

CAPITAL ALLOCATION IN LESS DEVELOPED ECONOMIES

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“European mining is done by companies, and company’s money is almost like government money. . . . Machinery is bought, houses are built, in fact the capital of the company is spent. . . . After possibly a series of great hardships to the staff and disasters to the company, it is found that the tin raised is infinitesimal in value when compared with the rate of expenditure, and that the longer the work goes on the greater will be the losses. This is usually discovered when the paid-up capital is all but exhausted. The company is wound up and the State gets a bad name with investors, and the only people who really enjoy themselves are the neighbouring Chinese miners who buy the mine and the plant for an old song and make several large fortunes out of working on their own ridiculous and primitive methods.”

F. A. Swettenham, *About Perak* (1893)

I. SOME ISSUES

DEVELOPMENT PROGRAMMES are too often handicapped by relatively ineffective use of capital, often involving excess capacity through failure to relate investment adequately to markets for outputs and inputs [6]. In particular there has been a preoccupation with capital-intensive schemes and too little consideration of the complementary relationships between domestic labour and savings, imports, national output and transfers of foreign resources. This situation is most frequently associated with countries having entrenched balance of payments difficulties but is not confined to them. Accordingly some issues now look very familiar to those who think about the effectiveness of policies for manufacturing development in countries like Thailand and Malaysia as they should be to policy-makers in Pakistan and India [24]. All too often capital is not fully used over a wider range of activities, and the prospect for an effective use of this capital in a relatively short time is not really bright. Troubles stem from a variety of sources; the installation of capacity without concern for markets, curtailing use of plant, and rapid administrative changes in import allocations, categories for tariff assessments and foreign exchange entitlements. If a discount rate of 15 per cent is used, and this is a modest enough estimate of the market rate for many small and medium-size firms in India and Pakistan, the present value of capital left unused for five years is just under 50 per cent of installation cost.

The issues are complicated and not easy to interpret [15]. Many less developed countries are caught in a web of conflicting goals towards which economic policies

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are supposed to be directed. The desire to raise the rate of growth, or to provide the potential for growth, has often outweighed other considerations. Yet the difficulties of implementing a co-ordinated programme cannot be underestimated [16]. All too often concern with investment for growth has blinded its advocates to the complexity of industrializing. Support for capital-intensive industries in India was based heavily on the proposition that there would generate more gross savings than labour intensive activities because of commitments to depreciation allowances and the higher proportion of gross profit in value added [18]. Savings from profits must be relatively greater than from salaries and wages, especially in countries with low income per head. This dominance of savings over other considerations which reflect an assessment of the relative prices of factor inputs seems to have been complete. However the strategy of Indian planning remains a matter of controversy despite many lengthy assessments [1, pp. 5-12]. Some part of the thinking reflected very serious misgivings about long-term prospects for the balance of payments. The case for a big domestic capital goods industry rested on the need for converting savings into actual physical resources. This would not be possible if capital goods came mainly from abroad and foreign exchange resources were small.

This distorted view of the dominance of savings is held in other Asian countries besides India. Pakistan also put much stress on aggregative aspects of savings investment and the balance of payments, though recent events suggest some-alignment of policies away from this theme. Malaysia and Ceylon seem to have a similar approach in their development planning.

A further stimulus to single-minded concentration on these overall issues of resource development stemmed from work which suggested many advantages from using advanced techniques of production. The long discussions triggered off by India's problems seemed to justify a lack of concern with resource use, perhaps because of difficulties in measurement [22]. Yet a re-examination of Raj's work and that of other participants suggests fruitful avenues for study [1]. Other analyses, such as Hirschman's, claim confirmed the less developed economy has relatively more efficiency in continuous process, machine-dominated activities [11]. But the evidence is scanty.

Shortages of foreign exchange have not necessarily helped in formulating policies relating to effective allocation of resources. In 1964/65 foreign aid was about 6.5 per cent of GNP in Pakistan while for India, in that year, aid was roughly 4 per cent of gross domestic expenditures. Pakistan, moreover, received twice as much aid per head as India from 1955 to 1965 [17]. Thus a concern with optimizing the balance of payments—maximizing foreign exchange earnings or minimizing foreign exchange costs—may have been thwarted by the very size of aid flows which appeared to be independent of national efforts to generate foreign exchange resources. The nature of foreign aid would seem to allow little scope for economic choice by recipients between both projects and different processes. This belief probably further reinforced neglect of other features of investment decisions.

Slowing down in the flow of external aid since 1965 has not only heightened

worries about the impact of the balance of payments on growth, because of shortages of resources, but has also given some impetus to thinking about the way these resources are applied. Countries less troubled by balance of payments considerations than India and Pakistan have had similar experiences when using foreign resources to support investment programmes which are well in excess of available domestic savings. Thailand would be a good example.

II. EMPLOYMENT

Labour is in excess supply, and will become more so owing to rapid population growth. This requires closer consideration of relative factor prices in order to get advantages of modern technology with less capital-intensive projects than in the past. As the potential labour force of the seventies is already alive, birth control schemes, even if effective, will not relieve employment worries.

While the complexities are not questioned the explanations for recent difficulties, in India and Pakistan particularly, are hard to interpret. Certainly, Gunnar Myrdal's huge statement leaves much unanswered [20]. He responds to the capital intensive view of industrialization though not unmindful of implications for labour utilization. Moreover, his own institutional interpretation of this development challenge runs the risk of all such *particular* views; the hypotheses reflect a set of assumptions about the nature of institutional organization but institutions are not immutable to economic change. One lesson from the very successful private tube-well expansion in West Pakistan was a rapid growth in the number of installations once the efficiency and profitability of this water supply technique was demonstrated and the equipment became available. The traditional rural scene proved more adaptable than institutionalists would have led one to believe. Nevertheless most commentators and policy-makers would accept that the labour supply much exceeds what the non-rural market is willing or able to absorb though this is called into question by influential local groups. Some part of the dissatisfaction and recent unrest in Pakistan, culminating in General Yahya Khan assuming the Presidency, is to be explained in this way. Strains of East-West provincial links arise from the relative availability of resources in either province but, underlying this, is the awareness of what those resources can do to lift employment and output. Regional and communalist elements in India reflect demands for preferential claims on limited resources for expanding employment, while in Malaysia the problem of political accommodation for the Malay peasant in a potentially unstable political and social environment reflects much the same worry about employment.

The issue can be looked at in another way. If the investment outlay is about U.S.\$1,000 for each job created in the non-rural sector, then to employ an additional 5 million people each year would require an outlay of U.S.\$5 billion. This would represent about one-quarter of the proposed investment spending in India's Fourth Five Year Plan (1969 to 1974). Yet investment per job created seems to have been well in excess of U.S.\$1,000 in recent years. The Plan suggests a total investment outlay of about U.S.\$22.3 billion outside the rural

sector. Total expansion of employment outside the rural sector may be about 14 million so giving an outlay per head of about U.S.\$1,600 for each job. The limited quality of the data hampers any real conclusions. The total labour force in India might grow by as much as 22 million or more during this plan period and there seems little prospect, on this evidence, of relieving chronic unemployment.

Population growth has recently been rising throughout Asia, despite efforts to implement birth control schemes which as has been pointed out, cannot have much impact before the mid-seventies. The proportion of women in the child-bearing age groups is rising, and the quantitative problems this presents are most apparent in India, Pakistan and Indonesia, where the absolute numbers involved are so dramatically large. Higher growth rates can be found in many South Pacific communities, nearly 4 per cent in some cases. Most countries face the immediate prospects of a rise in population growth from about 2.6 per cent to about 3 per cent four or five years hence. A disturbing set of estimates from sample surveys in East Pakistan places this growth rate between 3 and 3.3 per cent in 1968. An inability to record with some promptness, say within two or three years, the results of census and survey work restricts the scope for making efficient decisions or for judging the impact of population control schemes.

The surge in the labour force in the next few years suggests a very real need to look at relative prices of factor inputs, and the impact of pricing arrangements on resource use. Equally important should be the analysis of flexibility in the mix of factor inputs. In some respects this is the more challenging aspect because advantages of modern technology may be enjoyed with a lower capital intensity than is found in advanced industrial economies. An examination of the issues is imperative in view of an apparently worsening labour situation. If this is not acceptable in policy determination, a view expressed widely in Pakistan, then ways for reducing the real cost of creating jobs must be considered. The Indian planning effort has only recently turned to this issue despite the explosive growth of urban unemployment in the great population centres throughout the Republic. An estimate of a 14 million rise in employment was given in the Fourth Plan Draft Outline, published in August 1966 [4], and subsequent revisions in the Draft Plan, put out in March 1969, left only a brief commentary tantamount to an abrogation of policy responsibility [5]. But the more recent Fourth Plan, 1969-1974, of April 1970 shows a much heightened awareness of employment issues. Problems of reducing the cost of creating jobs while maintaining efficient production are seen as critical for industrialization and overall economic policies [6]. These worries are not new. The distinction between social and private marginal product of labour and of capital must be imparted to the analysis of price and output decisions, the latter including all investment proposals.

III. AGRICULTURAL IMPROVEMENT AND RESOURCE USE

The impact of the "Green Revolution," though still in its formative stages in many areas, casts doubt on the extent of rigidities in use of inputs. Some lessons

may be learnt from recent experiences in Pakistan, India and one or two other less developed countries. They have had to make enormous adjustments in rather hectic circumstances and to apply their resources more flexibly. Agriculture's potential for rapid change is borne out by experiences with new dwarf wheat and rice in West Pakistan.¹ Part of the rapid improvement from mid-1967 may be explained by recovery from drought.

TABLE I
FOODGRAIN OUTPUT IN WEST PAKISTAN (million tons)

	1955/60 av.	1960/65 av.	1966/67	1967/68	1968/69	1970 Self- Sufficiency Target
Wheat	3.6	4.1	4.3	6.3	6.7	7.0
Rice	n.a.	n.a.	1.3	1.5	2.1	2.0
Other	n.a.	n.a.	1.3	1.6	1.6	1.9
			6.9	9.4	10.4	10.9

But expansion has been geared to swift acceptance of dwarf wheats, some 0.2 million acres of which were sown in West Pakistan during 1967/68 and 6.0 million acres in 1968/69. This rapid expansion has had some poor effects because of fertilizer and water supply difficulties, because the technical coefficients for wheat production with the new dwarf varieties are stricter than for the traditional varieties. Moreover, the growth in rice output from West Pakistan can be almost entirely attributed to the new dwarf types.

The record of performance in the agricultural sector is uneven, especially as between East and West Pakistan. The position in East Pakistan has been nowhere as consistent as for West Pakistan; admittedly the data is not really satisfactory. The estimate for East Pakistan during 1967/68 looks optimistic, and is not much different from that in India. Some areas such as the Punjab and Haryana have recorded sharp increases in productivity in response to the new varieties but efforts and results in many other states have been minimal.

TABLE II
GROWTH IN VALUE ADDED BY AGRICULTURE
(Annual Rate % at 1959/60 prices)

	2nd Plan 59/60-64/65	1965/66	1966/67	1967/68	1968/69
W. Pakistan	3.8	0.5	5.5	12.5	4.8
E. Pakistan	3.0	2.6	-2.7	9.5	1.2
Pakistan	3.4	1.6	1.1	11.0	3.0

¹ The estimates for wheat and rice production in Table I may be challenged. However, convincing estimates are not forthcoming. These estimates are comparable to the 1970 self-sufficiency targets. More recently, some official estimates would put wheat production at 6.4 million tons and rice at 3.1 million tons in 1968/69. The adjustment to the rice estimates applies over a number of years so the rate of growth is not altered.

These agricultural improvements offer a real indication of the potential for development over the entire range of food crops, not merely cereals. But success with the new dwarf wheats and rices may reflect, in part greater availability of water supplies as a result of substantial capital outlays in earlier years [3]. The combination of inorganic fertilizers and water with the new varieties offered a welcome prospect after the gloomy years of 1965/66 and 1966/67, and failure to maintain the required input of fertilizers has much to do with the declining yield of dwarf wheat in West Pakistan during 1968/69. Moreover, failures in the industrial sector with respect to fertilizer production have an asymmetrical effect on the economy. Potential output cannot be realized, and so less food is produced unless scarce foreign exchange can be used to pay for imports of fertilizer. There are no compensatory features in a short-fall of fertilizer output.

But as the central issue is the impact of agricultural improvement on the labour position an appreciation of the relative scarcity of resources in the farm sector must be attempted. Traditional agriculture has involved a series of attempts at improving processes and inputs to get a more intensive use of capital and labour. Throughout the fifties, and into the sixties, few of these efforts achieved notable success; the private tubewells in West Pakistan would be an important example. Myrdal's view about labour intensive agricultural development is in contrast with the apparent features of recent agricultural improvements which have changed the entire range of production possibilities for land, capital or other inputs, and the manner of their combination.

This set of technological changes in farming poses some problems for analysis. The really scarce productive factor becomes that land on which additional water supplies can be developed, either by irrigation or tubewell. Thus the prime effect of agricultural development policy should be limited to expanding the yield of such land. Whether or not this leads to the same number of workers per acre will depend on the nature of the new techniques in relation to land use and the cost of labour. The experience in West Pakistan during the Second Plan, 1959/60 to 1964/65, is relevant here. The number of workers per acre rose by a small percentage, but output per acre rose at a much faster rate. Hence output per worker was rising, even at that time, and private tubewell installations had much to do with the rise. As there are only limited prospects for an economic expansion of farm land, growth of farm output must come from existing holdings, and the new technology has given scope both for greatly increasing crop yields and for increasing the number of crops each year.

There are no reasons for thinking the new developments in agriculture will absorb more labour compared with other inputs and capital. But the extent of labour ejection from the farm sector cannot be readily judged. Rising yields per acre are almost certain to raise output per worker, and this may hasten the exodus to the cities. Factors contributing to the ejection of labour seem to be the need for much better control over water distribution to seeds or plants than is necessary with traditional varieties, the limited time available for both harvesting and preparing land for new sowings, and the difficulty of handling relatively much greater amounts of fertilizer. Evidence for this shift in labour use is drawn

mainly from West Pakistan and the Indian Punjab.

One likely consequence of the "green revolution" is a lessening of employment opportunities in the rural sector so that social and economic pressures from the urban population surge will be further heightened. This prospect is quite separate from those domestic pricing arrangements which, in both Pakistan and India, favour the substitution of capital equipment for labour in farming activities [14]. But the peculiarities of pricing policies for capital equipment and the terms on which loans are advanced to finance such purchases are treated more generally in subsequent sections. The speed of adjustment will fortunately be slower than was first thought likely in 1968/69. Yet ill-judged pricing policies rather than modern technology is the real cause of unrest amongst rural labour.

IV. INDUSTRIALIZATION: POLICY TECHNIQUES

The techniques of policy which have supported the quest for industrialization are numerous, some of the important being:

- (a) discriminatory tariff structures for different types of goods whether factor inputs, capital equipment and the like, or consumer goods.
- (b) use of quantitative import controls to regulate the quantity and structure of import flows.
- (c) control of manufacturing plants by various licensing methods often linked to access to foreign exchange.
- (d) use of multiple exchange rates.

Generally, the aim has been to have the most advanced industrial techniques and so has encouraged capital-intensive investment. But some difficulties have arisen from poor administration, often reflecting a lack of direction and co-ordination.

Industrialization programmes in India and Pakistan have reflected changing circumstances for the two economies almost as much as longer term strategies. Pakistani efforts have been better rewarded than those in India, partly perhaps because of a less ambitious programme for heavy industry, though there was relatively little choice open here to Pakistan at least in this writer's judgment [12]. Concern for the growth of manufacturing industries, as the opening paragraphs mentioned, has been closely associated with the idea of generating savings for sustaining the expansion of investment in all sectors of the economy [18, p. 63 and 79-80] [14, pp. 131-33].

Most efforts have sought to promote import substitution, beginning usually with consumer goods and then fostering new manufactures to supply components. Yet in most Asian countries have insisted on the use of most advanced techniques, so that in Malaysia just as in India and Pakistan, approval for new projects has depended upon agreement to install new plant and equipment rather than items which have been used elsewhere until replaced by more technologically advanced processes. The possibility of less complex equipment being better adapted to market size and production skill has rarely been entertained. Batch process techniques might be better adapted, and more flexible, than continuous production methods though one example can hardly illustrate all the queries

raised by such policies.

Certainly, a most vivid statement of the complications found with industrialization techniques may be found in Pakistan. An export bonus voucher system was introduced in January 1959 with the aim of encouraging exports of manufactures. Its effect was to introduce a system of multiple exchange rates which could be manipulated accordingly to policy needs. The implications for domestic factor prices are drastic. All exports, other than raw cotton and raw jute, may earn an export bonus voucher at 20, 30, or 40 per cent of the value of exports f.o.b.; after the United Kingdom devaluation in November 1967 most goods were put in the 30 and 40 per cent categories. These vouchers confer a *right* to import goods from a selected list which is subject to change according to the economic situation. Exporters thus receive domestic rupees in excess of the official exchange rate would indicate should they sell vouchers. An exporter selling a good abroad with a 40 per cent bonus voucher would collect 172 per cent for each Rs. 100 of exports valued at the official exchange rate (Rs. 4.76 = U.S.\$1.00) if the voucher price was at an 80 per cent premium over face value. Yet the importer buying the voucher must still buy the foreign exchange from the central bank, at the official exchange rate, so that imports worth Rs. 100 in foreign currency would cost Rs. 280 in domestic currency and his effective exchange rate would be Rs. 13.33 = U.S.\$1.00. Whatever the variations in the market price of the voucher itself, the actual rate for imports will be much greater than the official rate. The scheme's relevance for industrialization lies in its effect on the relative prices of imports and so on the exchange rate at which imports enter the country as this could easily swamp the protective effect of nominal tariff rates.

Imports to Pakistan may enter the country in a variety of ways, and these methods have changed from time to time. At present a few items are allowed in without an import licence, and another short list is licenced for import at the official exchange rate. Additionally, some industries participating in export markets are given a small allowance to cover part of their requirements of imported raw materials and spare parts. The remainder of the imports are available, if at all, from the bonus voucher list or a list financed on a "cash-cum-bonus" basis; half the cost would be met at the official exchange rate while the other half would be financed from bonus vouchers. Thus imports enter the country at three different rates in terms of domestic currency. If the bonus voucher price is Rs. 180 for each Rs. 100 voucher these rates would be Rs. 4.76, 9.05, and 13.33 to the U.S. dollar.

The overall effect has been to put capital equipment at a relatively lower domestic price than other factor inputs. Price policies have favoured the use of capital relatively to labour, despite the real scarcity of capital and foreign exchange in Pakistan. Longer term effects of the past policies should also be appreciated; aspects of this problem are treated in a previous commentary [11]. Investment decisions might have been based on a past situation when both capital and material inputs from abroad were available at the official exchange rate. A shift from the licence list to the bonus list could thus dramatically alter the production costs in domestic currency. The uncertainty created by this kind of

situation encouraged a massive shift of private industrial imports to the cash-cum-bonus or bonus lists. Nonetheless the legacy from the past haunts the manufacturing structure and bedevils present issues.

Techniques have been surprisingly similar in any number of countries. Protection of markets against foreign competition has favoured expansion of productive capacity, but government action to shelter markets has boosted domestic prices while risking the proliferation of many plants. This circumstance has encouraged the licensing of plants as the demand for approvals of new projects tended to outstrip available resources. In this way entry to new industries could theoretically be controlled, while rationing the available foreign exchange according to some schedule of priorities, and techniques could be steadily adapted to foster more extensive manufacturing possibilities. Unfortunately the complexities of the administrative process have outstripped the capacity to manage and co-ordinate the various aspects of development programmes in many countries. The Indian industrial licensing enquiry revealed many shortcomings as policy intentions were not always clear, and large, established firms were best equipped to negotiate claims for approval or support [7]. Pakistan, Ceylon, and Malaysia have had similar experiences while Indonesian efforts failed to grapple even with policy formulation for many years.

V. INDUSTRIALIZATION: FINANCE

Distortions in the use of resources because of complexities and lack of direction or effective co-ordination in the numerous schemes to support industrial development are complemented by arrangements for financing programmes. All too often the claim is advanced for a rapid extension of new financing institutions without thought of what impact these would have on the economy. Some difficulties have been commented on by Hla Myint [19]. Yet the institutional setting needed to support the modern industrial sector in many less developed countries may have contributed to further distortions in resource use through methods of pricing financial capital. This is particularly well illustrated by the use of foreign funds provided as grants or some forms of loan. In most less developed countries the inflow of funds is a characteristic feature, whether simply to augment low domestic savings efforts or to sustain the balance of payments, as well as to finance a great proportion of the development budget. In some countries the proportion of imports financed by foreign loans or grants is high; in Pakistan it is about 35 per cent. A reliance on the transfer of foreign resources to sustain investment outlays is common to most countries even though the proportion of total imports financed in this way is not usually so high [13].

In India and Pakistan, where a capital outlay involves the use of foreign exchange the gaining of approval involves complex procedures for financing the project. If a capital outlay involves no direct foreign exchange cost but purchases abroad of components or raw material inputs, strict controls are exercised [12, pp. 38-41]. In Pakistan, where a capital outlay involves the use of foreign exchange, a firm must approach one of two main financing institutions, the

Pakistan Industrial Credit and Investment Corporation or the Industrial Development Bank of Pakistan. They can provide foreign exchange from loans made by the World Bank group and its sponsored consortium arrangements, and other financial institutions. A similar arrangement holds for India. Funds are extended to firms at interest rates little above those at which the funds were borrowed from overseas sources. Indeed, the margin is really no more than an administrative charge for managing the loan, and there are often specific restraints on widening this margin. Similar procedures are followed in other less developed countries; institutional techniques have become "internationalized," while the terms and conditions on which the loans are offered do not differ greatly from one country to another except for commercial credits.

The internal effects of this policy environment cause misgivings for a number of reasons. First, interest charges and other terms are geared to relative prices and market structure in the donor country, usually an advanced industrial economy, rather than those of an economy short of capital. Secondly, foreign capital is made available at official exchange rates which contrast with those rates applying to other types of imports. Thirdly, the criteria applied to investment proposals reflect straightforward concerns over financial problems without accounting for differences, realized or potential, between economic and financial considerations.

The first of these is the critical issue. Firms financed through such an arrangement experience the same costs of finance as if they were located in the donor country; at times the terms could be more advantageous. No account is taken of the cost of funds in the domestic economy, so there is no connection between the prices charged for funds generated internally and those provided abroad. Yet it is only the large companies which really have access to such developed finance groups, whereas smaller firms must rely upon local availability. This feature alone further reinforces the acceptance of modern production techniques without regard for the relative costs of inputs in the local situation.

The second aspect should not be considered solely in terms of multiple exchange rates. The problems associated with this phenomenon alone have been explained elsewhere [12] [17]; the basic arrangements for Pakistan were referred to in the preceding section. But the system of tariffs and import controls, by prohibiting the import of many consumer goods, has favoured capital equipment when viewed from relative pricing of factor inputs. Thus the amount of funds required to finance the purchase may be less than other items of capital equipment built from locally-made components for which competitive imports are not allowed.²

² This contrast has some bearing also upon the vexed controversy of project versus commodity aid. Where project aid involves an attractive financing arrangement—and this is usually the experience—the local recipients of the aid have grounds for a distinct preference over locally-made goods built up from components based upon commodity aid supplies or normal private imports of raw materials or semi-finished items. Locally-made equipment might only be available on normal commercial credit terms while prices for the goods could be higher. Furthermore the essence of much project aid is that funds be spent abroad so that acceptance of the aid programme discriminates against domestic industry capable of supplying some items.

The other aspect may depend upon the skill of the financial institution operating on aid funds. But the prospect of any lending institution being able to account for the range of "shadow" prices applicable to each investment proposal is small. In an important sense, if government policies have resulted in the appearance of anomalous or questionable economic postures, then the best hope would be for such policies to be adapted to real needs. Nevertheless, where there are obvious discrepancies, financial institutions could exercise some judgment and this is all the more important when the institutions themselves are part of the investment-authorizing procedure.

But serious dislocation over capital costs may not arise solely between major projects financed from abroad and those drawing upon domestic resources. Large companies devoted to the pursuit of modern technology might draw upon financial resources of dominant financial institutions whatever the sources of the capital goods involved. The intimate connections of large industrial firms and financial groups are well known in India and Pakistan. Despite the evidence on these connections during the Indian inquiry [7], explanations based solely upon collusion cannot be accepted. Large firms will attract resources because of their skills and financial standing independently of other links. Only they have the combination of abilities needed to handle negotiations of this sort effectively. The more complicated the administrative devices for rationing scarce capital and foreign exchange the greater will be the handicaps faced by the uninitiated and ill-informed. Knowledge of administrative procedures rather than entrepreneurial skill becomes the necessary quality for successful performance, so that medium and small firms are not able to gain as ready access to scarce factors as the large organizations. The traditional market or bazaar sources cannot offer finance on the same terms and conditions as the newer specialized financial institutions, while direct and prompt access to funds supplied through aid programmes is often remote. The special problems faced by relatively small firms in these environments cannot be set aside as insignificant. Export incentives may benefit the merchant sending goods to foreign markets rather than the manufacturer; in Pakistan, export bonus vouchers accrued to merchants rather than to the small firms making the goods. Complex procedures do not ensure that policy benefits accrue to the appropriate groups in the economy.

The result of these policies has been to encourage capital intensive outlays for expanding productive capacity, an exaggeration of the relative demand for capital compared with more abundant resources, a failure to account for or remedy in any significant way the increasingly troublesome employment situation, and provision of an environment in which large established firms could readily establish prior claims on the scarce resources compared with new firms. Indian experience with this aspect of industrial licensing and financing is revealing, and would apply equally in other economies, such as Pakistan, where the public sector shares a development role with privately-owned companies. But the structures on financing terms apply equally to government corporations in the industrial field.

Misgivings about the impact of financing arrangements for project aid are not,

of course, arguments against the efforts by aid donors but repayment commitments have already proved too onerous for many countries and re-negotiating terms is now commonplace. The Indian Government has sought revisions from a number of donor countries [8], while other Asian and Latin American countries have arranged extensive re-scheduling of foreign debts. Criticism is directed towards the domestic pricing arrangements for those funds. Present schemes limit the cost of using those funds so that a wide margin exists between the prices charged to, and other terms imposed on, fortunate companies gaining access to foreign aid monies and those having to rely solely on what the relatively immature domestic financial system can offer. There would surely be nothing wrong in having borrowing firms meet more stringent conditions akin to those encountered by medium and small firms. Some advantages claimed by advocates of capital intensive manufacturing might then become more attainable than was thought likely. Financial organizations responsible for the allocation of aid funds would accumulate reserves quite rapidly through higher interest charges and more demanding terms of repayment, such as setting aside initial grace periods. The prospect would be for faster growth of the financial sector than is possible when this is geared completely to the terms of overseas contributions, while conferring no significant privileges upon favoured industrial groups. Such improvement in financial strength would help all firms.

VI. RESOURCE USE AND FLEXIBILITY

Efforts to build large manufacturing sectors within the less developed countries have proceeded mainly on the assumption that this target could be achieved only through installing modern technologically-advanced plant. Furthermore, the characteristic feature of this application was rigidity in factor use whether the plant was located in north-eastern United States, the Ruhr or Calcutta. Expansion of industrial capacity could only be attempted by duplicating the factor mix. But the basis for this assumption about a rigid ratio between capital and labour has rarely been explored. Dr. Mahbub ul Haq referred to the issue in his work while seeking explanations in the failure to have means of adaptation [16, p. 36], but most recent Indian commentaries do not help because their arguments about technique have been concerned with problems over the social rate of return [1, pp. 22-26]. Only early work by Professor R.S. Eckaus explores the implications of importing industrial technology where significant rigidities in technical constraints are held to exist [2], and this analysis dwelt more on the possibilities of more than one capital-labour mix being available than on the scope for adaptability; his tentative conclusions did point to possible shortcomings from imperfect factor markets.

Apparent rigidity in factor requirements can be used to explain the lack of concern with the financial terms on which manufacturing growth was fostered. In these circumstances and given the decision to pursue manufacturing growth, distortions within the economy would seem to have only distributive effects so that no questions have to be asked about the suitability of the plant for local

market conditions affecting either products or factor inputs. It is simplest to reproduce the same plant and operating procedures as are used in other countries if there is no compelling reason to seek adaptations.

The assumed inflexibility when combining factor requirements in manufacturing sharply contrasts with recent performance in agriculture. Quite apart from a willingness to adapt farming procedures to new varieties—this might be interpreted as a once-for-all shift from one technology to another superior, yet more constrained technology—much effort has gone into further adjustment to marketing problems and such deficiencies as shortages of fertilizers. Admittedly some areas have shown vastly greater response than others, though the problems of water supply would be one major explanation in both India and Pakistan.

Furthermore recent challenges in Pakistan and India would seem to have been met with perhaps surprising success in view of supposed economic and institutional restraints. Certainly, Pakistan recorded a more satisfactory economic progress than India through the past decade, perhaps because it was more ready to adjust its policies and was not so heavily committed to developing basic industries. Maintenance of the impetus to growth in Pakistan may well have come from shifting into activities with lower capital/output ratios, rather than from reducing that relationship in steadily expanding activities. In this way output might continue to rise despite the reduced flow of resources to investment after the border war with India in 1965.

Nonetheless a good deal of evidence for adaptability can be found. An excellent example is the metal-working and machinery activities of the Punjab. There is a long tradition of these industrial activities around Lahore, Lyallpur, Gujranwala and Sialkot, probably having something to do with training offered in the ancillary branches of the old British Indian army. Metal-working skills have led to a diesel-engine and pump manufacturing industry responsible for sustaining the very speedy extension of private tubewell irrigation in much of northern West Pakistan. Very large firms employing advanced industrial techniques and metallurgical knowledge are to be found but most firms are small and located on small industries estates or, most commonly, in the traditional bazaar areas. Unfortunately very little is known about these firms and production censuses hardly acknowledge them [11, pp. 32, 46].³ A striking feature of the diesel-engine and pump markets is product and price differentiation. The small bazaar workshops, probably offering a less efficient unit, trim prices below those of the big industrial firms. There seems to be real managerial skill in matching price to the quality of the product—in this case the efficient life of the engine—as well as in organizing production. It would seem there is a wider range of input combinations than an appraisal of official data might suggest. These observations about diesel-engine production can be extended to most branches of engineering. Simple machine tools such as lathes are produced in big and small firms.

³ Quite apart from the failure to count firms when they have become large, defined as twenty or more workers in Pakistan, the small firm is assumed to grow at the same rate as population in calculations of gross national product. The contribution of small-scale manufacture can be played down because of this statistical device.

At the same time, this experience of large and small firms participating broadly in the same market is to be found in a range of consumption goods, particularly clothing and textiles, in India and Pakistan. A significant proportion of manufacturing output can thus be produced by a number of different combinations of inputs. In short, rigidity in factor proportions is an unwarranted assumption, derived from a hasty acceptance of imported technology rather than from a careful assessment of the variety of ways open for achieving a given level of production.

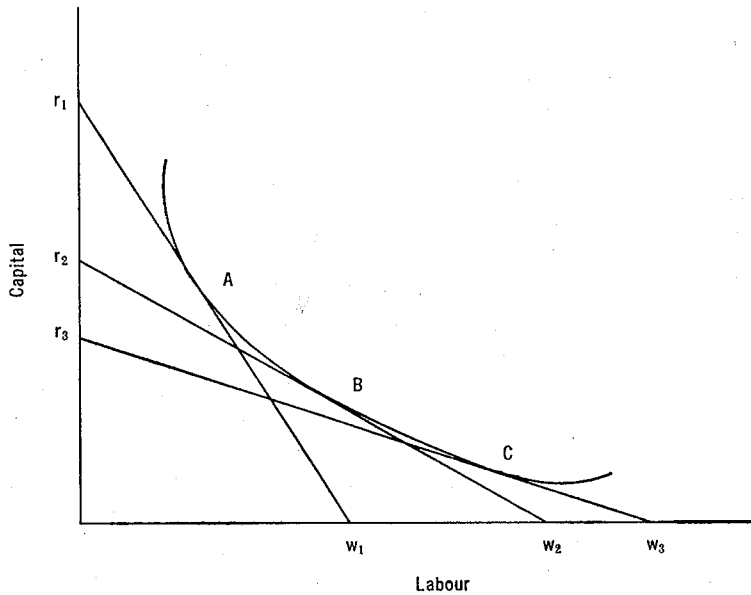
There are of course some industrial activities in which the technical coefficients of production allow little flexibility in factor inputs; and more especially in the technologically-oriented industries. But this does not imply that some substitution cannot be sought. In the materials handling, packaging and distribution aspects of production there is scope for extensive use of labour against that of capital equipment, thus reducing fixed overheads in what can be a relatively small domestic market.

What advantages may be associated with this quest for adapting factor use to the domestic environment. First, acceptance of a policy climate in which this was a dominant rule would stress the need to analyse all investment projects in a meaningful way, rather than to identify acceptability with the most up-to-date technology. Secondly, the employment aspect would be effectively stressed. Thirdly, the small firm would have an opportunity to rise to prominence rather than as is so often the case, a local consortium having no particular management experience joining with a foreign manufacturer to promote a new firm based upon imported and unadapted technology. The experienced local firm could better negotiate with overseas principals because it would have some comparability in business experience. This widespread lack of knowledge partly explains the difficulties facing government organizations charged with policing investment proposals. Fourthly, all investment project appraisals would stress the real cost of capital rather than the apparent financial cost with marked consequences for the ranking and acceptability of differing groups of these projects.

Some capital-intensive investment projects would be called into question but their so-called high profits, at least as expressed in domestic currency, stem from the favourable financial terms on which they are founded rather than their intrinsic real contribution to economic growth. The issue is not the type or level of technology. Worries do not arise from any given technological frontier. The real concern is with getting the price signals right for domestic investment projects regardless of the technology involved.

In all this discussion the first problem is the problem of the input mix, whether in the farm sector or manufacturing. Thus the price relationship of capital and labour is often shown for the large modern firm as r_1w_1 in Figure 1. However the real price relationship is akin to the price line r_2w_2 when the bias in favour of capital use is removed. Thus the points *A* and *B* on the isoquant are alternative methods of producing the output. However this is not the likely policy challenge in all or many cases. The production at *A* might be achieved by one plant using the factor combinations derived from advanced technology. However, the level

Fig. 1.



of output represented at *B* might be achieved by a number of smaller firms; firms about which we do not know too much in many less developed countries. Hence combinations for which there is not much flexibility around the point *A* need not be rejected but the prospect is for some projects of this type proving much less acceptable than purely financial considerations might suggest. The position shown by the price line r_3w_3 for factor inputs of capital and labour might represent a policy position taken for appraising alternative projects when great emphasis had to be laid upon employment.⁴

Once pricing deficiencies are recognized short-comings in resource use become evident. Even in the cases of fixed technical coefficients, failure to assess relative prices correctly means a higher ranking of capital-intensive projects in domestic currency than is warranted. The policy implications are substantial. In agriculture the pricing of capital inputs should be more in accord with their real costs than is now the case in Pakistan and India. Justification for the bias towards capital equipment such as tractors is hard to find when the labour supply is so abundant and the social and political consequences of the bias already are emerging in both countries. For manufacturing, the issues concern the most advantageous use of the labour available when capital is a relatively scarce commodity. Capital goods industries may be built up in a number of ways of which capital

⁴ The simple Figure 1 is intended only to focus on the issues. The imported technologies would seem to represent factor combinations on a set of rays passing near *A*. With large markets economies of scale may finally be achieved by comparison with small locally-generated firms. However in smaller markets big firms seem to face real diseconomies. Furthermore ability to take full advantage of advanced technology may be questioned [12].

intensive techniques are not necessarily the only ones available. Similar comments can be made about other types of industry. Yet, whether it be in agriculture, manufacturing or service industries failure to clarify pricing arrangements means a less efficient use of resources than might otherwise be achieved. In short, the production possibility frontier is not challenged.

VII. CONCLUSION

Misgivings about existing factor market imperfections in allocating financial capital have some consequences for development plans. Deliberately holding down the prices of capital goods fosters their use; a striking example in Asia is the proliferation of tractors, and problems in rural India and Pakistan over the ejection of labour from the rural sector are inextricably linked to this [14] [6, pp. 425-34]. The general terms on which financial capital has been made available have wide implications for the way industrial structures develop as well as for methods of encouraging manufacturing. There has been a less than optimum adaptation to the production opportunities in the economy. The strain between the local small firm and the imported technology of large-scale activities has been unnecessarily exaggerated, and a dependent position with respect to financing industrial growth has been unnecessarily prolonged. Given such sub-optimum behaviour, there can be little wonder that there are debt repayment problems as well as some frustrated manufacturing developments.

Experience points to serious misgivings on some aspects of economic planning. Real dangers would appear to arise from an assumption of fixed prices in the process of developing plans for resource allocation, especially with respect to investment outlays. Yet efforts to apply linear programming techniques in formulating shadow prices have fallen into troubles because of worrying data problems and, more importantly, the assumption of rigidity in techniques of production. All of this casts up the common problems of planning, whatever the country involved. There is a clash over the challenge between growth and allocative efficiency, and unresolved theoretical issues as Sir John Hicks has pointed out [10]. At all times balance has to be sought between optimal and satisfactory use of resources when seeking to resolve competing claims for existing resources and, at the same time, making provision for an expansion of resources some time ahead.

The two main points of this paper reflect arguments over the importance of pricing policies in planning arrangements and evidence for a need to have greater flexibility when combining productive factors. Stress on pricing policies is relevant to many issues in industrialization policy:

- (i) The price—interest and repayment terms—at which foreign capital has been made available and supplied domestically in recipient countries often understates the real price of that resource compared with other domestic resources.
- (ii) Given much uncertainty about the balance of payments in many less developed countries and tight controls on their imports, the supply of capital goods from abroad has often been undervalued in domestic currency.

- (iii) Within less developed countries financial institutions supporting industrial development have supplied capital at low rates of interest despite the high rates applying "outside" this official banking sphere. The rationing process favours the large firm because it can provide better support for its borrowings than smaller firms.
- (iv) Relative prices charged for resource use are critical to the expansion of employment which, in turn, reacts on the potential labour force.
- (v) Failure to allow for discrepancies in the relative prices of financial capital (and capital goods) has distorted growth in the manufacturing sector. This, in conjunction with the problems found over the assumed rigidity in productive techniques, accounts for troubles less developed economies face in meeting foreign debt commitments or improving their foreign trade balance.
- (vi) These issues are present irrespective of the relative rates of price increase within countries. If the less developed countries suffer more from inflation than the advanced industrial countries, this reinforces the need to examine the real cost of capital when applied in the economy.⁵

Apparent flexibility in productive combinations points to other aspects of capital allocation in less developed economies. Certainly, traditional economies have a long history of adaptability to changing market situations. In the eighteenth century the Chinese quickly developed the production of "export porcelain" for their European trade [23], though this was more an issue of market adaptation than alternative production techniques. There is good evidence for alternative ways of combining factors in productive processes. In these circumstances a failure of project feasibility studies to examine the issue perpetuates the mis-allocation of resources in the industrial sector. However, employment worries are hastening a long overdue re-appraisal of the investment authorization techniques in a number of countries.

Given the underlying need for promoting employment and growth in a context where there is some flexibility in factor choice, the plea is for a clear recognition of the importance of pricing policies in directing the allocation of capital. The implications for the behaviour of international agencies making funds available to less developed countries or fostering their trade and industrialization schemes should be clear.

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⁵ I am grateful for this point to Dr. R. H. Snape of Monash University.

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