ r\,(p_1\, {}^w b_{1j}^k + p_2\, {}^w b_{ij}^k + \dots + p_i\, {}^w b_{ij}^k + \dots + p_n\, {}^w b_{nj}^k) + s_j^k \qquad (1)$$
for all k

and in matrix algebra notation

$$p_j = PA_j^k + wL_j^k + rP\, {}^w b_j^k + s_j^k \qquad (2)$$

It is noted that while the row vector of prices (P), the average wage and interest rates (w and r) are the same for all the techniques, the residual (sf) is different for each one, which emphasises that the technical change comes about by the installation of new equipment embodying more profitable techniques at the current price - wage - interest structure.

As a matter of fact, it is on the values of the residual that the actions of units depend. When an investment is being done in an equipment pertaining to a new technology, the expected residual should be so large as not only to cover the interest and depreciation charges of the fixed capital but, also, the risk as well as the profit expectation of the entrepreneur. It may be recalled that this residual is not like a fixed annuity over the physical lifetime of the equipment, as it is the case if there is no technical progress and, hence, no obsolescence. In the age of advancing technology, the value of the residual should be gradually declining, and an investor should take this into consideration while making his investment.

The returns on the fixed capital are not essential for the firm to remain in production. Once the fixed capital is installed and if it is not economically worthwhile to produce with it, it can only fetch its scrap value. So its opportunity cost is almost zero. This of course, does not imply that there must not be expectations of sufficient returns before it is installed at all. Therefore, in taking decisions whether to continue the production process, the unit will not take into account any returns on the fixed capital by continuing production. It should go on producing until it can cover the variable cost of production. In other words, a unit will remain in production until its residual is not negative. Thus, the price of the jth commodity will determine which technique should be used in the production and which should not.

If m is the least efficient technique required to be in production to meet with the demand, then

$$p_j = PA_j^m + wL_j^m + rP\,{}^{w}B_j^m \tag{3}$$

This equation will be valid for one technique of each of the industries, namely for the marginal technique which is on the verge of obsolescence. The condition that the total output of each industry should be just sufficient to meet with the demand of its product will uniquely determine the number of techniques in use. Consequently, the price structure will be such that all those techniques required to produce will be economically feasible. An increase in the demand might induce some obsolete techniques to be brought back into production by suitably adjusting the price structure and vice versa.

Collecting equations (3) for each industry, viz. the marginal or zero residuals units, we derive the price determining eqution for the system as

$$P = P\bar{A} + w\bar{L} + rP\,{}^{\bar{w}}\bar{B} \tag{4}$$

where $\bar{A}$, $\bar{L}$, and ${}^{\bar{w}}\bar{B}$ denote the sets of input, labour and working stock requirements respectively for the marginal techniques which are on the verge of obsolescence.

As seen, the current price structure is related to the current wage and interest rates as well as to the least efficient technique and not to the average or the best practive technique. Besides, the profit rate and the value of fixed capital do not play any role in the determination of price structure. These are the accountant's problems and have no implications for the working of the economy.

If the production of the marginal firms is represented by the vector X then the net output available for use in given by

$$P(I - \bar{A})\bar{X} \tag{5}$$

Out of this, $rP\,{}^{w}\bar{B}\bar{X}$ is the income of the interest receivers, and the rest the wage incomes fo those working with the marginal firms. Hence the wage rate is given by

$$P\,(I - \bar{A} - rP\,{}^{w}\bar{B}\,)\,\bar{X}\,/\,\bar{L}\,\bar{X} \qquad (6)$$

which implies that given the interest rate, the marginal technique determines both the price structure and the real wage rate. Similarly given the real wage rate, the marginal technique determines the price structure as well as the interest rate. There is one degree of freedom. Either the interest rate or the wage rate can be independently determined.

The above derivation crucially relies on the competitiveness of the industry. In a monopolistic industry the selection of the techniques for current production can be done by administrative act and price system is released to achieve other aims of the monopolist. Therefore, the prices of a monopolistic industry will not be determined only by the marginal cost of production considerations as above but by the demand and other considereations as well. Similarly in agriculture and mining where short term supplies do not depend on current prices, the relationship between cost of production and prices will be weak. The prices in these also will be largely demand determined. These industries have been named as flex price industries by Hicks (Hicks, J. R., 1965) while the other whose prices related to the cost of production are called fix price ones.

If some industries are flex price ones, equation (4) will not describe the process of price formation in the economy. The prices of flex price commodities do not directly depend on the production technology but on other economic variables. However, for the process of the determination of prices for fix price commodities, these can be considered as given. Consequently, equation (4) will take the following form

$$P^{c} = w\bar{L}^{c} + P^{c}\,\bar{A}_{11} + p^{d}\,\bar{A}_{21} + rP^{cw}\,\bar{B}_{11} + rP^{dw}\,\bar{B}_{21} \qquad (7)$$

where P^c and P^d are the price vectors relating to the fix and flex price commodities respectively, An and A21 are the partitioned marginal input - output coefficient matrices giving the inputs of fix and flex price commodities respectively in the production of fix price ones; and ^{w}Bn and ^{w}B2i are the corresponding working capital matrices.

4. Implications of the Embodied Technology Transfer

For a developing economy let A'j and L'j stand for the column vectors of the commodity and labour inputs respectively per unit of production of the jth commodity. Moreover, let ^{w}B'j give the column vector of the working capital requirements per unit of production of the jth commodity. And, finally, let w' and τ denote the average wage and interest rates respectively. Hence the price of the jth commodity in accordance with equations (2) and (3) will be

$$p'_j \geq P'A'_j + w'L'_j + r'P'^{w}B'_j \tag{8}$$

and if the jth commodity is also imported from the developed world, then

$$p'_j \geq p_j (1 + t_j) \tag{9}$$

where t_j is the proportionate transport and trade cost.

As a matter of fact, the ordinary characteristic of developing economies is that they import manufactured goods and export argicultural and mining products. Nevertheless, a limit to theit development by this route is quickly reached as the availability of land and minerals start forming the bottleneck for further development. The way out is through industrialisation, which implies the progressive transfer of production techniques from the developed economies. This transfer is accompanied by the sales of the corresponding capital equipment at the beginning of the new capacity creation in the developing economy and, usually, by the regular sales of some intermediate inputs afterwards.

To meet the extra foreign exchange requirements, the industrialising developing countries may opt to export to the developed ones those goods produced by means of the transferred technologies. In such a case, according to equations (2) and (3)

$$\acute{p}_j \geq P'A_j^k + \acute{w}L_j^k + \acute{r}P'^{w}B_j^k \tag{10}$$

and since the jth commodity is also exported to the developed world,

$$\acute{p}_j \leq p_j (1 - t_j) \tag{11}$$

Suppose that in both the developed and developing countries two commodities are only produced, and that the embodied technology transfer from the developed country to the developing one refers to the least efficient technique. Namely the kth technique of equation (10) refers to the marginal technique on the verge of obsolescence being in operation in the developed country. Furthermore, suppose that the input - output, labour and capital coefficients relating to this technology are given by the following

$$A = \begin{vmatrix} 0.20 & 0.25 \\ 0.30 & 0.35 \end{vmatrix} \quad L = | \, 0.40 \quad 0.30 \, | \quad B = \begin{vmatrix} 0.20 & 0.60 \\ 0.80 & 0.40 \end{vmatrix}$$

Consequently, on the basis of equation (4), the price system for the two commodities in the developed country is

$$p_1 = 0.20p_1 + 0.30p_2 + 0.40w + 0.20rp_1 + 0.80rp_2$$
$$p_2 = 0.25p_1 + 0.35p_2 + 0.30w + 0.60rp_1 + 0.40rp_2$$

or

$$0.80p_1 = 0.30p_2 + 0.40w + r\,(0.20p_1 + 0.80p_2)$$
$$0.65p_2 = 0.25p_1 + 0.30w + r\,(0.60p_1 + 0.40p_2)$$

and putting $p_1 = p_2 = 1$

$$0.80 = 0.30 + 0.40w + r$$
$$0.65 = 0.25 + 0.30w + r$$

or

$$0.40w + r = 0.50$$
$$0.30w + r = 0.40 \qquad \text{giving } r = 0.10 \text{ and } w = 1$$

In the developing country, on the basis of inequalities (9) and (11), let

$$p'_2 \geq p_2\,(1 + t_2) \tag{12}$$

and

$$p'_1 \leq p_1\,(1 - t_1) \tag{13}$$

which means that only the first commodity is produced by means of the transferred technology, and is exported to the developed country. Thus, the price of the first commodity in the developing country will be, in accordance with inequality (10)

$$p'_1 \geq 0.20p'_1 + 0.30p'_2 + 0.40w' + 0.20r'p'_1 + 0.80r'p'_2$$

or

$$0.80p'_1 \geq 0.30p'_2 + 0.40w' + r'(0.20p'_1 + 0.80p'_2)$$

and substituting (12) and (13)

$$0.80p_1(1\text{-}t_1) \geq 0.30p_2(1+t_2) + 0.40w' + r'[0.20p_1(1\text{-}t_1) + 0.80p_2(1+t_2)]$$

Given that $p_1 = p_2 = 1$, and if $r' = r = 0.10$ as well as $t_1 = t_2 = 0.30$ we get

$$0.80(1\text{-}0.30) \geq 0.30(1+0.30) + 0.40w' + 0.10[0.20(1\text{-}0.30) + 0.80(1+0.30)]$$

or

$$0.80 \times 0.70 \geq 0.30 \times 1.30 + 0.40w' + 0.10(0.20 \times 0.70 + 0.80 \times 1.30)$$

or

$$0.56 \geq 0.39 + 0.40w' + 0.10(0.14 + 1.04)$$

or

$$0.56 \geq 0.39 + 0.40w' + 0.10 \times 1.18$$

or

$$0.56 \geq 0.39 + 0.40w' + 0.118$$

or

$$0.052 \geq 0.40w' \quad \text{giving } w' \leq 0.13$$

Hence, if the least efficient technique is transferred to the developing country, the average wage has to be equal or less than 13% of that in the developed country. This of course happens if the developing country chooses to develop through technological transfer, and opts to meet the extra foreign exchange requirements by exporting its manufactures produced by means of this transfer.

In case a more efficient technique than the least one is transferred from the developed country, with input-output, labour and capital coefficients given by the following

$$A = \begin{vmatrix} 0.15 & 0.25 \\ 0.30 & 0.30 \end{vmatrix} \quad L = |\,0.35 \quad 0.25\,| \quad B = \begin{vmatrix} 0.15 & 0.60 \\ 0.80 & 0.35 \end{vmatrix}$$

the price of the first commodity in the developing country will be, according to the previous analysis,

$$p'_1 \geq 0.15p'_1 + 0.30p'_2 + 0.35w' + 0.15r'p'_1 + 0.80r'p'_2$$

or

$$0.85p'_1 \geq 0.30p'_2 + 0.35w' + r'(0.15p'_1 + 0.80p'_2)$$

or

$$0.85p_1(1-t_1) \geq 0.30p_2(1+t_2) + 0.35w' + r[0.15p_1(1-t_1) + 0.80p_2(1+t_2)]$$

or

$$0.85(1-0.30) \geq 0.30(1+0.30) + 0.35w' + 0.10[0.15(1-0.30) + 0.80(1+0.30)]$$

or

$$0.85 \times 0.70 \geq 0.30 \times 1.30 + 0.35w' + 0.10(0.15 \times 0.70 + 0.80 \times 1.30)$$

or

$$0.595 \geq 0.39 + 0.35w' + 0.10(0.015 + 1.04)$$

or

$$0.595 \geq 0.39 + 0.35w' + 0.10 \times 1.145$$

or

$$0.595 \geq 0.39 + 0.35w' + 0.1145$$

or

$$0.0905 \geq 0.35w' \qquad \text{giving } w' \leq 0.26$$

Therefore, the average wage rate in the developing country has to be equal or less 26% of that in the developed country, if it chooses to develop through the technology transfer of a more efficient technique than the least one, and pays for the extra foreign exchange requirements by exporting its manufactures produced by means of this transfer.

Finally, assume that the best practice technique is transferred from the developed country, with input - output, labour and capital coefficients given by

$$A = \begin{vmatrix} 0.15 & 0.20 \\ 0.25 & 0.30 \end{vmatrix} \quad L = |\,0.30 \quad 0.20\,| \quad B = \begin{vmatrix} 0.15 & 0.55 \\ 0.75 & 0.35 \end{vmatrix}$$

Then, the price of the first commodity in the developing country will be

$$p'_1 \geq 0.15p'_1 + 0.25p'_2 + 0.30w' + 0.15r'p'_1 + 0.75r'p'_2$$

or

$$0.85p'_1 \geq 0.25p'_2 + 0.30w' + r'\ (0.15p'_1 + 0.75p'_2)$$

or

$$0.85p_1(1\text{-}t_1) \geq 0.25p_2(1\text{+}t_2) + 0.30w' + r'\ [0.15p_1(1\text{-}t_1) + 0.75p_2(1\text{+}t_2)$$

or

$$0.85(1\text{-}0.30) \geq 0.25(1\text{+}0.30) + 0.30w' + 0.10\ [0.15(1\text{-}0.30) + 0.75(1\text{+}0.30)]$$

or

$$0.85 \times 0.70 \geq 0.25 \times 1.30 + 0.30w' + r'\ [0.15 \times 0.70 + 0.75 \times 1.30]$$

or

$$0.595 \geq 0.325 + 0.30w' + 0.10\ (0.105 + 0.975)$$

or

$$0.595 \geq 0.325 + 0.30w' + 0.10 \times 1.08$$

or

$$0.595 \geq 0.325 + 0.30w' + 0.108$$

or

$$0.162 \geq 0.30w' \qquad \text{giving } w' \leq 0.54$$

Consequently, the average wage rate in the developing country has to be equal or less 54% of that in the developed country, if it chooses to develop through the technology transfer of the best practice technique, and pays for the extra foreign exchange requirements by exporting its manufactures produced by means of this transfer.

5. Problem Dimensions

The proceeding results have far reaching implications. They signify that developing countries adopting the strategy of industrialisation via embodied technology transfer, and which involves a continuous earning of the required foreign exchange through the export of their produce, cannot increase their wage rate beyond a certain proportion of the wage rate in the developed countries.

More precisely, the development procedure by means of technological transfer imposes an upper bound on the wage rate of the industrialising developing countries. However, this bound varies depending on the layers of techniques to which this technological transfer belongs. The more efficient the transferred production technique the greater the upper bound, which implies that the upper bound takes its largest value when the technological transfer relates to the best practice technique. To get a feel of the problem mgnitude, we give below the table of average wage rates of some countries adopted the afore - mentioned strategy.

On the basis of the World Bank criterion that exporters of manufactures are developing countries with exports of manufactures, not being of agricultural processing industry including textiles, for more than 30% of goods and services, twelve developing countries are designated as exporters of manufactures (World Bank 1988, p.xi). But for three of these, China, the Republic of Korea and Romania, there are not available data (United Nations Industrial Development Organization, 1992). In addition, we also give the average wage rates of eight other countries whose manufacturing exports accounted for more than 30% of their total exports, though they do not meet the World Bank criterion of exported manufactures not being of agricultural processing industry including textiles (United Nations Industrial Development Organization, 1992).

As seen from the table, with the exception of three developing countries, Israel, Poland and Morocco, the average wage rates in all other countries improved in the period 1985-1989 with respect to the U.S. average wage rate. However, this does not mean that also the conditions in the listed developing countries changed.

More specifically, in 1985 the average wage rates for eleven developing countries fluctuated between 2.4% and 11.6% of that of the U.S.A., for two developing countries between 13.2% and 16.4% and for three developing countries between 20.2% and 31.6%, whereas the average wage rate for Israel was 59.0% of that of the U.S.A.

In 1989 the average wage rates for nine developing countries ranged from 3.1% to 11.3%, for three developing countries ranged from 14.4% to 18.1%, and for four developing countries from 26.6% to 33.9%, while the average wage rate for Israel was 55.3% of that of the U.S.A.

Consequently, in the period 1985-1989 only in three developing countries the conditions changed since the wage rate improvements resulted also in the change of the relevant category. These countries are Brazil, Portugal, and Uruguay.

Analysing the 1989 average wage rates, five developing countries, i.e. Brazil, Hong Kong, Israel, Singapore and Greece have wage rates between 26.6% and 55.3% of that of the U.S.A. These countries can be supposed to have received the more efficient techniques. Many of the establishments are ran by multinationals for the purpose of producing commodities for export to other countries and some times for being imported to their own countries after taking advantage of the cheap labour force there. In quite a few places their production facilities are like those of off shore assembly units (World Bank 1988, p. 45). Therefore, the conclusion is that these multinationals put up the plant embodying latest technologies for the purpose.

Three developing countries, namely Portugal, Tunisia, and Uruguay have wage rates between 14.4% and 18.1% of that of the U.S.A. Portugal is a full member of the European Union whereas Tunisia is connected with it via preferential arrangements. Besides, their transport costs etc. are also low. Uruguay may be considered as a genuine intermediate case. Nevertheless this country has also a significant agricultural processing industry, which accounts for a large part of the exports.

The remaining nine developing countries have wage rates less than 11.3% of that of the U.S.A. The technological trasnfer to them mainly aims at the exploitation of their protected markets by the multinationals or at the selling of technology to the local entrepreneurs, private or public. In such cases, it is more than likely that a marginal technique on the verge of obsolescence in the developed country is transferred into the developing country. This gives a new market for its capital goods producing capacity as well as a new lease to the intermediate goods industry associated with it. A developing economy should have a really low wage rate in order to use such a capacity for export promotion.

6. Conclusions

The ordinary characteristic of developing countries is that they import manufactured goods and export agricultural and mining products. However, a limit to their development is quickly reached given that land and minerals are fixed resources.

The way out for further development is based on their progressive industrialisation, which implies the progressive transfer of production techniques from the developed countries.

In case the industrialising developing countries opt to meet the extra foreign exchange requirements by exporting to the developed ones those goods produced by means of the transferred technologies, they cannot increase their wage rate beyond a certain proportion of the wage rate in the developed world. In other words, they will always remain developing countries until the time these conditions prevail.

In a state of technical change, there are various layers of techniques in the developed countries working simultaneously with different requirements in inputs, labour and working stocks. Thus if the best practice technique is transferred, the wage rate in the developing countries will remain between 20% and 30% of that in the developed ones.

If the marginal technique on the verge of obsolescence is transferred, the wage rate in the developing countries is hardly likely to increase more than 10% of that in the developed ones.

In fct, this seems to be the economic law regardless the local institutional framework. All developing countries are equally contained by the restriction to development through the process of technological transfer, the economic cost of which is to be paid by means of consequent export creation.

Table of Average Wage Rates

	Average Wage Rate in USD		Percentage	
Year	1985	1989	1985	1989
Country				
U.S.A.	22683	26356	100.00	100.00
Developing countries Classified as Exporters of Manufactures				
Brazil	3720	7008	16.40	26.60
Hong Kong	4583	7260	20.20	27.50
Hungary	1403	2159	6.20	8.20
India	1135	1340	5.00	5.10
Israel	13373	14577	59.00	55.30
Poland	1627	1774	7.20	6.70
Portugal	2635	4775	11.60	18.10
Singapore	7162	8931	31.60	33.90
Yogoslavia	2024	2986	8.90	11.30
Other Countries Having More Than 30% Manufacturing Exports				
Bangladesh	551	810	2.40	3.10
Greece	5539	8595	24.40	32.60
Marocco	2423	2707	10.70	10.30
Pakistan	1324	1582	5.80	6.00
Philippines	1258	1818	5.50	6.90
Tunisia	3005	3784	13.20	14.40
Turkey	2618	3359	11.50	12.70
Uruguay	2448	4263	10.80	16.20

Source: United Nations Industrial Development Organization. Industry and Development: Global Report 1991/92.

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