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5. Author(s)  
1. Romeo M. Bautista  
2.  
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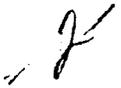
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MACRO-POLICIES AND TECHNOLOGY CHOICE IN THE PHILIPPINES

Romeo M. Bautista  
International Food Policy Research Institute  
Washington, D.C. U.S.A.

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## MACRO-POLICIES AND TECHNOLOGY CHOICE IN THE PHILIPPINES

Romeo M. Bautista\*

### INTRODUCTION

Direct ownership of production enterprises has traditionally not been a major form of government intervention in the Philippine economy. It is in the nature of policies adopted, or to use the terminology of Stewart (1987), the macro-policies that affect the external environment in which micro-level technological decisions are made, where the dominant influence of government on technological choice in the Philippines can be found. Although the focus of this paper is on macroeconomic, trade and public investment policies, other aspects of the government's role in technology choice by private decisionmakers will also be addressed, including institutional and organizational sources of observed policy biases.

It is important to understand how technological decisions made by private "micro-productive units" are affected by changes in the macro-environment due to government policies. In a positive (or objective) sense the need arises from the intimate link between technological decisions and the pattern of technical change on the one hand and development processes on the other. The manner and proportions in which the scarce resources of a developing country are combined influence not only the quantities and prices of goods produced, but also the distribution of costs and benefits among the population as well as the future development of the national economy. In turn this gives rise to the need, in a normative sense, to make technological choices supportive of the country's development

objectives or at least compatible with the development strategy being implemented by the government.

This paper first describes the general character of Philippine economic performance since 1949 and how it has been affected by the major policy developments during the period. The repercussions of government policies on various facets of the national economy that constrain the choice of technologies are then examined. These have to do with the induced pattern of industrial incentives, the evolving trade structure, the biases against small-scale production and regional dispersal of industries, the effects on employment, income distribution and the demand structure, and agriculture's contribution to overall economic development. The paper ends with a discussion of the implications for appropriate technology policy and of the political-economy factors influencing past and prospective changes in macro-policies and the external environment in which micro-level technological choices are made.

#### POSTWAR DEVELOPMENT PERFORMANCE AND ECONOMIC POLICIES

Until the late 1970s, the postwar performance of the Philippine economy seemed impressive, if judged solely in terms of growth of aggregate output. Gross national product in real terms increased at an average annual rate of about 6 percent over the three decades from 1949 to 1979. Even with the country's rapid population growth, the average increase in per capita income slightly exceeded 3 percent annually.

Philippine economic growth slowed sharply in the 1980s. In fact, during 1980-85, real GNP registered an average annual growth

rate of -0.5 percent; in 1985 the country's per capita GNP had fallen to the 1975 level. Before the advent of the foreign exchange crisis in late 1983, the marked deceleration in national income growth was commonly attributed to the recessionary conditions in the industrialized economies, the intensification of protectionism in those countries' markets and the steep fall in world commodity prices. But the same factors would have impeded economic growth in neighboring Asian countries which, however, did not seem to have been affected as severely.<sup>1</sup>

In addition to the failure to sustain rapid growth through the 1980s, another major blemish in the postwar development record of the Philippines has been the highly unequal sharing of the benefits of economic growth. The distribution of family incomes has remained heavily skewed (Table 1), so that only a relatively small segment of the population benefitted from the substantial postwar gains in national income. Income inequality reflected in part the severe underutilization of the labor force. High rates of unemployment and underemployment, which characterized the Philippine economy through the late 1970s (Tidalgo and Esguerra 1984), worsened in the 1980s.

A natural accompaniment to the increasing number of unemployed and underemployed has been the growing poverty in the midst of an already low-income economy. Indeed, poverty lies at the heart of the employment problem, the conventional measures of unemployment and underemployment being only imperfect indicators of the employment challenge facing Philippine policymakers. According to government estimates, poverty incidence<sup>2</sup> among Filipino families increased over

the period 1971-85 from 49.3 percent to 59.3 percent for the entire country and from 55.6 percent to 63.7 percent for rural areas (NEDA 1986, p.33). Since rural poverty incidence is higher than urban and nearly 70 percent of the population live in rural areas, rural families account for nearly three-fourths of the total poor.

There is also an important regional dimension to the income distribution problem in the Philippines. Historically, economic activity has been highly concentrated in Manila and the surrounding areas. Table 2 shows the income disparities among the country's 13 regions in terms of gross regional domestic product (GRDP, at 1972 prices) per capita in 1978, 1980, 1982, and 1984. Metro Manila's GRDP per capita is seen to be more than double the next highest, and more than five times the lowest, among the remaining regions in each year.

The above considerations suggest that appropriate technology in the Philippine context should be directed at three primary objectives, namely, sustainable economic growth, labor employment and poverty alleviation. Past technology choices have generally not been conducive to the promotion of these objectives, as will be discussed below.

Technological decisions are of course not made in a vacuum. As pointed out above, the environment in which technological choices are taken is influenced by the macro-policies that the government adopts. The remainder of this section briefly describes the major changes in Philippine economic policy since 1949. More detailed discussions of specific policies and the processes through which they have affected

technological choice will be given in subsequent sections of the paper.

Four phases in the postwar evolution of Philippine economic policy can be usefully distinguished, and they correspond closely to the four decades from the 1950s to the 1980s. The first, spanning the entire decade of the 1950s, was dominated by the comprehensive system of direct controls on imports and foreign exchange introduced in 1949-50 as a policy response to a severe balance of payments problem. Earlier, in September 1946, a legislative act granted special tax exemptions to "new and necessary industries"; however, it was not until the early 1950s, when the substantial benefits from import and exchange controls became evident, that a significant number of industrial firms registered. Another major aspect of economic policy in the 1950s was the severe overvaluation of the domestic currency (which retained its prewar exchange rate of 2 pesos per US dollar).

The resulting economic and political environment stimulated the production of import-substituting industrial consumer goods in the early years, but effectively penalized backward integration, agricultural production and exporting. The incentive structure also encouraged large-scale, capital-intensive production and geographic concentration of industries in and around Manila. The chronic trade deficits in the 1950s, particularly severe during the second half of the decade, reflected the increasing import dependence of domestic industries and the inability to stimulate new exports.

The second phase began with the gradual lifting of import controls and exchange rate adjustment to 3.9 pesos per U.S. dollar in

1960-62. These policy changes did not change the incentive structure qualitatively, favoring import-substituting industries as a highly protective tariff system, introduced in 1957 but made redundant at that time by the import and foreign exchange controls, became applicable. However, the policy reform enabled small producers to have greater access to imported inputs and the government to collect tariff revenue from importers (who previously benefitted from the scarcity premia due to quantitative import restrictions).

Two important sectoral policy developments occurred during the second half of the 1960s. One was the encouragement, through extension, credit and fertilizer programs, given to the adoption of modern high-yielding varieties (HYVs) of rice. Introduced in 1966, the use of HYVs spread rapidly and helped markedly raise rice output through the end of the decade, reflecting a high degree of supply responsiveness among Filipino farmers to a new, demonstrably superior technology. The other policy development was the implementation of a new comprehensive approach to stimulating industrial investment, based on the Investment Incentives Act of 1967. This Act also created the Board of Investments (BOI) which was empowered to determine preferred areas of investment through its Investment Priorities Plan and to administer the granting of incentives to BOI-registered enterprises. Still largely oriented to import substitution, this approach was also biased in favor of capital intensive manufacturing industries.

Expansionary fiscal and monetary policies adopted by the new Marcos government during the second half of the decade resulted in a significant rise in the inflation rate and a sharp deterioration in

the trade balance. In late 1969 a foreign exchange crisis again developed.

The third phase, covering the decade of the 1970s, represented a major effort by the government to adopt an outward-looking development policy at the same time that it substantially increased its role in the regulation of various sectors of the economy. In February 1970 a floating exchange rate system was introduced to cope with the balance of payments problem. The 61 percent de facto devaluation over the year served to improve the price competitiveness of export industries, which were given a further boost by the enactment of the Export Incentives Act of 1970. Under this Act, manufacturing enterprises registered with the Board of Investments were accorded various kinds of tax exemptions, deductions from taxable income and tax credits. Selective financial and infrastructural support were also provided to nontraditional export producers which compensated for the still pervasive policy bias against exporting. The highly protective and distorted tariff system was the primary source of this bias, but no attempt was made to deal directly with it as part of the export promotion program in the 1970s.

In response to the external shocks that buffeted the Philippine economy during the decade, the government assumed an increasing role in the regulation of, and direct participation in, production and marketing activities. This was facilitated by the broad powers of the martial law regime imposed in September 1972. The oil industry as well as the agricultural food and export crop sectors were particularly subject to government interventions in the 1970s.

Beginning in 1974 the government resorted to heavy foreign borrowing in order to finance the mounting trade deficits and expansionary macroeconomic policies implemented through the rest of the decade.

The fourth phase, beginning in the early 1980s and continuing to the present, is marked by several policy developments that can be considered either transitional or in the nature of emergency measures. The government initiated a program of industrial structural adjustment in 1981, with technical and financial support from the World Bank, aimed at improving the international competitiveness of domestic industry. It included measures to significantly liberalize the foreign trade regime through tariff reform and relaxation of import licensing, to rationalize fiscal incentives, and to revitalize certain industries (e.g., textiles) through technical and credit assistance. However, because of the foreign exchange crisis beginning August 1983, some of its components (including the phasing out of import quotas) were superseded by policy actions such as direct controls on imports and foreign exchange designed to deal with short-term contingencies (Lamberte et al. 1985). What remained relatively intact was the tariff liberalization scheme, which gradually reduced the effective tariff protection of domestic industry from 1981 to 1985 (Bautista 1981b). Although a less distorted incentive structure resulted from the tariff reform, the protection biases in favor of consumer goods over intermediate and capital goods production, and of import-substituting over export industries, continued.

The foreign exchange crisis itself was precipitated by the political turmoil and massive capital flight following the

assassination of opposition leader Benigno Aquino. However, some underlying economic factors, as reflected in the burgeoning external debt and increasing real exchange rate overvaluation since the mid-1970s, had made inevitable the occurrence of a balance-of-payments crisis (Bautista 1987a). IMF-prescribed stabilization measures adopted by the government during 1984-85 led to a 10 percent reduction in real GNP. Given the highly skewed income distribution, the recent economic hardship suffered by a large proportion of the population was hardly reflected in the 15 percent decline in per capita income. That a successful revolution took place soon after (in February 1986), putting an end to the Marcos regime and installing the new government of Corazon Aquino, lends support to the notion that economic forces can critically influence political developments.

The new political leadership has begun to influence the direction of economic policy. The adoption of employment oriented agricultural and rural growth was announced in mid-1986 as the centerpiece of an "Agenda for a People-Powered Development." Sharply increased public spending on rural infrastructure and improved prices for agricultural producers are being promoted with a view to raising farm productivity and rural incomes. Further efforts at trade liberalization are also underway. Opposition of vested interests, within and outside the government, is emerging, however, that may significantly impede movement in the direction of policy reform.

## INDUSTRIAL INCENTIVES AND RELATIVE FACTOR USE

As in most developing countries, rapid industrialization has been a major goal of postwar economic policy in the Philippines. Despite the wide variety of policy instruments used over the years in providing incentives for manufacturing investment, the general direction of factor use bias has remained the same.

In the 1950s the "essentiality" rule governing the allocation of foreign exchange conferred a large windfall on industries importing capital equipment, which were obtainable at artificially low prices due to the unrealistic exchange rate. Thus, not only were capital intensive industries favored, but within them the choice of production techniques was distorted toward the use of capital. This bias was reinforced by preferential access to low-interest loans from government financial institutions. Finally, some of the tax exemptions granted to "new and necessary industries" (for a period of 4 years from date of organization) were related to the acquisition of capital and hence also biased the incentive structure against labor use.

With the lifting of import and foreign exchange controls and exchange rate adjustment in the early 1960s the burden of industrial promotion fell on tariff policy and government lending to industries. However, the highly distorted tariff structure only served to perpetuate the low effective protection on capital goods (Power and Sicat 1971).

The Investment Incentives Act of 1967 and the Export Incentives Act of 1970 represent two of the most important pieces of postwar economic legislation concerning inducements for industrial

investments. The following items in the package of fiscal incentives given to manufacturing enterprises registered with the Board of Investments are readily seen to have a capital cheapening effect:

- (1) Tax exemption on imported capital equipment within seven years from the date of registration of the enterprise. This reduced the cost of acquiring imported capital from 10 to 20 percent depending on the type of capital good.
- (2) Tax credit on domestic capital equipment equivalent to 100 percent of customs duties and compensating tax that would have been paid on imports of such items.
- (3) Accelerated depreciation allowances, as a deduction from taxable income. This permits fixed assets to be depreciated up to twice as fast as the normal rate if expected life is 10 years or less, or depreciated over at least 5 years if expected life is more than 10 years.
- (4) Tax deduction of expansion reinvestment to the extent of 25 to 50 percent in the case of non-pioneer projects and 50 to 100 percent in the case of pioneer projects.

Some incentive provisions favor labor use, such as the deduction from taxable income of one-half of the expenses on labor training, but not exceeding 10 percent of direct labor wage. Exporting firms, moreover, are provided a wage subsidy equal to the direct labor cost in the manufacture of export products but not to exceed 25 percent of the export revenue.

In a systematic analysis of the overall effects of fiscal incentives to BOI-registered firms, Gregorio (1979) finds that the

user cost of capital is reduced by 49 to 71 percent<sup>3</sup>, while labor cost declines by 3.5 percent for non-exporting firms and by as much as 22 percent for exporting firms. The estimated effects on the capital-output ratio and employment (based on certain assumptions about the project's economic lifespan, discount rate and elasticity of factor substitution) are reductions by 35.6 percent and 26.1 thousand workers for the BOI-registered non-exporting firms and by 6.9 percent and 8.4 thousand workers for exporting firms.<sup>4</sup>

Two influences on relative factor prices are not reflected in these estimates. One is that BOI-registered firms have preferential access to low-interest credit--which also has a capital cheapening effect, reducing the cost of capital by 9 to 35 percent (Mejia 1979). The other is that the required minimum wage and supplementary allowances for workers make the actual wage rate for unskilled workers higher than their social opportunity cost. Based on Medalla's (1979) findings, the BOI subsidy on labor use does not fully match the difference between the market wage rate and the estimated shadow price of labor. Significant disemployment effects of minimum wage legislation have been documented by Armas (1976, 1978) at the firm level (in the pineapple industry) and for two-digit ISIC manufacturing industries.

Changes in the composition of manufacturing output in the 1950s and 1960s are consistent with the hypothesis that the incentive system had encouraged the growth of capital-intensive industries more than those using the country's abundant labor resources more intensively. Production in the more labor-using industries, e.g., garments, footwear, other leather products, wood products and printed

materials, had not grown as rapidly during those two decades as in the rest of the manufacturing sector, evidenced by the declining relative contribution of these industries to total manufacturing value added (cf. Table 2 in Bautista, Power and Associates 1979). In the 1970s the trend was reversed for some labor-intensive industries, due largely to the rapid growth of nontraditional manufactured products that were accorded various benefits under the Export Incentives Act.

Based on Hooley's (1985) estimates of partial factor productivities in Philippine manufacturing, Table 3 shows the quantitative changes in labor employment relative to the use of capital and intermediate input, distinguishing among three subperiods during 1956-80. Apparently there was decreasing use of labor per unit of either capital or intermediate input from 1956 to 1970, and markedly so in the years of foreign exchange and import controls (1956-60). By contrast, during 1970-80 when the exchange rate was allowed to float and labor-intensive manufactured exports were being promoted, labor employment increased relative to the use of intermediate input and (particularly) of capital.

No discussion of postwar industrial policy in the Philippines will be complete without including the active support of the government for the so-called eleven major industrial projects (MIPs) from the mid-1970s to late 1983. The projects included, among others, a copper smelter, a phosphate fertilizer plant, diesel engine manufacturing, an integrated steel mill and a petrochemical complex. Two of the arguments used by the government (read: the Ministry of Trade and Industry) in heavily promoting these large-scale, capital-

intensive projects were that they "would produce commodities and intermediate inputs at internationally competitive prices" and that they would "induce the establishment of downstream, labor-intensive industries."<sup>5</sup> It was also announced that the projects would be financed mainly from private (domestic and foreign) funds and that they would be implemented only if they were economically viable. Unfortunately, insufficient information was made publicly available to provide a basis for an independent evaluation of the economic feasibility of these projects.

The total cost of setting up the eleven projects was estimated to be close to US\$4 billion (at 1981 prices). This would seem a large enough sum (about 10 percent of the 1981 GNP to be spent over a six-year period), to warrant a close examination of the macroeconomic implications, especially on demand management and the inflation rate. Another source of anxiety was that, given the country's increasingly limited overall borrowing capacity, these large-scale capital-intensive projects would "crowd out" imports of capital goods for light industry.

The MIPs would not likely generate much employment. Some of them, like the aluminum smelter and petrochemical complex, would even import their principal raw materials. Very few, perhaps only those relying on domestic raw materials and not subject to rapid technological change, stood a chance of becoming commercially viable without heavy protection. With shelter from foreign competition, these projects will inevitably produce higher priced and lower quality intermediate and capital goods (compared to what can be imported), which will hinder rather than stimulate the development of

downstream user industries. Apart from being less energy-using, the latter industries are more labor-intensive, more regionally dispersed and have a greater potential for exports.

The only project that was completed is the copper smelter which converts into copper cathodes the copper concentrates from all but one of the local copper mining companies (which have to contribute about 30 percent of their current concentrate production). Foreign debt accounted for three-quarters of the funding and 32 percent of the equity came from a Japanese consortium (which was guaranteed a 9 percent minimum annual dividend rate), 29 percent from the local mining companies and 5 percent from the International Finance Corporation. A careful evaluation of this project has indicated that it is at best "little better than marginal from an economic point of view" (Emerson and Warr 1981, p.196).

When the external debt-related foreign exchange crisis broke out in late 1983, the government's active pursuit of the MIPs had to be dropped. For the time being, the economy did not have to face the prospects of being presented with numerous "white elephants".

#### INCENTIVE BIASES AND THE TRADE STRUCTURE

While the thrust of economic policy throughout most of the post war period was toward the encouragement of manufacturing, only those industries producing import-substitution consumer goods were the principal beneficiaries. In effect domestic industries engaged in the production of intermediate and capital goods, and those oriented to the export market, were discriminated against.

In the 1950s changes in the domestic price structure resulting from the peso overvaluation and direct controls on imports and foreign exchange created a strong bias toward the domestic production of import substitutes, especially for industrial consumer goods, at the expense of capital goods and export products. In the 1960s a highly distorted and protective tariff system maintained the qualitative biases against backward integration and export expansion. Tariff escalation, in which import duties are higher on semi-finished products and higher still on finished products, encouraged assembly and packing operations that depended heavily on imported materials and capital equipment. There was little added to manufacturing value added and even less to industrial employment, owing to the absence of strong inter-industry linkages normally expected among manufacturing industries. It is not surprising, therefore, that the contribution of the manufacturing sector to total employment in the Philippines remained virtually constant at about 12 percent through the late 1960s (Bautista 1973).

An aggregate measure of trade bias (between importables and exportables) due to domestic price policies is given by  $(P_x/P_m)/(P_x^*/P_m^*)$  where  $P_x$  and  $P_m$  are the domestic prices of export and imported goods and  $P_x^*$  and  $P_m^*$  are their respective foreign prices. A proportionate change in this ratio of relative prices would reflect the net movement of the relative domestic price of exportables vis-a-vis importables after taking into account the concurrent change in the relative foreign price; hence it can be interpreted to represent the change in the domestic price ratio due to domestic policies. Empirical estimation of the trade bias measure has yielded average

values of 0.39 for 1950-61 and 0.60 for 1962-69 (Bautista, 1987a). Both figures are less than one, indicating that domestic pricing policies favored producers of import-competing goods over export producers during the two decades; the magnitude of the bias against exports was significantly reduced, however, from the 1950s to the 1960s.

In the 1970s when exporting was being actively promoted by the government, the trade bias measure shows a further increase to an average value of 0.76. Since it is still less than one (and significantly so), the fiscal and other incentives granted to export producers notwithstanding, a substantial price bias existed in favor of import-competing production even during that export promotion phase.

Based on evolution of the country's foreign trade, it is useful to distinguish between "essential" and "non-essential" consumer good imports and between "traditional" and "new" exports. Most food imports are in the essential consumer good category; on the other hand, imports of most industrial consumer goods are considered non-essential, their domestic production having been promoted through direct trade controls in the 1950s and by high tariffs since the early 1960s. Agricultural and mining exports are classified as traditional; since 1970 the expansion of nontraditional or new exports, consisting largely of labor-intensive manufactured products, has been officially encouraged.

A useful indicator of relative production incentives between two categories of tradeable goods due to domestic policies is the ratio of their effective exchange rates (EERs), where EER is the number of

units of domestic currency actually paid by importers or received by exporters per unit of foreign exchange, including related taxes and subsidies. Based on the annual EER estimates derived by Baldwin (1975) for 1950-71 and updated by Senga (1983) through 1980, the calculated ratios of the effective exchange rates among traditional exports (TX), new exports (NX) and non-essential consumer (NEC) imports are shown in Table 4. One finds from the first two columns a continuing bias in favor of import-competing industrial consumer goods production to the detriment of new exports and, more severely, of traditional exports. Also, as can be discerned from the last column, new exports have been consistently favored by domestic policies relative to traditional exports, in particular during the 1970s.

The price competitiveness of exportables and importables, relative to home goods (nontradeables), is aggregatively reflected in the real exchange rate. It has been shown that Philippine economic policies, especially trade policy and during 1975-83 aggregate demand management, continuously overvalued the domestic currency, impairing the relative profitability of tradeable goods production (Bautista 1987a, p.56). The first half of the 1970s was the least unfavorable period for producers of tradeable goods; even at that time, however, the real exchange rate was overvalued by about 20 percent.

In significantly reducing the price competitiveness of export production, domestic policies have encouraged an inward orientation of the industrial structure and effectively placed a limit on the size of the market for the products of the favored industries. The sudden profitability of manufacturing investment directed to the

protected domestic market serves to explain the initial spurt of rapid growth in the first half of the 1950s-- which petered out just as quickly when the limits of the narrow market base for the products of import-substituting industries were reached toward the end of the decade.<sup>6</sup> The inability of those industries to compete in the foreign market reflects the inefficiencies in resource allocation and use that resulted from the control system of the 1950s and the protective tariff policy since the early 1960s.

Despite the labor-surplus character of the Philippine economy, the contribution of labor-intensive manufactured products to total exports throughout the 1950s and 1960s had been very small. It may also seem paradoxical, but can be attributed to the nature of economic policies adopted, that export industries with lower (direct and indirect) labor content increased their share in total exports relative to the more labor-using sectors (Bautista 1975). While labor-intensive manufactured exports expanded rapidly in the 1970s, the incentive structure favored heavy reliance on imported inputs, reducing the possibilities for intersectoral backward linkages.

Not only would growth have been more sustainable had the foreign trade regime been more neutral; labor employment and use of locally-produced inputs would have been greater, in view of the country's comparative advantage in labor-intensive products. The choice of products and the choice of productive techniques would have favored a greater utilization of the unskilled labor force and, because the poor comprise the bulk of the unemployed and underemployed, a greater participation of the poor in the growth process.

## LOCATION CHOICE AND THE SIZE STRUCTURE

Two related consequences of postwar trade and industrial policies are the regional concentration of industries and the underdevelopment of small- and medium-scale enterprises. The system of import and foreign exchange controls in the 1950, in particular, favored large enterprises in and around Manila, effectively discriminating against the relatively small and regionally dispersed manufacturing firms. The latter similarly did not benefit much from the tax exemption privileges for "new and necessary industries" and the wider fiscal incentives granted to BOI-registered firms. Indeed it is difficult for the small and the remote to deal with the requirements of bureaucratic controls and to receive the attention from government offices that come easily to large, Manila-based firms.

Because the favored industries relied heavily on imported intermediate inputs and capital equipment, there was a strong inducement to locate plants near the source of supply, i.e., Manila, the principal port. Infrastructure policy that promoted the idea of Manila as a "metropolis of international stature" also meant a disproportionately larger allocation of public investment funds relative to the other regions, making Metro Manila more attractive to industries and migrants (NEDA 1982). Reinforcing these tendencies was the need to obtain tax and credit favors from the centrally-run financial and government institutions in Metro Manila; indeed even the mining and lumber companies based in the outlying regions found it necessary to maintain large offices there.

Manufacturing growth was highly uneven, therefore, among the country's 13 regions. Based on Census data, Metro Manila and the adjoining Southern Tagalog region accounted for 49.1 percent of total manufacturing value added in 1948; this increased to 64.0 percent in the next census year 1961, and to 81.6 percent in 1978. The inability of the other regions to substantially expand manufacturing production has contributed to the persistence of large disparities in regional per capita incomes (Moran 1978).

In the early 1970s the government adopted some policy measures in an attempt to disperse industrial activity away from the Metro Manila area. For example, a locational ban on new industrial establishments within a 50-kilometer radius of Manila was imposed. Its impact was greatly weakened, however, by the numerous exceptions allowed by the Human Settlements Commission. The exceptions to the rule were based on such criteria as conformity with the development plan of the Metro Manila municipality or city, location within the identified growth centers, and need for the firm to be near an international airport.

As another example of regional dispersal policy, export enterprises locating in designated areas were made eligible to receive a tax deduction equal to the sum of the local raw materials cost and double the direct labor cost, but with a maximum allowable deduction of 25 percent of export revenue. Also, a tax credit was offered covering the entire amount of infrastructure expenses incurred by the firm. Neither of these two fiscal incentives proved effective, as a survey on location choice of industrial firms established after 1970 has indicated (Moran 1979). The survey found

that a large number of sample firms were unaware of those incentives, as well as the available technical, financial and management assistance, while most of the other firms considered the economic benefits to be relatively insignificant. Most firms indicated that market factors relating to output supply and product markets overwhelmingly dominated their location decisions. Not surprisingly, therefore, close to 80 percent of new firms that registered with the Board of Investments during 1970-71 located themselves in Metro Manila and the Southern Tagalog region (Bautista 1981a). The findings of another survey conducted in 1985 also indicate "that the more recently established firms based their location decision on much the same set of factors as did the old firms, whether local or foreign . . . (and that) direct government intervention(s) . . . do not seem to have mattered at all" (Herrin and Pernia 1987, p.126).

With respect to small industry development, as many as twelve government agencies were directly involved in the provision of credit, labor training and technical assistance to small- and medium-scale enterprises as of 1974--when the Commission of Small and Medium Industries was created to integrate their efforts. A subsequent survey assessing the impact of government assistance programs for small industries found that: (1) less than 25 percent of the firms surveyed were aware of such programs (except for the credit program of the Development Bank of the Philippines which was known to 72 percent of the respondents); (2) of these, less than 10 percent actually sought or received assistance; and (3) those that received assistance had relatively poor performance in terms of efficiency and growth as compared to the whole group (Hife 1979). It was concluded,

therefore, that government assistance tended to promote weak firms and that it should be concentrated on industries identified as labor-intensive and efficient in the use of capital.

Indeed the relationships between firm size on the one hand and labor intensity and capital productivity on the other are not monotonic. Estimates of capital per worker and average capital productivity (ratio of value added to capital) are shown in Table 5, distinguishing among 3-digit ISIC manufacturing industries, and in each industry, four different employment size groups of establishments. It is clear that there are wide variations in both capital intensity and capital productivity (1) across industries within the manufacturing sector and (2) across various size groups of establishments within an industry. Moreover, a mixed pattern is seen with respect to the size structure: small scale appears more labor-intensive and more efficient in capital use in some industries but not in others.

No blanket endorsement of either large or small scale can be rationally made, therefore, in the promotion of manufacturing industries. What is needed are "policies that encourage the development of the most efficient industries and the most efficient firms, regardless of size. Blunt policies that are strongly biased toward one size or another are not capable of doing this" (ILO 1974, p. 146). It bears emphasis, however, that the macro-policy biases in the Philippines have favored the large enterprises relative to the small and the capital intensive relative to the labor intensive. Therefore, removal of such policy biases would enable small-scale and

labor-intensive production to be efficiently carried out in many lines that have not yet been developed.

#### AGRICULTURAL INCENTIVES, PUBLIC INVESTMENT AND RESOURCE TRANSFER

Agriculture has traditionally been a major source of employment, income and foreign exchange earnings in the Philippines. More than two-thirds of the country's population are still in the rural areas, where agriculture and related production activities represent the principal means of livelihood. Although its relative importance has declined over the years, agriculture still contributes directly about one-half of the total employment and one-fourth of the country's gross national product. Also, it provides some 40 percent of total export receipts (from raw and simply processed agricultural products), while agricultural imports account for less than 10 percent of the total import bill.

Poverty has been and continues to be widespread among the rural population, which accounts for over 80 percent of all families in the poorest 30 percent of the total population. Rural poverty is attributable to the low agricultural labor productivity and related lack of employment opportunities in the rural areas and to the inability of the industrial sector to expand labor demand rapidly enough. The large size of the rural labor force and high degree of its underutilization argue strongly for the necessity of generating productive employment within the rural sector. This did not take place in the past, owing at least in part to postwar biases against agriculture in the form of price disincentives and inadequate infrastructural investments.

Because agricultural output has a high degree of tradability, the real exchange rate overvaluation that resulted from the restrictive trade regime and at times imprudent macroeconomic policies during the postwar period impaired the relative profitability of agricultural production. Trade restrictions and policy-induced exchange rate distortion have been shown to have reduced domestic agricultural prices relative to home goods by 42 percent during the "control period" of the 1950s, by 19 percent in the 1960s, by 11 percent during 1970-74 and by 12 percent during 1975-80; relative to nonagricultural products the corresponding figures are 104, 45, 22, and 20 percent (Bautista 1987a). Agricultural exports have been more heavily penalized compared to import-competing food products not only in terms of product price disincentives but also in terms of input subsidies and infrastructure support.

As a policy reaction to the shortfalls in rice production during 1971-73, which coincided with soaring world foodgrain prices, the government undertook a major effort at promoting rice self-sufficiency. Adoption of the new technology was encouraged by the Masagana 99 program, which provided farmers with noncollateral, low-interest loans to purchase fertilizer and seeds at subsidized prices. There was also much expanded public investment in irrigation during 1973-77, increasing to ten times the 1966-70 level in constant pesos terms (Barker 1984). Furthermore, irrigation water was made available to food crop producers at a subsidy rate ranging from 60 to 90 percent (David 1983a). These input subsidies were provided at the same time that the domestic prices of rice and corn were being

regulated at lower than world prices through government trade monopoly of the staple food grains.

The credit subsidy (of about 12 percent), low tariff rates on power tillers (19 percent) and tractors (0 percent), and currency overvaluation had the unsalutary effect of encouraging rapid farm mechanization to the detriment of rural employment (David, 1983b). Also, the small-scale farm implements (portable threshers, hand tractors, etc.) at IRRI proved economically attractive to rice farmers at prevailing market prices.

There is another aspect of the "green revolution" and the policy package that facilitated its spread that has implications for technology choice. It relates to the inequitable sharing of the benefits of the new technology as a result of the greater access by large producers to the infrastructure investments and effective subsidies on irrigation water and credit (David 1983a, Intal and Power 1987). Small-scale and rain-fed agriculture has been bypassed to a significant extent. This is unfortunate because the small farms and low-income rural households, as will be discussed in the next section, have stronger linkage effects with domestic industry and the services sector than the large-scale, more prosperous agricultural producers.

Export crop agriculture has also been profoundly affected by postwar policy developments. Trade in coconut and sugar--the country's dominant export crops--has been particularly subject to government regulation since the early 1970s. An export quota system for sugar has been in effect since 1962 and, beginning 1970, sugar trading in both domestic and export markets has been taken over by

state corporations. During 1974-80, producers received an average of only 77 percent of the world price (Nelson and Agcaoili 1983). It has been estimated that, due to the monopoly of domestic and foreign trade, sugar producers suffered a net loss of between 1 and 14 billion pesos over the crop years 1974-75 to 1982-83 (Canlas et al. 1984). Moreover, the additional link in the marketing chain and inefficiencies in government marketing operations meant additional markups and a substantially increased marketing margin (Bautista 1987a).

In the case of coconut, the government introduced in 1971 a production levy that established a dominant coconut milling company and began a program of coconut replanting. The nominal protection rate of copra (dried coconut meat) was estimated at -8 percent during 1970-72 and "it became more negative, -24 percent from 1973 to 1979 reflecting the introduction of the levy" (Clarete and Roumasset 1983, p.28).

These policy-induced price distortions disfavoring agricultural products must have resulted in a significant reduction in farm incomes. It has been estimated, for example, that in the absence of government price interventions agricultural crop income in the Philippines would have been higher by as much as 31 percent during the 1970s (Bautista 1986a). This represented an effective resource transfer out of agriculture. Offsetting this was the amount transferred into the agricultural sector through government spending, which however was comparatively small. Calculations of net resource transfers out of agriculture showed an annual average of 15 to 21

percent of agricultural value added during 1967-82 (Intal and Power 1987, pp.40-46).

While the extraction of agricultural surplus to finance industrial capital formation is frequently assumed to be a concomitant to structural transformation during development, one can question the efficiency with which the transferred resources are used outside agriculture. In the Philippine case, as in most other developing countries where the industrial sector has been highly protected, policy-induced distortions in product and factor markets have led to the inefficient use of investment resources for manufacturing. At the same time one cannot discount the opportunities for rapid productivity growth in agriculture if the capital requirements for rural infrastructure (among other needed investments) are met. An additional consideration is the stimulus to nonagricultural production to be induced by increased rural incomes due to rising agricultural prices and productivity. This form of rural growth linkage is at the heart of recent proposals for the adoption of an employment-oriented, agriculture-based development strategy in the Philippines (Alburo et al. 1986, Bautista 1987b).

#### DEMAND STRUCTURE AND GROWTH LINKAGES

The anti-employment and anti-equity biases of postwar economic policies must have had a significant effect on the structure and growth of effective demand favoring imported goods and capital intensive products rather than locally-produced and labor-intensive goods. This in turn can be associated with weaker intermediate and final demand effects on the domestic economy and an unsustainable

growth process. The sudden slowdown in the growth of the manufacturing sector noted above after the first half of the 1950s (representing the exuberant stage of import substitution) demonstrates this hypothesis very well.

A similar relationship applies to agricultural growth. Increases in agricultural output stimulate demand for production related products like fertilizer and farm equipment. However, as observed by Ranis and Stewart (1987) based on the survey findings of four independent studies on rural nonagricultural industries in the Philippines,<sup>8</sup> the strongest linkage of agricultural growth is with consumer good industries. From 63 to 80 percent of the total increase in nonagricultural employment are found to have been contributed by consumption related activities. Overall, taking into account both production and consumption linkages, "the elasticity of nonagricultural employment with respect to growth in agricultural output is greater than one, according to Philippine evidence" (Ranis and Stewart 1987, p.164).

There are obviously some further ramifications of agricultural growth beyond the local economy. Even in the first-round effects, there are goods produced outside the local economy that will be demanded by farmers and rural households in production and in consumption. Among the second-round effects, the forward and backward linkages outside the rural economy of the increased nonagricultural production, as well as the final demand effects of the increased income, need to be taken into account. Clearly, to be able to capture the full complexity of the linkages of agricultural growth, one has to go beyond the effects on the local rural economy.

It can also be presumed that the macroeconomic effect will be of interest to policy makers at the national level.

The economy-wide repercussions of rising agricultural productivity are examined quantitatively in Bautista (1986b) using a multisectoral, general equilibrium model of the Philippine economy. The model simulation assumes an initial static equilibrium, approximated by the observed condition in 1978, which is disturbed by a 10 percent increase in total factor productivity in each of the four agricultural and food processing sectors distinguished in the model. The simulation results, reflecting the adjustment of economy to a new equilibrium position, indicate that simultaneous productivity increases in these four sectors lead to a significant response in sectoral output, ranging from 3.6 percent for food crops to 17.1 percent for livestock and fishery. Among the macroeconomic effects, those on government income, total investment, the trade balance and especially national income are significantly positive. The resulting 2.2 percent rise in national income represents about two-fifths of the actual national income growth in the Philippines for the benchmark year (1978).

The multiplier effects of a given increase in rural income will be greater the more skewed is the consumption pattern toward labor intensive products. Households of the less affluent, small agricultural producers are more likely to fit this pattern, whereas families of the more prosperous owners of large farms tend to spend more on capital intensive goods, whether locally produced or imported. Although the structure of the model used in the above-mentioned simulations does not make distinctions between small and

large agricultural producers and between low- and high-income rural households, it is a safe presumption that the resulting benefits to the national economy would be greater if a greater share of the increases in productivity and income went to the smaller farms and lower-income households. Conversely, to the extent that the productivity and income improvements have favored the large and the prosperous, the simulation results would have tended to overstate the positive macroeconomic effects.

The magnitude of rural growth linkages is also determined by the labor intensity of agricultural production. As more agricultural laborers are employed and/or as their real wage rates rise, the purchasing power of the low-income rural laboring class increases--which has favorable final demand effects. Labor intensity, in turn, is determined partly by the size of farms. Smaller farms generally use relatively more labor because (1) they are typically less mechanized and (2) they adopt more labor-using farm equipment (e.g., power tillers rather than four-wheel tractors). There is ample evidence that the adoption of agricultural machinery in the Philippines has had both labor-displacing and wage depressing effects (Ranis and Stewart 1987). Unfortunately, it has been effectively promoted by cheap credit and exchange rate overvaluation, as pointed out above. Correction of these policy distortions that subsidize mechanization will serve to enhance the linkage effects of agricultural growth.

The important role of farm size in influencing mechanization and labor absorption was evident in the Philippines during the implementation of a land reform program affecting rice and corn

producers during the 1970s. For example, there was a marked increase in the ratio of power tiller to four-wheel tractors from 1.26 in 1972 to 8.32 in 1976. Additional land reform measures that will further reduce the average size of landholding are therefore likely to strengthen agricultural growth linkages and enhance labor employment. This is of course apart from other considerations that would associate an effective land reform in the Philippines with greater social and political stability.

The more developed the rural infrastructure the stronger are the growth linkages, other things the same. Transport, electrification, and other infrastructural facilities reduce marketing costs, increase the access of rural households to marketable products, and generally promote market integration (involving not only rural but also urban and export markets) as a basis for the development of a wide range of rural activities. Rural infrastructure in the Philippines has unfortunately not been given due importance by the government, especially over the last decade. "Most indicators show that provision of rural infrastructure in Taiwan has been substantially greater than in the Philippines" (Ranis and Stewart 1987, p.163). The share of "utilities and infrastructure" in national government expenditures declined significantly from more than 30 percent in 1978-79 to less than 20 percent in 1983-85. During 1979-83 less than 25 percent of total investment in roads and bridges was in the rural sector. The deterioration in rural infrastructure has been such that the Community Employment Development Program, launched by the new government last year to generate rural employment and increase the

purchasing power of the rural population, has infrastructure maintenance as a major activity.

Despite comparably rapid agricultural growth in the Philippines and Taiwan during the 1960s, a much greater impetus to non-agricultural activities was generated in Taiwan, encouraging rural industrialization and leading to more rapid GDP growth. This was due to the stronger growth linkages and larger labor absorption in Taiwanese agriculture, which in turn was due to the interrelated influences of smaller landholding, lesser extent of mechanization, and choices of more labor-using farm machinery, and to more favorable government policies toward rural infrastructure, interest rates, tariffs, the exchange rate and fuel prices (Ranis and Stewart 1987).

#### POLICY IMPLICATIONS AND POLITICAL ECONOMY CONSIDERATIONS

It is evident from the above discussion that the three primary objectives identified earlier to be relevant in the assessment of technology choice in the Philippines, namely, poverty reduction, labor employment and sustainable economic growth, are not independent and to a large extent are complementary. How might government policies affecting the environment in which private micro-level technological decisions are made be redirected so that they can advance these objectives and promote the choice of appropriate technologies? Three main areas for policy reform, which are also not independent but are mutually reinforcing, are suggested by the theoretical and empirical considerations addressed above. They are discussed below with reference to the political economy forces that

constrained policy making in the past and the new set of constraints facing Philippine policy makers at this time.

### 1. Liberalization of trade

For a given pattern of domestic demand and in the absence of trade restrictions, a labor-abundant country can be expected to export labor-intensive products and import capital-intensive ones, owing to international differences in relative factor prices. It is clear from the above discussion that excessive import substitution policies, resulting in significant domestic price distortions (among other things), have violated the comparative advantage principle. Foreign trade restrictions, motivated by a desire to protect domestic industry, have led not only to a lower utilization of the labor force but also made tradable goods production less competitive internationally, contributing to the country's chronic balance of payments problem.

Apart from the direct effect of raising the domestic prices of protected industrial products, import restrictions have the general equilibrium effect of reducing the demand for foreign exchange, leading to real exchange rate overvaluation. This artificially cheapens imports that are allowed to come in, which is notably the case for capital equipment and machinery. Also, exports are penalized by the lower peso price of foreign exchange; consequently, agriculture and other labor-intensive, export-oriented sectors and firms are discriminated against. Both the industry-mix and the composition of micro-units (firms) within each industry, as well as the production technique (capital-labor ratio), are therefore

influenced toward greater use of the country's scarce capital resources relative to labor employment.

The introduction of import and foreign exchange controls in 1949-50 and maintenance of the prewar exchange rate of 2 pesos per U.S dollar (despite the high wartime inflation rate) through the end of the decade, can be partly attributed to external influence. A provision in the Philippine Trade Act of 1946, passed by the U.S. Congress and accepted by the newly-independent Philippine government as an executive agreement, required the permission of the U.S. President for any change in the peso-dollar exchange rate.<sup>9</sup> It was thought that a peso devaluation would be opposed by American investment interests in the Philippines. Because there was an existing free-trade agreement between the two countries and the United States was the source of about 80 percent of Philippine imports, increasing tariff rates would not have provided an effective means of curtailing imports.

Continuing balance-of-payments difficulties, charges of corruption and poor administration of the control system, and political pressure from traditional exporters for a favorable exchange rate, forced the lifting of controls and peso devaluation in the early 1950s. It was, however, made clear "to the business community that the government... wished merely to substitute tariff protection for the protection provided by the control system" (Baldwin 1975, p.62). This reflected a strong political presence of the "import substitution" industrialists; indeed, this class of entrepreneurs was well represented in the Cabinet of the government at the time.

Greater attention was given to promoting exports in the Marcos government that assumed power in 1966. The favorable experiences of some East Asian countries (e.g., Hong Kong and Taiwan) with outward-looking, labor-intensive industrial development were beginning to be appreciated in the Philippines at that time. Government policy was also being influenced by contemporary academic discussions about the penalties being imposed on export-oriented, small-scale, and regionally dispersed industries (Power and Sicat 1971).

Indeed, in the late 1960s and in the following decade, the number of senior government officials with strong academic backgrounds (and post-graduate degrees from leading U.S. universities) increased significantly. These "technocrats", possessing an international perspective on economic development issues, were sympathetic to the idea of export-led industrial growth, and they became the de facto political representatives of export producers, especially of nontraditional labor-intensive manufactured products in which the country was thought to have comparative advantage. Export producers comprised a very small class of industrial entrepreneurs at that time, relative to other producer groups being favored by the protectionist trade regime.

The technocrats were successful, especially during the first half of the 1970s, in implementing policies that selectively subsidized export production in labor-intensive manufactures. However, such subsidies fell far short of compensating for the pervasive bias against exports due to the existing import restrictions and indirect tax system. As described in Section 2, the attempt to liberalize the foreign trade regime in the early

1980s with World Bank assistance was derailed by the external debt-related foreign exchange crisis beginning in late 1983.

The new government of Corazon Aquino, under pressure from the IMF and the World Bank, has planned to gradually liberalize imports, scheduling 1,232 import items for removal from quantitative controls from April 1986 to May 1988 and substituting tariff rates of up to 50 percent which in turn are planned to be adjusted to a uniform low level over a five-year period.<sup>10</sup> However, the program's implementation has been delayed, prompting questions on whether the government is genuinely committed to trade liberalization (cf. Medalla 1986). A few key officials are known to be associated with business interests (specifically, in some heavily protected industries producing import substitutes) that stand to lose from a policy reform towards a more open trade regime. A frequent commentary from cynical observers is that the February 1986 revolution has not brought into power a new ruling class. Economic corruption has not disappeared. Since the opportunities for rent-seeking are reduced by economic liberalization, it can be expected that there will be efforts within the government to resist the movement toward freer trade.

Outside the government, opposition to a liberalized trade regime comes from producer interests in the affected industries, i.e., those faced with significant reductions in effective protection. They are more powerful, economically and politically, than other producer groups and general consumer interests. The latter are not well organized and are largely unaware of their potential gains from trade liberalization. Also, self-styled "economic nationalists" have long been naively arguing for the protection of any and all domestic

industries against foreign competition. Some of them are ideologues who have taken an extreme reaction to past colonial rule and to whom anything foreign is anathema to national development. Others, and the more vociferous, have personal and family interests in promoting particular industries.

Prospects for trade liberalization can be improved significantly if public opinion and the newly elected Congress are persuasively informed of the heavy cost of protecting sectoral interests and subsidizing inefficient industries. The extent of additional pressure on Philippine policymakers exerted by the IMF and the World Bank is also likely to prove critical in any sustained drive toward trade liberalization.

## 2. Promotion of labor-intensive industries

The economic rationale for policy action in the Philippines favoring labor-intensive industry derives from two sources: (1) there are existing biases against relative labor use in the industrial incentive system; and (2) private profitability understates the social desirability of labor intensive projects in a developing country with a severe underutilization of the labor force. The latter justifies the promotion of labor-intensive industry even at a cost to the rest of the economy. However, since the social marginal productivity of labor-intensive industry relative to other economic activities is not infinite, the cost effectiveness of policy measures to promote labor-intensive industry also needs to be given some attention.

There is a need, first of all, to gradually eliminate the various sources of market distortions that hinder the natural

development of labor-intensive industry. As discussed above, substantial disparities in effective protection rates due to trade restrictions have encouraged allocative inefficiency within the manufacturing sector. It has been shown that the more highly protected industries are characterized by less labor-employment and greater proportion of establishments located in Metro Manila (Center for Policy and Development Studies 1986). Trade liberalization measures are then likely to encourage greater labor use and regional dispersal of manufacturing industries. Improvements in real exchange rate management (including the trade and macroeconomic policies that determine the real exchange rate) will also serve to enhance the international competitiveness of labor-intensive industry.

Fiscal incentives for industrial promotion in the Philippines have an anti-employment bias, as discussed above. Relatively neutral ways of stimulating industrial investments should replace those having distortionary effects on factor use and size structure. The identification of preferred industries in the BOI's present system of industrial priorities, which ostensibly seeks to promote industries with long-term social profitability, is fraught with difficulties. Careful evaluation with the use of shadow price and domestic resource cost measures would help, bearing in mind the need to take into account long-run considerations of future factor supplies, scale economies, learning effects and other externalities. It is necessary to recognize, in any case, that subsidies to "priority industries" will serve their purpose only if they are given for a specified, limited duration; otherwise, the cost to the economy is likely to become excessive.

The granting of fiscal and other incentives by the BOI has been rationalized on "second-best policy" grounds, given existing distortions in the protection system. As pointed out above, however, the system of BOI incentives was relatively insubstantial, favored capital-intensive industries, and failed to significantly reach the small and regionally dispersed enterprises. Indeed the determination of investment priority areas by the BOI necessarily narrows the range of industries for which the offsetting incentives can be provided. As the protection structure becomes more uniform and the various biases diminish with reforms in trade and exchange rate policies, the phasing out of BOI incentives merits serious consideration. The new government can more usefully give greater attention to the provision of industrial infrastructure, including particularly credit, technical and marketing assistance to small- and medium-scale industries; this will help meet the need to create productive jobs in manufacturing at a much more rapid rate and to achieve a wider participation in economic growth, both by income classes and by regions, increasing the upward mobility of the poor.

There have been some earlier suggestions to dismantle the system of BOI incentives, including those under the Investment Incentives Act of 1967 and Export Incentives Act of 1970. The widely discussed report of the "comprehensive employment strategy mission," sponsored by the ILO at the request of the Philippine government, specifically recommended "the gradual dismantling of the system of investment incentives" (ILO 1974, p.45). The question raised implicitly was whether government bureaucrats were capable of predicting the successful industries of the future.

The proposal to gradually remove BOI incentives was naturally not received favorably by the engineers and business-trained managers who dominated the bureaucracy at the Board of Investments. It is a reflection of their strong influence on policy making that this recommendation was not even seriously considered. Whatever penalties to labor-intensive and export-oriented enterprises then existing were seen by the BOI as manageable on a case-to-case basis (contrary to what economic analysis had concluded) and the Board continued to promote industrial investments in areas indicated in its annual priorities plans.

Affiliated with the Department of Trade and Industry, the BOI was a major participant in active support for the large-scale, capital intensive MIPs (major industrial projects) discussed above, illustrating the large-industry orientation of the Board. Small-industry support at the Department was lacking, for which reason the ILO mission recommended a "full-scale Department of Industries, with two co-ordinate divisions -- one for larger-scale and the other for medium- and smaller-scale manufacturing" (ILO 1974, p.171). This proposal again fell on deaf ears.

There is no indication that the Aquino government has eliminated the large-industry bias at the BOI and the Department of Trade and Industry, whose organizational structures have remained intact. Senior officials in both places have been changed, but their replacements come from the same elite social class strongly associated with large-scale industry and its supporting services.

### 3. Policies to improve agricultural incentives and productivity

An important implication arising from the earlier discussion on demand structure and growth linkages is that expansion of the real income of rural households can provide the stimulus to broad-based, employment-oriented economic development.<sup>11</sup> It will generate, as a direct effect, an increased demand for food and other agricultural products as well as for labor-intensive industrial goods and services, setting in motion a sequence of employment and income multiplier effects on the rural, regional, and national economies. In countries such as the Philippines that are predominantly rural and have a high incidence of rural poverty, increasing rural incomes might well be the most effective means to stimulate and, through the multiplier effects, sustain "economic growth with equity."

Initially at least, the expansion of rural income has to depend on growth in agricultural production, which "is a vital precondition for expansion of nonagricultural activities in the rural areas" (Ranis and Stewart 1987, p. 164). Rural industries in turn are associated with appropriate technology in the sense indicated above, i.e., contributing to poverty reduction, labor employment and sustainable growth. This is because the technologies used in rural industries are in general smaller scale, less capital-intensive, and make greater use of indigenous materials -- in comparison with their urban counterparts.

The implication for appropriate technology policy in the Philippines is that rapid growth in agricultural output should be actively promoted. Viewed from the supply side, agricultural output

can be increased through (1) movements along the supply function via improvements in agricultural price incentives, and (2) shifts in the supply function via increases in total factor productivity. Concerning (1), the many sources of policy-induced price biases against agriculture indicated above need to be eliminated, perhaps gradually. At this time of historically low world commodity prices, it may even be appropriate to provide protection to some agricultural crops, depending on their long-run comparative advantage, in order to ensure that farmers receive adequate price incentives.

It bears particular emphasis that the real exchange rate is an important determinant of domestic agricultural prices relative to the prices of both home goods and nonagricultural products. "Getting prices right" for agriculture then requires that the conduct of trade and macroeconomic policies be also examined for their effects on the real exchange rate. Officials at the Department of Agriculture should play a broader role in promoting agriculture's interest. They should be concerned not only with sector-specific policies, but also with the industrial protection system, monetary policy, government expenditure, nominal exchange rate policy, and other aspects of macroeconomic management which, through their effects on the real exchange rate, have a potentially strong influence on agricultural production incentives. It will be necessary to prevent the real exchange rate from being overvalued, so as not to impair the price competitiveness of agricultural tradable goods production. This would require that import restrictions unduly protective of domestic industry be liberalized and that a sustainable trade balance be maintained (Bautista 1987a).

Increases in agricultural productivity can be achieved by shifting the structure of public investment toward the rural areas and away from the past bias favoring urban-based, capital intensive industries. Improvements in rural transport facilities, electrification, agricultural credit and irrigation will also serve to increase the agricultural supply response to price incentives.

Greater government support to agricultural research and extension that will generate, adapt and disseminate improved technologies can also be expected to have a very high payoff. This is in view of past neglect in the provision of these critically needed "public goods." Philippine government expenditure on agricultural research as a proportion of agricultural value added is known to be one of the lowest among developing countries. The government cannot continue to rely on IRRI's dominant contribution to rice research. Biases in the existing structure of research and extension--by crop, type of farm (e.g., irrigated vs. rainfed), farm size, etc. -- need to be corrected. Increased decentralization of the research and extension system is also necessary to take greater cognizance of local needs and potentials. Finally, it also bears emphasis that farmers will adopt new technologies only if they can expect their incomes to improve. It is therefore important for agricultural technology diffusion and productivity growth that price incentives are in place.

Beyond the direct promotion of agricultural growth, strengthening the multiplier or linkage effects on the rest of the economy will also be necessary. Because food and other labor-intensive goods bulk large in the consumption of rural households,

sectors efficiently producing such products (presumably, small-scale producers in regionally dispersed areas) will be favored by the rise in rural expenditure. "Whether supply will be able to match the increased demand for those products would depend on the availability of production inputs and their prices" (Alburo et al. 1986, p.31). For instance, if intermediate inputs to agricultural and nonagricultural production are made artificially scarce or expensive by a restrictive foreign trade regime and/or an underdeveloped domestic transport system, the full benefits from increased final demand in terms of output growth and labor absorption will not be realized. It is also clear that the development of rural infrastructure will be critical not only to the generation and diffusion of improved agricultural technologies, but also to the development and integration of rural markets.

The total employment effect due to a rising rural income will be greater, and output growth more broadly based, the more skewed is the consumption pattern toward food and other labor-intensive products. Because households of the small agricultural and nonagricultural producer are most likely to fit this pattern, it is important that improvements in price incentives, production technologies and infrastructure facilities should reach the small producers in regionally dispersed areas. It also bears emphasis that adequate support services are needed in the implementation of an agrarian land reform program.

Agricultural producers traditionally do not have a strong political voice in the Philippines. Even the much touted "sugar bloc," supposedly the strongest economic and political interest group

in the country, was not able to obtain a favorable exchange rate in the immediate postwar years or prevent the maintenance of a massive peso overvaluation throughout the 1950s. The decontrol measures and gradual exchange rate adjustment were implemented in the early 1960s largely because the "control system" could not solve the country's balance of payments problem; political pressure from the sugar bloc was not the critical factor. In the 1970s, sugar and coconut farmers were exploited financially by government-installed trading and milling monopolies run by Marcos "cronies" (Canlas et al. 1984). It is hardly a coincidence that the Communist insurgency movement found wide support during the 1970s and 1980s in the regions where coconut, sugar and other export crops are mostly grown.

The Aquino government, as indicated above, has taken some significant steps in reducing the policy bias against agriculture. Export taxes were eliminated in mid-1986; for too long they were a direct burden to agricultural producers. Government monopolies in sugar, coconut, grains, and fertilizer have also been abolished. Furthermore, the recently launched program markedly increasing infrastructure expenditures in the rural areas is not only addressing the existing deficiency in aggregate demand but also promoting growth in agricultural productivity and increasing the purchasing power of rural households. General guidelines on a new agrarian land reform program have also been written into an Executive Order, the details of which are still to be formulated by the legislature.

What has yet to emerge is the "true color" of the new Congress. Only about 30 percent of the members are newcomers, the rest either

belonging to "political dynasties" and/or held legislative positions in the pre-martial law period or the interim national assembly. This may indicate strong conservative leanings and a weak commitment to agrarian reform, which is widely regarded as an important credibility test for the new Congress. President Aquino has yet to use her considerable prestige and political influence to actively pursue her administration's economic agenda in the legislature.

Financing of the rural infrastructure and agrarian land reform programs may be a problem, owing to the fiscal and monetary restraint related to the heavy external debt-service burden. The country's ability to expand export earnings and economize on imports, as well as the possibility of negotiating favorable repayment terms (with debt relief, it is hoped) with foreign lenders, will be additional factors bearing on the implementation of government policies to promote agricultural growth and, given the nature of the growth linkages discussed above, the overall development prospects of the Philippine economy.

## FOOTNOTES

- (\*) Research Fellow, International Food Policy Research Institute, Washington, D.C. The author acknowledges the helpful comments of Frances Stewart on an earlier draft of this paper.
1. The corresponding growth rates are significantly higher not only (as one might expect) for South Korea, Taiwan, Hong Kong and Singapore - the so-called Asian NICs -- but also for the other ASEAN countries with which the Philippines can be more naturally compared, namely, Indonesia (3.5 percent), Thailand (5.1 percent), and Malaysia (5.5 percent). Each of these neighboring Southeast Asian economies also grew faster than the Philippines in each year since 1980.
  2. Defined as the proportion of families whose incomes are below specified poverty lines.
  3. Depending on whether: the project is pioneer or non-pioneer; it is a new or an expansion project; capital is imported or domestically produced; it is exporting or not; etc.
  4. These calculated values are based on assumptions of unitary elasticity of the factor substitution, 20-year project lifespan, and 15 percent discount rate.
  5. Five-Year Philippine Development Plan, 1978-1982 (Updated for 1981 and 1982), p.13.
  6. Thus, the average annual growth rate of manufacturing value added (in real terms) was 12.6 percent during 1949-56, the so called exuberant stage of import substitution, but it plunged to 6.3 percent during 1957-61.
  7. The estimation procedures makes adjustments to convert book values of fixed assets to replacement values and to express value added in international prices, i.e., deflating by an estimate of effective protection for each industry.
  8. These are: Gibbs (1974), based on a survey in Gapan, Nueva Ecija; Sander (1979) in the Upper Pampanga River area; Wang-waracharakul (1984) in two municipalities in Iloilo province; and Ranis and Stewart (1987) in Quezon province.
  9. A period of applicability until 1973 was stipulated. (This provision was repealed subsequently by a revision of the Act in 1955). Other onerous provisions in the Act infringing on Philippine sovereignty were also accepted by the government, presumably because a companion legislative piece provided for a substantial U.S. compensation for war damages (Golay 1961, p.64).
  10. No exact indication of the eventual level of uniform tariff has yet been officially given, although 10 to 30 percent rates have been mentioned in policy discussions.
  11. This is at the heart of recent proposals for an agriculture-based development strategy; see Mellor (1976) for an early statement.

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Table 1: Distribution of Household Income, 1956-85

Income distribution	Percentage of total household income			
	1956	1961	1971	1985
Top 10 Percent	39.4	41.0	36.9	37.0
Top 20 Percent	55.1	56.4	53.9	52.6
Top 40 Percent	74.9	75.7	75.0	72.8
Bottom 20 percent	4.5	4.2	3.8	5.2
Gini coefficient	0.48	0.50	0.49	--

Source: National Census and Statistics Office, Family Income and Expenditure Surveys (1956, 1961, and 1971), National Economic and Development Authority, Medium-Term Philippine Development Plan 1987-1992.

Table 2: Per Capita Gross Domestic Product by Region: 1978-1984  
(in pesos at 1972 prices)

Region/Year	1978	1980	1982	1984
PHILIPPINES	<u>1,808</u>	<u>1,917</u>	<u>1,950</u>	<u>1,790</u>
Metro Manila	4,631	4,912	4,966	4,476
Ilocos Region	878	967	1,021	974
Cagayan Valley	1,106	1,175	1,128	960
Central Luzon	1,517	1,615	1,735	1,561
Southern Tagalog	2,060	2,100	2,075	1,947
Bicol Region	823	907	833	781
Western Visayas	1,612	1,684	1,769	1,596
Central Visayas	1,629	1,769	1,771	1,665
Eastern Visayas	770	823	832	733
Western Mindanao	1,104	1,227	1,233	1,111
Northern Mindanao	1,509	1,591	1,606	1,416
Southern Mindanao	1,876	1,863	1,784	1,727
Central Mindanao	1,237	1,305	1,483	1,411

Source: National Economic and Development Authority,  
Philippine Statistical Yearbook, 1985.

Table 3: Average Annual Growth in Relative Input Use, 1956-80  
(in percent)

	1956-60	1960-70	1970-80
Labor/Capital	-4.77	-1.15	3.98
Labor/Intermediate Input	-6.06	-5.49	.25

Source: Basic data from Hooley (1985).

90'

Table 4: Ratios of Effective Exchange Rates, by Product Category,  
1950-80

Effective Exchange Rate Ratio			
Year	TX/NEC	NX/NEC	NX/TX
1950	0.976	1.093	1.120
1951	0.590	0.661	1.120
1952	0.590	0.661	1.120
1953	0.590	0.684	1.160
1954	0.599	0.695	1.160
1955	0.543	0.630	1.160
1956	0.518	0.601	1.160
1957	0.485	0.563	1.160
1958	0.480	0.556	1.160
1959	0.395	0.455	1.150
1960	0.319	0.360	1.131
1961	0.382	0.420	1.101
1962	0.314	0.336	1.070
1963	0.313	0.331	1.057
1964	0.317	0.335	1.057
1965	0.326	0.346	1.059
1966	0.334	0.353	1.059
1967	0.331	0.354	1.069
1968	0.327	0.350	1.069
1969	0.327	0.349	1.069
1970	0.291	0.370	1.270
1971	0.299	0.377	1.260
1972	0.312	0.367	1.174
1973	0.290	0.339	1.169
1974	0.280	0.366	1.308
1975	0.280	0.356	1.274
1976	0.279	0.312	1.116
1977	0.279	0.328	1.173
1978	0.280	0.342	1.225
1979	0.279	0.337	1.208
1980	0.279	0.337	1.207

Source: Basic data from Baldwin (1975) and Senga (1983).

Notes: TX is traditional exports; NX is new exports; and NEC is nonessential consumer good imports.

Table 5: Capital Intensity and Productivity in Manufacturing by Industry Group and Employment Size, 1970  
(in pesos)

Industry	Kr/N				VA/Kr			
	20-49 workers	50-99 workers	100-199 workers	200 + workers	20-49 workers	50-99 workers	100-199 workers	200 + workers
Food	24611	19229	50990	32913	0.118	0.343	0.205	0.347
Beverages	14303	45994	20613	25448	0.311	0.401	1.406	1.234
Tobacco	3923	18005	81818	17066	0.578	0.301	0.053	0.655
Textiles	23650	30127	17014	4665	0.090	0.060	0.145	0.501
Footwear	9157	8875	10789	16439	0.329	0.495	0.316	0.208
Wood products	10104	7690	12765	5014	0.464	0.921	0.494	1.210
Furniture	7559	5970	22521	-----	0.355	0.484	0.158	-----
Paper	51747	36711	45488	87209	0.097	0.177	0.192	0.118
Printing	21745	15224	12781	-----	0.362	0.740	0.701	-----
Leather products	17443	15161	36534	-----	0.061	0.072	0.039	-----
Rubber Products	21903	24554	33449	39934	0.489	0.187	0.195	0.498
Chemicals	50800	43847	53224	55009	0.333	0.492	0.408	0.603
Petroleum products	109650	-----	-----	-----	0.454	-----	-----	-----
Non-metallic products	55924	157975	21729	46201	0.049	0.002	0.229	0.253
Basic metals	6831	30772	29833	96586	0.655	0.289	0.280	0.147
Metal products	19992	26439	-----	-----	0.138	0.177	-----	-----
Machinery	19240	-----	18739	-----	0.277	-----	0.517	-----
Electrical machinery	29987	35717	30930	30175	0.107	0.081	0.127	0.220
Transport equipment	16694	20876	14422	49554	0.164	0.129	0.112	0.154
Miscellaneous	19399	27835	14935	14945	0.102	-----	0.156	0.207

Notes: VA = value added; N = employment; Kr = replacement value of fixed and inventory capital.

Source: Table 26 in ILO (1974; p. 145).

98