ECONOMIC POLICIES AND PHILIPPINE AGRICULTURE

by

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Chapter 1

INTRODUCTION

The decline of agriculture's share in gross domestic product
and total employment has been the most consistent structural
change observed in the economic history of developed countries
and in cross-section comparisons between poor and rich countries
(Chenery and Syrquin, 1977). This trend is frequently explained
in terms of the decline in income elasticity of food as incomes
rise (Engel's Law), discovery of synthetic substitutes for agri-
cultural products, and rapid technological change in agriculture
in response to growing scarcity of land. Both external and in-
ternal economic policies, however, may have unduly hastened the
declining importance of the agricultural economy among less .

developed countries. First, the generally heavy protection of
the agricultural sector in developed countries limits the potential
export market for agricultural products of LDC's. Second, domestic
economic policies pursued by LDC's are typically designed to
accelerate this process of structural transformation by favoring
the industrial sector.

The focus on promoting industrialization via protection of
the domestic market in the Philippine postwar development strategy,
for example, may be interpreted as such an approach. Agriculture
was simply viewed in a supporting role, to supply foreign exchange,
cheap food, and capital resources for this effort.

By the late 1960s, it became clear that this unbalanced growth
strategy which neglected the development of the agricultural sector
had not led to sustained, overall economic progress. Moreover, the
industrial promotion policies encouraged industries which were rela-
tively inefficient, capital intensive, located mostly near large
urban areas and serving primarily demands from the domestic market.
On the other hand, as the land frontier was approached, the capital
investments needed to produce the food and foreign exchange to
support further industrialization efforts had increased. Chronic
balance of payments difficulties, periodic food crises, slow growth
of employment, and uneven distribution of income over the past two
decades have been problems associated with this development strategy.

The growing concern for equity and employment, the bleak balance of payments prospects, the serious food grain crises in 1973, and the promise of substantive gains in productivity with the new rice technology have led to what seems to have been a stronger explicit focus on agricultural development in the 1970s compared to the past two decades. At the same time, however, the government policies affecting incentives to investment and output have still strongly favored industry over agriculture.

At the start of the 1980's, the long-run program of structural adjustment adopted to meet the challenge of a changing world economic environment, as well as a changing domestic resource structure, has been mainly directed towards the industrial and energy sectors. Although the tariff reform and other measures to liberalize imports will lower overall protection of manufacturing and hence domestic currency overvaluation, indirectly benefiting the agricultural sector, the role of agriculture and review of policies affecting the sector has so far been largely overlooked in these efforts.

The socio-economic disparities between the urban and rural sectors remains substantial. Average income of rural families is half that of urban families. The proportion of rural families with incomes less than the accepted minimum subsistence level is much greater than of urban families. Not surprisingly, rural levels of health, nutrition, education, and housing are consist-

ently lower due partly to lower incomes but also to small public
social services expenditures in these areas (Mangahas, 1976).

Admittedly, an important reason why the Philippines is poor
is because of limited capital and, in the rural sector, of limited
land resources. But precisely because these resources are especially
scarce, the efficiency by which they are utilized should be a primary
concern of any development strategy. The central question is the
degree to which we are approaching the best possible use of these
resources to improve economic welfare, especially that of the rural
population. This research therefore asks: whether and to what
extent the Philippines has a comparative advantage in various
agricultural activities, and to what extent economic policies have
aided or thwarted the realization of that comparative advantage.

Our analysis of economic policies is comprehensive and differs
substantially in its approach from previous studies of agricultural
policies in two major respects. First, most policy studies are crop-
specific and frequently pertain only to the rice economy. This
study encompasses the entire agricultural sector in order to evaluate
the overall agricultural policy strategy and the differential impact
of policy across agricultural commodities and between agriculture
and non-agricultural sectors. Second, most policy studies cover
only those specific to agriculture and each subsector. This study
attempts to include, as well, the important effects of the broad
macroeconomic policies -- exchange rate and protection policies,

fiscal and monetary policies. Past analysis of macroeconomic policies often have been conducted from the perspective of the industrial sector neglecting their pervasive effects on the allocation of resources and distribution of income with respect to the agricultural sector.

After a brief historical review of the agriculture's performance in the economy in Chapter 2, the next three chapters are devoted to an analysis of economic policies affecting agriculture. The emphasis is on economic policies directly impinging on price relationships, i.e., price intervention policies, to be covered in Chapter 3. In Chapter 4, credit policies are evaluated in terms of how these might change the direction of incentives generated by price intervention policies. An Attempt is made in Chapter 5 to examine public expenditures for agriculture particularly those for irrigation, research and extension which affect agricultural prices by raising productivity. The purpose, however, is to infer the pattern of government priorities rather than to quantify their impact. Although the focus of the analysis is on the impact of policy on the efficiency of resource allocation, the indirect impact on income distribution will also be discussed.

To infer to what extent economic policies have promoted or reduced economic efficiency, Chapter 6 presents estimates of domestic resource cost to evaluate the comparative advantage of selected major agricultural commodities. Chapter 7 examines the impact of price intervention policies on intersectoral capital flows. The final chapter provides a summary and a discussion of the policy implications.

Chapter 2

HISTORICAL PERFORMANCE OF
PHILIPPINE AGRICULTURE

Despite the strong industrialization bias in the postwar
development strategy, agriculture still dominates the total economy.
Seventy percent of the population are located in the rural areas.
Agriculture employs about 50 percent of the total labor force and
contributes nearly 30 percent of the net domestic product. When
all economic activities related to agricultural processing and
supply of non-farm agricultural inputs are included, the agricul-
tural sector broadly defined accounts for at least two-thirds of
the labor force and half of the net domestic product in the economy.
About half of total export receipts are also earned from raw and
processed agricultural products.

Patterns of Structural Change

The relative size of the agricultural economy (i.e., including
fishing and forestry) has changed only gradually during the postwar
period except for its share in total export (Table 1). Between
1955 and 1980, agriculture's share in net value added in constant
terms declined from 36 to 29 percent. The annual growth rate in
agriculture was about 4 percent, similar to other ASEAN countries
but higher than other middle income countries (Table 2). The 6 to

Table 1. Selected economic indicators in the Philippines, 1955-80.

	1956[a/]	1961	1966	1971	1976	1979
Share of population in rural area	76	74	73	72	71	70
Share of NDP						
Agriculture[b/]	36	35	34	33	31	29
Industry[c/]	24	23	24	25	20	31
Services	42	42	42	42	41	40
Manufacturing	16	18	18	19	20	20
Share of Labor Force						
Agriculture	61	61	55	49	50	51
Industry	15	15	15	15	16	15
Services	24	24	30	36	34	34
Agriculture's share of exports[d/]	86	87	84	73	63	50
Agriculture's share of imports[d/]	22	22	22	18	13	10
Exports to GNP ratio						

[a/] Three year average centered at the year shown.

[b/] Agriculture includes crops, livestock and poultry, fishery, and forestry.

[c/] Industry includes manufacturing, mining, construction, electricity gas and water.

[d/] Agriculture is defined broadly to include agricultural products which have some manufacturing content such as processed food, coconut oil, plywood, and so forth.

Sources: Philippine Statistical Yearbook, National Economic and Development Board, 1980 and 1981.

Foreign Trade Statistics, National Census and Statistics Office.

Table 2. Sectoral growth rates of value added in the Philippines, 1955 to 1980, (percent).

	1956– 1961 [a]	1961– 1966	1966– 1971	1971– 1976	1976– 1979	1956– 1979
Industry	4.7	5.8	5.2	6.9	6.8	5.2
Manufacturing	6.3	5.2	5.6	7.1	5.8	6.0
Services	4.3	4.4	4.6	5.2	4.8	4.8
Agriculture	3.6	4.3	3.5	4.2	4.7	4.0
Forestry	9.8	5.9	4.0	-4.6 [b]	-1.0 [b]	2.8 [b]
Fishery	2.9	4.9	7.7	4.6	3.3	4.8
Livestock & Poultry	-2.6	6.8	1.9	1.7	4.2	2.1
Crops	4.6	3.3	5.0	1.7	6.5	5.3

[a] End years are three year averages centered at the year shown.

[b] This low growth rate was due in part to underreporting of log exports (Power and Tumaneng).

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

7 percent annual growth of the manufacturing sector was below that
experienced by other ASEAN countries and much below that of the
rapidly growing East Asian countries.

The performance of the agricultural sector has improved over
time whereas a marked slowdown of manufacturing growth occurred
beginning the mid-seventies. The growth rate of agricultural crops
rose from the mid-1960's, surpassing the growth rate of manufac-
turing in the 1970's. The agricultural sector also seems to have
performed remarkably well in recent years, at least relative to the
manufacturing sector, despite the second oil price shock and the
worldwide recession which caused a sharp drop in world prices of
the major agricultural export commodities. Data for 1980 and 1981
indicate an even faster growth rate of the agircultural sector as
a whole -- 5.0 and 3.6 percent compared to only 4.2 and 3.4 percent,
respectively, for manufacturing.

Agriculture's share in employment fell from 61 percent in 1956
to about 50 percent by the mid-1970's and has changed very little
since then. This decline was compensated by an equivalent increase
in the service sector rather than in industry where the employment
share remained constant at 15 percent throughout the whole period.
Thus, the higher growth rate of industrial output was not accompanied
by a similar pattern in sectoral labor absorption, an indication of
the excessively capital intensive nature of industrialization.
Instead, the growing labor force has been nominally employed in the

service and agricultural sectors where wages are more flexible and self-employment is more prevalent, but in the process constraining growth in the labor productivity in these sectors.

The inward-looking character of development policies is reflected in the slow growth of export to gross national product ratio (13 to 20 percent over 25 years), which again is currently lowest in the ASEAN region. In countries where a more export-oriented industrial strategy has been adopted such as South Korea, the ratio increased six fold within a span of 16 years (Anderson, 1982).

The shift in the sectoral source of exports, has been more significant than those of value added and employment. Prior to the mid-1960's, agriculture's share in total exports was about 86 percent and imports was about 22 percent; by 1980, these shares declined sharply to 50 percent and 10 percent, respectively.

Growth and Composition of Agricultural Production

While the agricultural sector in general performed moderately well in the postwar period, growth of gross value added of the major commodity groups has been uneven (Table 2). Livestock and poultry show the lowest growth rate (2.1 percent), even less than the rate of increase of population. After expanding rapidly in the 1950's and 1960's, forest production data indicate a marked

decline as a result of the log export quota instituted in 1975
to conserve forest resources.[1]

The higher growth rates of agricultural crops raised their
share relative to the other commodities -- 50 percent to 65 percent
of gross value added in agriculture (Fig. 1). Though average
growth rate of fishery is relatively high, its share did not change.
Livestock and poultry accounted for about 25 percent in the 1950's
but its share has fallen to 15 percent in 1980. The contribution
of forestry also decreased from 18 percent at its highest in 1963
to only 5 percent in 1980.

Rice, coconuts, sugarcane, and corn are historically the four
leading crops comprising 70 to 85 percent of gross value added for
agricultural crops and of harvested crop area. Rice still is the
most important single crop in terms of value (25%) and hectarage
(30%). Growth of rice production has accelerated since 1966 when
the modern seed-fertilizer technology was introduced and irrigated
area expanded (Table 3).

Corn contributes the smallest share to crop value added (about
10 percent) among the principal crops. However, it is a close second
to rice in terms of hectarage since it occupies mostly low yielding

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[1] Data on forestry output is also significantly understated
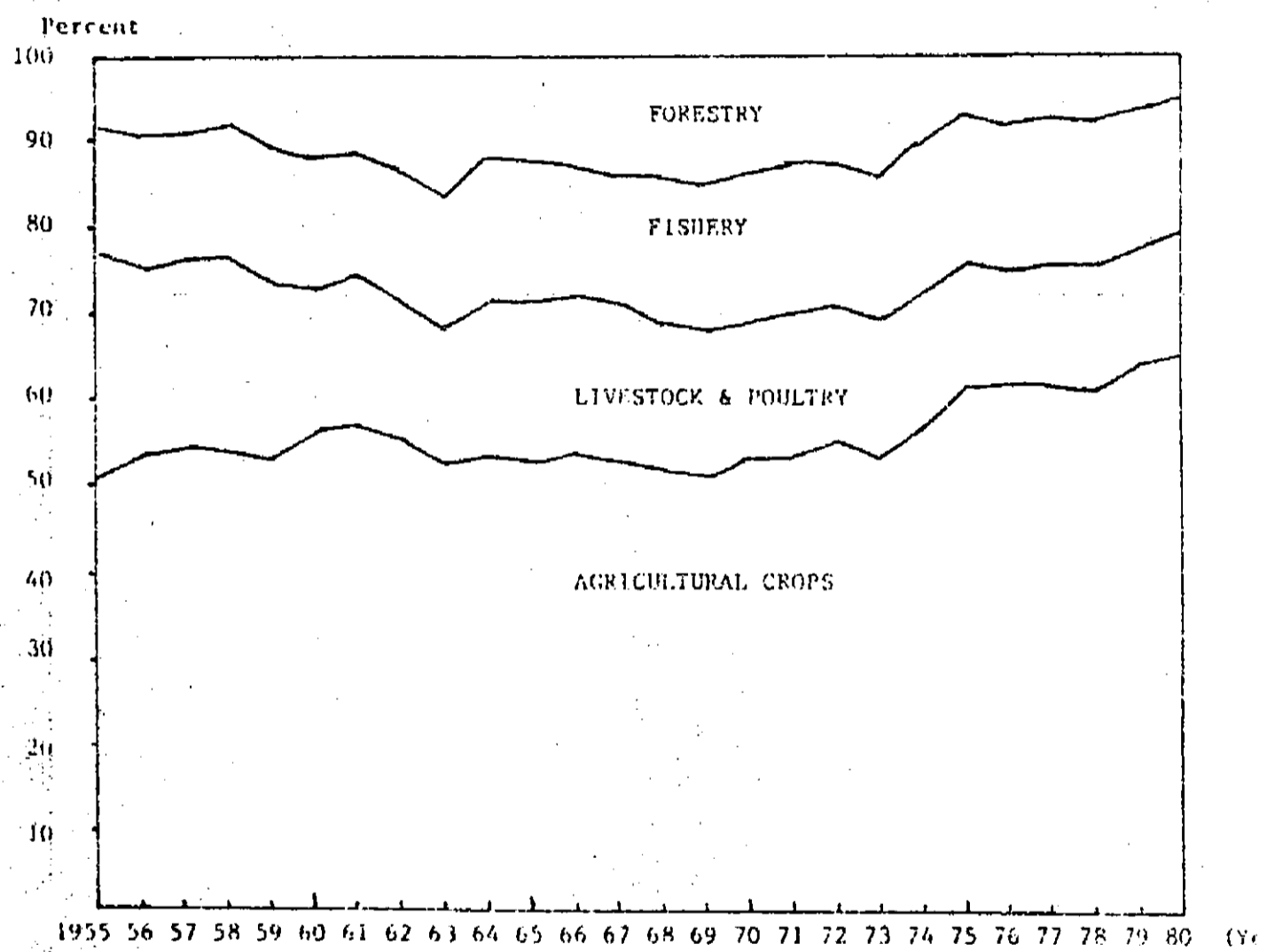in later years due to underreporting of log exports.

Fig. 1. Distribution of agricultural gross value added in constant 1972
prices by commodity groups in the Philippines, 1955-1980.

Table 3. Annual growth rates of major agricultural crops in the Philippines, 1955-1980.

	1956-1961 [a/]	1961-1966	1966-1971	1971-1976	1976-1979	1956-1979
Rice	2.9	1.4	5.2	3.1	5.7	3.5
Corn	7.2	2.8	2.7	2.6	5.1	5.8
Sugar	8.	1.7	6.7	3.1	-2.5	
Coconuts	-0.2	5.3	1.9	13.9	8.9	5.6

[a/] End years are three year averages centered at the year shown.

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

marginal areas. Its growth rate is also relatively high especially
in recent years due mainly to increasing demand for corn as feeds.

The major export crops, coconut and sugar, account for 15
to 25 percent, respectively, of crop value added. While coconut
output expanded more rapidly in the 1970's than in the previous
period, this was not true for sugar. The growth rate of sugar
was much lower compared to the previous period (5.6 percent) when
virtually all sugar exports went to the highly protected US sugar
market. There was also a shift in land use from grains to export-
able crops after the 1962 devaluation (Treadgold and Hooley, 1967).
This explains in part the remarkable increase of other food crops
from the mid-1960's, mainly bananas and pineapples, and in recent
years coffee and mangoes for export. The production effect on
coconut was not felt until the 1970's.

Changing Pattern of Agricultural Exports

Up to the end of 1960's, more than 80 percent of export
receipts was earned by agriculture (Table 4). Coconut, sugar,
and forest products contributed three-fourths of the export
trade Abaca and, to a lesser extent, tobacco were also signi-
ficant in the earlier years. The share of coconuts and sugar
declined during this period but expansion of forest products
sustained the predominance of agriculture in the export trade.
Similarly, the sharp drop in the reported share of forestry exports
since 1970, was a major factor in the declining export share of
agriculture in the 1970's.

Table 4. Value of Philippine agricultural exports by leading commodities, 1955-1980 (FOB million USS).

	1965[a/]	1966	1971	1976	1979
Agricultural exports	369.2	680.4	800.2	1,681.6	2,259.3
Coconut products	167.0 (45.2)[b/]	217.7 (32.0)	230.3 (28.8)	589.0 (35.0)	919.0 (40.7)
Sugar products	102.0 (27.6)	146.7 (21.6)	211.3 (26.4)	535.7 (31.9)	359.7 (15.9)
Forestry products	48.3 (:3.1)	228.0 (33.5)	264.7 (33.1)	311.3 (18.5)	475.3 (21.0)
Fruits and vegetables	8.7 (2.4)	13.7 (2.0)	42.3 (5.3)	141.0 (8.4)	214.0 (9.5)
Abaca	35.7 (9.7)	21.7 (3.2)	16.0 (2.0)	26.0 (1.5)	35.7 (1.6)
Tobacco	4.7 (1.3)	38.0 (5.6)	16.0 (2.0)	31.0 (1.8)	31.0 (1.4)
Fish	0.1 (0.03)	0.5 (0.1)	5.6 (0.7)	28.5 (1.7)	98.5 (4.4)
Others	2.7 (0.7)	14.1 (2.1)	14.0 (1.7)	19.1 (1.1)	126.1 (5.6)
Total exports	428.3	806.0	1,101.2	2,673.0	4,604.6
% of agriucltural to total exports	86.2	84.4	72.7	62.9	49.1

[a/] Three year averages centered on the year shown

[b/] Figures in parenthesis are percentage of agricultural exports.

Source: Foreign Trade Statistics, National Census and Statistical Office.

Nevertheless, the growth rate of agricultural exports in the 1970's was actually higher than in the previous period because of the fast growth of new agricultural exports, specifically bananas and pineapples under fruits and vegetables, shrimps and tuna under fish and fish preparations, and coffee under the category, others. The importance of agriculture in export trade, however, began to decline, with the more rapid increase of non-traditional manufacturing exports from the late 1960's.

Chapter III

PRICE INTERVENTION POLICIES

The overall effects of government policies on agricultural
product and input prices or economic incentives have not received
adequate attention in the Philippines. The fact that small farmers
are rational and price-responsive is already amply demonstrated in
the literature (Schultz,1964). Hence, price relationships among
crops, between agriculture and non-agriculture, and between product
and input prices have important consequences on agricultural in-
centives and the allocation of resources. A complex set of govern-
ment market interventions intended to achieve many different and
conflicting objectives, e.g., food self-sufficiency, low food prices,
stable prices, higher farm income, more government revenues, and
promotion of agricultural processing, influence these price relations.
Price controls, export taxes, trade quotas, import tariffs and
pricing policies of national marketing agencies are commodity speci-
fic policy instruments directly affecting relative prices. It
should be emphasized, however, that macro-economic policies affect-
ing foreign exchange rate and credit or interest rates may be as
important in determining relative profitability in agriculture.
In analyzing the impact of both these types of policies, it was
also useful to distinguish between their effects on domestic agri-
cultural incentives in relation to the world and those in relation

to the non-agricultural sector with whom agriculture competes
for resources.

Impact of Commodity Specific Policies

To evaluate the impact of economic policies on domestic
agricultural incentives, actual domestic prices of agricultural
outputs and inputs are compared to those prices which would have
prevailed without price intervention policies. Since most
agricultural commodities are tradeable and the Philippines can
generally be considered a small country relative to the inter-
national market, this undistorted price can be approximated by
the world or border price, i.e., FOB unit value for exportables
and CIF unit value for importables converted at the official
exchange rate.[2]

Three summary indicators have been used; nominal protection
rates (NPR) and implicit tariff (IT) measure the percentage differ-
ence between domestic and border prices of agricultural output and
inputs, respectively.[3] Care was taken to define these prices at a

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[2] World prices are not affected by changes in imports or exports
in the small country case.

[3] $NPR = \left[\dfrac{p^o_d}{p^o_b} - 1 \right] \times 100;$ $IT = \left[\dfrac{p^i_d}{p^i_b} - 1 \right] \times 100;$ where P_b denotes

border price, P_d is domestic price and the superscripts o and i
refer to output and inputs, respectively. A distinction is made
between the concept of nominal protection and implicit tarrif because
Philippine government policies often create a difference in the domes-
tic price from the point of view of the producer and that of the user
of the same product. This is, of course, not true for border price.

comparable point in the marketing chain to insure that the observed
divergence in prices are caused by government market interventions
and not by real marketing costs. The third indicator is the effect-
ive protection rate which provides a net measure of the impact of
government interventions on both output and intermediate input
prices by taking the percentage difference between value added at
domestic and at border prices. All border prices are converted at
the official exchange rates in these measures.

Among the commodity specific policies, tariffs, import controls
through quotas or licencing, and other forms of import restrictions
raise domestic over border values resulting in positive NPR's and
IT's. On the other hand, price controls, production tax, export tax,
export quotas and other types of export restrictions reduce domestic
relative to border price. Without these government interventions,
NPR's for exportables are zero because they have to compete in the
international market and policies, therefore, which restrict exports
lead to negative NPR's and IT's. A negative implicit tariff on
agricultural inputs provides an incentive while a negative nominal
protection rate, a disincentive to agricultural production. The net effect
or the effective protection rate (EPR) will depend on the relative
value of NPR and IT for agricultural products and inputs, respect-
ively, and the value added ratio. A high (low) EPR promotes (dis-
courages) expansion of a sector.

Nominal Protection on Agricultural Output

The policy instruments driving a wedge between domestic and border prices in agriculture generally differ from those in manufacturing where the tariff structure and indirect sales tax are the main tools of policy. Aside from forest products, the only tax on sales are a one percent tax on agricultural output from which small farms are exempt and a one percent miller's tax. The protective effect of import tariffs which do exist for most agricultural products applies only to a limited segment of domestic agriculture. Trade protection on percent of agricultural products which are exportable is redundant. Because of prohibitive marketing cost, another percent are essentially non-traded such as roots and tubers, some fruits and vegetables, fresh fish, and so forth. Wheat, soybeans, sorghum, milk products and a few others which are not locally produced in any significant amounts have relatively low tariffs. Moreover, quantitative trade restrictions, direct government involvement in marketing, export taxes, price controls and other types of policy instruments tend to be the most important instruments of price interventions in Philippine agriculture especially during the past decade.

Except for rice, corn, and sugar, there were few commodity specific policies in the 1950's and 1960's. Import controls in the 1950's and tariffs in the 1960's may have potentially provided

protection to a limited number of minor import-competing agri-
cultural products. There were few attempts to intervene in the
production and trade of export crops except in the special case
of sugar and briefly by an implicit export tax through restrict-
ions in foreign currency conversion for export receipts as a stab-
ilization measure after the 1962 devaluation.

Government regulation of the agricultural sector has notice-
ably increased in the 1970's. While some policies were motivated
partly by the intent to promote agricultural development and
balanced sectoral economic growth, many policies were instituted
at least initially to cushion the impact on consumer prices of
the floating exchange rate in 1970 and the oil and food grain crises
in 1973.

Rice and corn, being staple food grains, have historically
been the objects of direct price interventions. The government's
short-run impact on domestic price levels has been principally
through monopoly control of their international trade.[4] Main-
taining low prices of grains for consumers as well as assuring
adequate price incentives for producers are the twin objectives
of rice price policy. In 1972, the functions of the Rice and Corn

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[4] Over the long-run, public expenditures on irrigation, re-
search, and extension affect domestic prices by shifting the
supply function rightward.

Administration which administered the government marketing opera-
tions were broadened to cover all grains under a new name, the
National Grains Authority. Since 1981, marketing of all food
crops is theoretically supposed to be regulated by the National
Food Authority (NFA). In addition to influencing rice and corn
prices,the NFA now directly determines domestic pricing of wheat grains
& feedstuffs-yellow corn,soybean meal, and sorghum for which it
has monopoly control on imports. NFA's marketing activities
in other food crops, through the Food Terminal, Inc., and Kadiwa
Centers, have been mainly aimed at providing low food prices to
target poor families.

. Government intervention in sugar was initially motivated by
the need to administer the US sugar quota. A domestic quota system
was established for an orderly distribution among the domestic
producers of the Philippine export quota to the highly protected
US market. In the 1960's, this was also designed to reduce the
burden on domestic consumers of the higher export prices resulting
from the 1962 devaluation and the greater US quota allocation
afforded by the Cuban crisis. With the end of the US sugar quota
policy in 1973, sugar trading was effectively nationalized, first
under the Philippine Exchange, Inc. (PHILEX) and currently under
the National Sugar Trading Association (NASUTRA), which has become
the sole wholesale buyer and seller of sugar in both the domestic
and international market. Under this system, producers are paid a

composite price which is derived as a weighted average of the
export price, the domestic wholesale price, and a domestic
reserve price.

With the floating of the exchange rate in 1970, export taxes
from 4 to 6 percent were imposed as a stabilization measure but
since then have been continued as a convenient means of taxing
agriculture. A higher rate is levied on traditional exports of
copra and centrifugal sugar (6%) and logs (10%) to promote new
and greater processing of agricultural exports. Most of the other
agricultural commodities/subject to a 4 percent export tax.[5]
Between 1973 and 1975, additional export premium duties were tem-
porarily levied to siphon off part of the gains from higher world
prices.

In the case of coconuts, the problem of protecting domestic
consumers from the sharp rise in coconut oil prices in the world
market provided the immediate reason for the Coconut Consumers
Stabilization Fund (CCSF) levied in 1973. The implicit tax rate
of this levy varied with the world price of copra but on the average
represented just less than twenty(20) percent of border prices.

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[5] These are processed coconut products molasses, abaca, bananas,
pineapple products, tobacco products, molasses, shrimps and prawns,
lumber, plywood and veneer.

Although the tax is collected at the miller's level, the incidence
of the tax is clearly at the farm level.[6/]

In addition to the levy, Unicom's control of more than two-
thirds of copra trade further lowered the farm price of copra.
Ironically, the establishment of UNICOM in 1979 was funded mainly
by the levy receipts and was the policy response to the over-
capacity which existed in the coconut oil milling industry that
was partly a result of investment incentives offered by the Board
of Investments. With the drop in world prices of coconut oil in
1982, the levy was finally lifted only to be replaced shortly by
a policy of banning copra exports to protect coconut oil mills,
another example of a common policy response that sacrifices the
farm in favor of the industrial sector.

Logging is the other exportable commodity where the govern-
ment has increasingly intervened during the 1970's. The government

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[6/]About 20 percent of the revenues from the tax supports the
direct subsidy on domestic consumption of coconut oil products.
The remainder is supposed to finance development programs in the
coconut industry such as replanting, vertical integration and
scholarships. Research to date shows that only a small segment
of the coconut industry actually receives the benefits from these
programs (David, V. 1977).On the other hand, the gains from the
replanting program are uncertain. It is not known how well hybrid
seeds will perform under diverse Philippine conditions. Further-
more, small coconut farmers with no alternative source of income
have been hesitant to face the prospect of waiting for three years
to harvest a first crop. At least for the short-run, the CCSF
and Cocofund levies may be considered a tax on the indust··

should of course, regulate the forestry sector because forest is owned by society and unregulated cutting of forest has adverse environmental consequences to the total economy. Because of the growing concern for conserving forest resources, the general push for greater processing of raw materials in the 1970's has coincidentally been strongest in the forestry sector. Aside from the differential export taxation of forest products (i.e., 10% on logs and 4% on lumber and plywood), an increasingly stringent log export ban which further lowered the domestic price of logs has been in effect since 1975.

Three general patterns emerge from the estimates of nominal protection rates (Table 5). First, average nominal protection rates in agriculture are much lower than the 1974 estimates by Medalla and Power for manufacturing (excluding the major processed agricultural products). This is explained partly by the large share of exportable and non-traded agricultural commodities. Other crops and fishery were assumed to be non-traded. Although legal tariff rates are as high as 100 percent for fish and some other crops, fragmentary evidence indicates that these relatively high protection rates are not fully realized. Some items in these two categories are in fact exported and penalized by the 4 percent export tax. Poultry has been the most favored agricultural commodity through tariff protection. Nominal protection

Table 5. Trends in nominal protection rates of agricultural
commodities, 1960-1980.

	1960-64	1965-69	1970-74	1975-80
Rice	21	15	7	1
Corn (yellow)	46	38	19	32
(white)	22	20	5	4
Copra	0	0	-12	-21
Coconut oil	0	0	-4	-4
Desiccated coconut	0	0	-4	-4
Sugar	32	174	36	-15
Cotton	a/	a/	a/	-7
Other crops	0	0	0	0
Pork	54	50	18	-3
Chicken	97	122	55	57
Eggs	60	46	18	11
Fishing	0	0	0	0
Logs	0	0	-6	-29
Lumber	0	0	-4	-4
Plywood and veneer	0	0	-4	-4

a/ There was very little domestic production during this period;
also, no available price of raw cotton.

rates for manufacturing range from zero for exports such as cement and garments to more than 200 percent for toilet and cosmetic preparations.

Second, export commodities as expected receive less protection than import competing products. What is perhaps not well recognized is the extent by which exports especially sugar, coconut, and logs have been penalized by price intervention policies. Cotton, an import substitute is also conferred a negative nominal protection.[7]

Finally, price protection has declined over time and indeed for export commodities have in effect been negative in the 1970's. This trend has not been solely due to changes in government policy. In rice, productivity gains since the late sixties have transformed the Philippines from being a net importer to a net exporter of rice by the second half of the 1970's. Government investments in irrigation and extension services to disseminate the new fertilizer - responsive rice varieties developed in the international and national research centers were instrumental in the lowering of domestic price

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[7] Though cotton is still a relatively minor crop, it provides a clear example of the government's tendency to discriminate against agriculture in favor of processing. Price protection to cotton lint, the tradeable commodity, is actually positive (28%) but is only received by Philippine Cotton Corporation, the government agency which has a monopoly of cotton lint processing. The farm sector even contributes additionally to this protection by receiving a price lower than the border price of raw cotton. The domestic price is controlled by the government.

relative to the world without reducing profitability of rice at
the farm level.[3/] The government's failure or unwillingness to
export enough has actually permitted the domestic price to fall
below world prices in recent years.

The high protection of sugar before 1973 was not due to
domestic economic policies but by the US policy of protecting
their sugar industry. Nominal protection rate turned negative
(-23%) after the end of our preferential access to the US sugar
market in 1973. The excess of the export to producer price of
sugar was used to finance consumer subsidies which was felt
necessary especially when world prices of sugar peaked in 1974
and 1980.

riffs, the main source of protection, for livestock
products have not significantly changed up to 1980. Tariffs
for eggs and chicken are 100 percent and 70 percent, respectively.
Tariffs for meat of other animals changed only from 15 to 10 per-
cent. The apparent decline in nominal protection rates based on
price comparison indicates the growing efficiency of these enter-
prises. The shift to commercial type of production and the vertical

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[8/] This process was somewhat delayed by a series of disease
problems, droughts in 1972-1974, and the oil cirses which sign-
ificantly raised the fertilizer-rice price ratio but the Masagana
99 Credit Program facilitated the rapid recovery with the rice
sector from these setback.

integration o. feedmilling and livestock production (e.g., contract farming in br iler production) generated economies of scale and facilitated international technology transfer (Cabanilla). These lowered unit cost of production and hence domestic price turning a significant part of the tariff protection redundant.

The implicit taxation of many exportable commodities was a consequence of the choice of policy instruments to raise government revenues, subsidize domestic consumers, protect agro processing and conserve natural resources--government objectives which became relatively important in the 1970's. The floating of exchange rates and the commodity boom which caused the dramatic improvement in the agricultural terms of trade up to the mid 1970's (Fig. 2, p. 362) created both a felt need to reduce food and raw material prices in the domestic market and an opportunity for generating revenues from agricultural exports via export and other quasi-taxes. The coconut levy for example, was ostensibly to develop the coconut industry. These taxes, however, have not been withdrawn as soon as world prices dropped.

Implicit Tariffs on Agricultural Inputs

Because low food and raw material prices tend to dominate agricultural product price policy, government interventions in the agricultural input markets may try to offset this. The input structure in agriculture is still relatively simple with

many of the inputs common across agricultural commodities.
Table 6 indicate, that except for the substantive subsidy in
the use of gravity irrigation applicable only to about 44 percent
of rice area, government policies tend to raise moderately
domestic above border prices of agricultural inputs. Based on
the official irrigation fee, the rate of subsidy is close to
60 percent. In practice, it reaches almost 90 percent due to
the low collection rate. Implicit tariffs on pumps for irrigation
and hand tractors are higher than those for larger scale machine-
ries which are clearly more labor displacing to encourage their
domestic production.[9]

The weighted average of implicit tariff on mixed feeds based
on legal tariff and tax rates was about 33 percent in 1974 (Medalla
and Power 1979). Since there is hardly any imports of mixed feeds
and there are many non-tariff barriers on mixed feeds and ingre-
dients, weighted average implicit tariff of feed ingredients was
estimated and these vary from 7 to 23 percent depending on the
type of feed mix.

Despite price controls, tax free importations, and direct
subsidies to fertilizer companies, the average implicit tariff
between 1973 to 1981 when the fertilizer industry was almost
completely regulated was still 10 percent. This was varied

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[9] If the impact of subsidized interest rate and overvaluation
of domestic currency are included, there actually has been a net
subsidy to user's cost of these capital equipment and therefore a
tendency for government policy to promote farm mechanization.

Table 6. Implicit Tariff (IT) on Agricultural Inputs (%).

Inputs	IT
Irrigation (NIA gravity)[a]	-86
(NIA communal)	-92
Irrigation pumps[b]	30
Hand tractors[b]	33
Four-wheeled tractors[b]	10
Animal feeds (hog grower mash)[c]	7
(cattle feeds)	17
(layer mash)	20
(broiler mash)	23
Agricultural chemicals[d]	23
Fertilizer[e]	10

[a] Includes subsidy due to low irrigation fee and low repayment rate.

[b] Based on tariff rate.

[c] Based on weighted average implicit tariff on feed ingredients.

[d] Based on tariff rate.

[e] Based on price comparison of urea, ammonium sulphate, mixed fertilizer and phosphates from 1973-1980.

through time, being somewhat lower in 1980-1981, and has also

varied across different types of fertilizer, frequently higher

for those used mainly in plantation crops such as sugar, bananas,

and pineapples. It appears, therefore, that the protection of

domestic manufacturing of these agricultural inputs, which is

actually significantly higher for fertilizer because of direct

subsidies, has been an important consideration of policy.

Effective Protection Rate in Agriculture
Relative to Manufacturing

The direction and rate of resource flows between agriculture

and non-agriculture is influenced not only by the effective rate

of protection in agriculture but also by the nature of incentives

in the non-agricultural sectors. The overall price effect of govern-

ment policy as indicated by the effective protection rates seems to

have created an incentive structure that is significantly biased

against agriculture (Table 7). This is consistent with the con-

clusions of two earlier Philippine studies (Power, 1971 and Bautista

and Power, 1979). While value added in manufacturing has been

artificially raised by 44 percent, price intervention has been

artificially raised by 44 percent, price intervention policies

have undervalued agricultural production during the last decade

both through lower product prices and higher input prices. Tradi-

tional and even new agricultural exports have been heavily penal-

ized by negative protection EPR for chicken, while expected to

Table 7. Effective protection rates of major agricultural products and average EPR for manufacturing.

Sectors	Reference Year	EPR	
Agriculture			
Rice	1979	-0.4	
Rainfed	1979	-4.7	
Irrigated	1979	3.6	
Corn	--		
Copra (with export tax, CCSF levy)	1973-79	-24	
(with export tax, CCSF levy, UNICOM)	1980-81	-29	
Coconut oil	1973-79	-2.0	
	1980-81	42.0	
Dessicated coconut	1973-79	-4.3	
	1980-81	18.4	
Sugar	1974-80	-23	(NPR)
Cotton	1975-81	-12	
Swine (commercial)		-29 to 17	
Cattle (commercial)		-16 to 7	
Chicken (commercial)		155 to 278	
Eggs (commercial)		- 9 to 19	
Logs	1979-80	-46	(NPR)
	1974	-10	
Lumber	1974	16	
Plywood and veneer	1974	5	
Manufacturing	1974	44	

have a high EPR, this maybe
~~be high probably~~ overstated because ~~this~~ *it* pertains to broiler

end of production (excluding the production of chicks) with

a very small value added. **Rice** is essentially not

protected. Farms covered by national gravity irrigations

are compensated for the policy induced higher price they pay

for their manufactured inputs. Rainfed farms, however,

comprising 54 percent of rice area continue to have a small

negative protection.

Lumber, plywood and veneer, dessicated coconut received

a modest EPR and coconut oil a relatively high EPR. These

positive protection, however, comes from substantially depressing

prices of the raw material inputs because NPR's for these

products are negative on account of the 4 percent export tax.

The cost of protecting these agro-processing sectors therefore

is shouldered by farmers directly by lower farm prices in contrast

to most manufacturing industries enjoying tariff protection

where domestic consumers typically bears this burden in terms

of higher product prices. This policy structure may be less harm-

ful to the forestry sector where the policy might be achieving

partly the desired goal of forestry conservation. In the

coconut industry, however, the negative long-run consequence

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[40] However, a large proportion of the commercial broiler
production is through contract growing where there is no explicit
charge in the intermediate inputs-chicks.

on production is probably not intended and the negative income
distribution impact will be much more important.

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Impact of Exchange Rate Policy

Macroeconomic policies affecting exchange rates also need to
be considered in assessing the overall magnitude of bias against
agriculture when the official exchange rate does not reflect its
true social opportunity cost or its shadow exchange rate. Net
effective protection rate measures the proportional difference be-
tween value added at domestic prices and border prices valued at
the shadow exchange rate instead of the official exchange rate.
Although the exchange rate has been allowed to float since 1970,
the structure of tariffs, indirect sales tax, export taxes, and
other trade restrictions have reduced import demand more than export
supply, thereby undervaluing the cost of foreign exchange or con-
versely overvaluing the domestic currency. For the mid-1970's,
Medalla estimated that the system of protection resulted in a 20 to
30 percent rate of peso overvaluation, depending on the assumptions
relating to the alternative trade regime.[11/]

Foreign Exchange Rate and Net
Effective Protection Rate

The generally high level of protection received by manufacturing
more than offsets the disincentive effect of the peso over-

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[11/] The high figure assumes free trade and the low figure assumes
an optimal trade regime.

valuation, its average net effective protection being still
positive at 9 percent. In contrast, the agricultural sector had
to bear most of the penalty imposed on exports and unprotected
import substitutes, as average net effective protection rate is
reduced to a substantially negative rate. Tariff protection is
redundant for exportables and export promotion policies pursued
in recent years have been more available to industry.

Foreign Exchange Rate and Intersectoral Incentives

By implicitly assuming that distortions in the exchange rate
have a uniform effect on agriculture and manufacturing, the analytical
approach above does not allow us to examine the effects of exchange
rate policy changes on intersectoral incentives. Moreover, exchange
rates distortions due to disequilibrium in balance of payments
which are additionally adverse to agriculture are not taken into
account. The serious deficits in current account prior to the 1962
and 1970 devaluations were defended mainly by drawing on international
reserves. On the other hand, the chronic and growing deficit which
began in the mid-1970's has been financed by heavy foreign borrowing.

Devaluations favor prices of traded over non-traded goods and
services. Agricultural commodities being primarily tradeable are
expected to benefit relatively more than non-agriculture which in-
cludes a large component of non-tradeables like services. Agri-
cultural Incentives are also likely to improve relative to manufac-

turing because some manufacturing activities with very high protect-

ion have been virtually isolated from the international market making

them effectively non-traded. Additional protection afforded by the

higher cost of foreign exchange will be redundant for these industries.

The rise in average domestic prices of manufactured products will then

be relatively less than of agricultural products which are either

exportable or receive very little trade protection. In fact, manufac-

turing profits may generally be squeezed as prices of intermediate

inputs typically characterized by low protection increase at a higher

rate than product prices. Thus, devaluations correct distortions due

to disequilibrium in balance of payments as well as part of the inter-

sectoral distortions due to the protection system.

Trends in domestic terms of trade between agriculture and non-

agriculture provide an overall summary measure of what is happening

over time to economic incentives in agriculture vis a vis the other

sectors in the economy. Movements in the agricultural terms of

trade depicted in Figure 2 are influenced by domestic and inter-

national demand and supply factors as well as domestic economic

policies. The secular decline in agricultural terms of trade pre-

dicted by Engel's Law need not be a logical necessity with

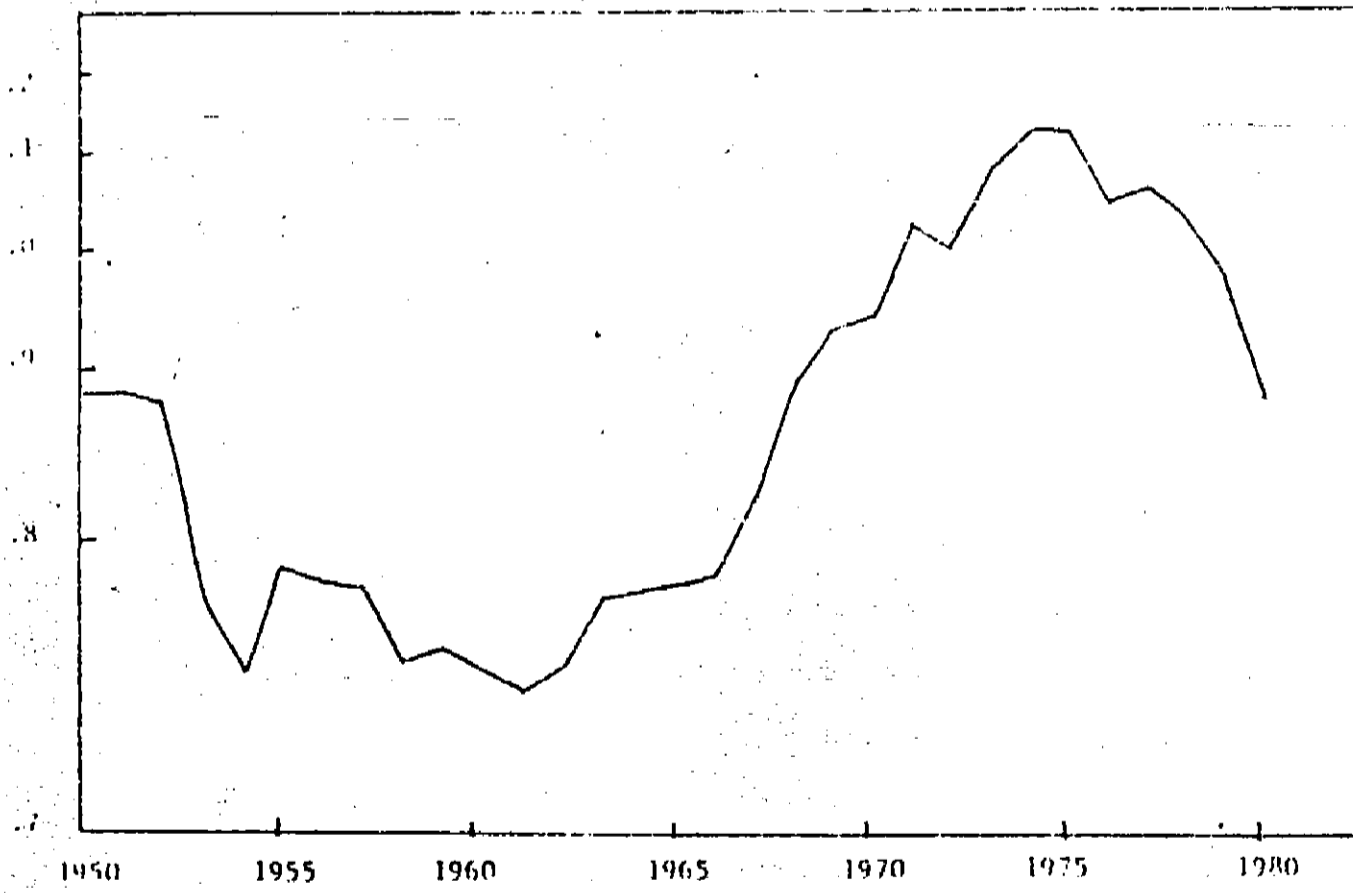scarce land, in an open economy, or with countervailing govern-

Fig. 2. Trends in agricultural terms of trade in
the Philippines

ment interventions. Both commodity specific and macro policies
directly change relative prices. Other policy instruments may
also have an important, albiet, indirect impact by shifting demand
and supply functions.

Even discounting for the very favorable agricultural terms
of trade at the start of the 1950's which still reflects the
postwar adjustments and the effect of Korean War, a gradually
worsening trend can be observed up to 1961. The dismantling of
exchange controls leading to the 1962 devaluation reversed this
trend. The full impact of this policy change was felt only when
the retention scheme for export receipts was lifted after 1965. This
was again reinforced by the floating of the exchange rate in 1970
and the commodity boom of 1973-75.

The dramatic improvement of agricultural terms of trade,
between 1962 and 1975, at an average rate of 3 percent, has now
been matched by a sharply deteriorating trend since 1975. Two oil
price shocks and the subsequent prolonged recession in many of
the Philippine trading partners severely dampened demand
for the country's major agricultural export products. The drop
in relative or real price of agricultural products in the late
1970s was most pronounced for rice. The gains in productivity
from the new seed-fertilizer technology and irrigation development
produced record export surpluses which the government was not able
to competely sell on to the world market. The growing peso over-
valuation in the second half of the 1970's may also be partly

responsible for the unfavorable price trends for agriculture.

The impact of commodity specific policies and exchange rate policies on changes in terms of trade may be quantified econometrically. Domestic agricultural terms of trade depends on the international terms of trade, domestic economic policies represented by the official foreign exchange rate and the nominal protection rate in agriculture relative to non-agriculture, and technical change in agriculture relative to non-agriculture.

Preliminary results of our analysis based on data from 1950 to 1980 reveal the crucial role of foreign exchange policy in determining agricultural incentives

$$(1) \quad T^d = 98.8 - 0.076 \ T^i \qquad\qquad R^2 = 0.012$$
$$(-0.60)$$

$$(2) \quad T^d = 43.7 + 0.223 T^i + 5.11 \ FX, \quad R^2 = 0.681$$
$$(2.71) \qquad (7.65)$$

International terms of trade (T^i) by itself is not correlated to domestic terms of trade (T^d); R^2 is almost zero and the t-value in parenthesis is not significant(equation 1).[12/] When both the international terms of trade and the official exchange rate are specified more than two-thirds of the variation in domestic terms of trade is explained. International terms of trade becomes significant but

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[12/] The definition of non-agricultural sector was limited to manufacturing because only the index of international prices for manufacturing is available. While equation (2) is not yet completely specified, the subsequent inclusion of the other relevant independent variables is not expected to substantially change this conclusion.

the foreign exchange rate appear to be a more important
explanatory variable. Failure, therefore, to maintain an equil-
ibrium exchange rate strongly discriminate against agriculture.
Devaluations, by correcting a major source of distortion in the
macro price of foreign exchange, have significantly reduce this
discrimination. It should be stressed, however, that devaluations
have only belatedly corrected this discrimination.

Chapter 4

FINANCIAL POLICIES

Credit has been a major instrument of agricultural development in the Philippines. In the early 1950s, the Rural Bank Law was passed to promote rural private banks and the Agricultural Credit and Cooperative Farmers' Association (ACCFA) was also established to promote cooperative financial institutions catering especially to the rural sector. There are currently more than a thousand rural banks operating in about 60 percent of municipalities. They have become the principal distributors of government sponsored supervised credit. The ACCFA was supposed to develop farm cooperatives providing production and marketing credit, but because of serious default problems, it was reorganized and renamed the Agricultural Credit Administration (ACA) to administer small supervised credit programs mainly for land reform beneficiaries. In early 1982, it was subsumed in the Land Bank of the Philippines which is supposed to be the primary source of financing reform program.

The government's objective of increasing the credit flow to agriculture has been hampered by low interest rates policies. Up until the 1981 interest rate reform, interest rates and other financial charges were regulated by the Monetary Board to conform with the 16 percent ceiling stipulated by the Usury Law of 1916. During the past decade, allowable interest

rates of formal agricultural credit ranged from 12 to 16 percent
and additional loan charges from 2 to 3 percent depending on the
security and other terms of the loans. Supervised credit bears
a lower interest rate of 10 percent with additional charges not
exceeding 3 percent. For savings deposits, the interest rates
were about 6 percent.

Since the late 1960s, official interest rates on agricultural
credit have been lower than the scarcity value of loanable funds
with negative consequence on the rate of savings, investments in
agriculture, and factor intensities. Because of rapid
inflation of around 20 percent during the 1970s, interest rates
were negative in real terms. This price structure rewarded
borrowers and penalized savers. This also created excess loan
demand that limited the flow of loans to agriculture, especially
to small farmers, where costs of transactions and risks for lenders
are inherently higher.

To increase agricultural credit, the government required a
certain proportion of lenders' portfolio of loans go to credit
for agriculture and initiated a number of supervised agricultural
credit programs. In 1974, the Monetary Board directed all lending
institutions to allocate 25 percent of their loanable funds to
agriculture and at least 10 percent of the total to agrarian
reform beneficiaries. Private commercial banks, however, have
strongly resisted this rule and have simply purchased certificates

of indebtedness and other government securities issued by the Central Bank to comply with the regulation because of the high cost of directly lending to farmers.

Table 8 lists the various special agricultural credit programs (SCPs) and their corresponding total loans granted during the period 1973-1980. Most of these programs linked low interest, non-collateral loans with extension. Between 1973 and 1975, this was also tied to a fertilizer price subsidy. Financial institutions were provided preferential rediscount rates, loan guarantees, and assistance in loan administration within these programs. This was financed, in part, by foreign loans.

Masagana 99 accounted for almost 80 percent of total loans granted by SCPs. Since the immediate objective of Masagana 99 was to recover from serious crop losses in 1973, priority was given to irrigated areas where the potential for rapid expansion of rice production in the short-run was greatest. Programs after Masagana 99, although much smaller in scale, attempted to extend the supervised credit concept to non-rice, rainfed areas.

Problems associated with these programs and policies are now well-documented (David, 1979). Over the past two decades, growth in agricultural loans came mainly from the Central Bank rediscount window rather than from additional equity capital or savings deposits. This is evidenced by the increase in the share of

Table 8.   Supervised agricultural credit programs in the
            Philippines from 1973 to 1980.

Program	Commodity	Loans Granted[a] (P million)
1. Masagana 99	Rice	4,554
2. Masaganang Maisan and Masagana 77	Corn	521
3. Gulayan sa Kalusugan	Vegetables	22
4. Cotton Financing Progress	Cotton	71
5. Integrated Agricultural Financing for Virginia Tobacco[b]	Tobacco	34
6. Rice-Tobacco Supervised Credit Program	Tobacco	3
7. Philippine Tobacco Administration (PTA)Farm Credit Asst. Program	Tobacco	3
8. PTA Facility Loans	Tobacco	1
9. Bakahang Barangay	Cattle	255
10. Biyayang Dagat	Fish	35
Total		P5,500

[a]As of December 31, 1980.

[b] As of 1979.

Source: Unpublished files. Technical Board of Agricultural
          Credit, Central Bank of the Philippines.

borrowings from the Central Bank in total resources of rural
banks from 8 percent in 1961 to 54 percent in 1975. Low repay-
ment rates, which have plagued almost all supervised credit prog-
rams, threatened the viability of rural credit institutions,
and further damaged credit discipline among borrowers. The
impact of these programs on production at the farm level as well
as at an aggregate level has remained unclear. While Masagana 99
was instrumental in the rapid recovery of Philippine rice product-
ion from the global food grain crisis in 1973, the growth trend in
rice production and adoption of the new rice technology since the
late sixties cannot be solely attributed to this program (Herdt
and Gonzales, 1981).

Despite these government interventions, the real and relative
levels of agricultural production loans (APL) granted have declined
since the later 1960's (Table 9). ALH grew in real terms but most
of this growth took place in the 1960's. The level of APL in 1979
was still far below that of 1969. APL as a percent of both net
value added in agriculture and of total loans granted declined from
22 percent and 20 percent in 1955-1969 to 19 percent and 11 per-
cent in the 1970's.

These trends are perhaps not surprising since technology
and relative prices across sectors, commodities, and between
inputs and outputs are more important determinants of relative
profitability and hence direction of resource allocation. Larson
and Vogel and others have already argued that the use of credit

Table 9. Selected indicators of trends in loans granted for
agricultural production by bank and non-bank
financial institutions, 1951-1979.

Year	Value of Agricultural Loans (P Million in 1979 Prices)	Agricultural Loans as a Percent of [a]	
		Agricultural Value Added	Total Loans Granted
1951	376	13	40
1955	534	17	24
1960	2,757	14	20
1961	3,636	19	22
1962	4,022	21	20
1963	4,461	24	20
1964	4,503	25	19
1965	4,420	23	19
1966	4,582	24	19
1967	5,556	27	20
1968	5,565	25	16
1969	5,75?	22	16
1970	4,557	22	15
1971	3,943	21	13
1972	3,424	20	12
1973	2,590	19	10
1974	1,725	22	12
1975	1,718	21	09
1976	982	13	-
1977	1,096	06	08
1978	2,534	13	-
1979	3,378	19	-

[a]/For later years, data on total loans granted have not been reported.

Sources: Unpublished reports by the Technocal Board of
Agricultural Credit, Central Bank of the Philippines,
and the National Economic and Development Authority.

policies to compensate for the effects of policies that turn
terms of trade against food and agricultural exports will have
limited effects.   It is too often overlooked that pre-
ferential interest rates do not affect relative profitability
and, because credit is fungible, additional liquidity supplied
by credit will be allocated to the most profitable enterprise
or to consumption, whichever provides the greatest utility.

To compare the quantitative impact of credit policies to
price policies, the effective subsidy rate (ESR) which expresses
the amount of interest rate subsidy as a percent of net value
added in agriculture at border prices has been estimated. Sub-
sidy is defined in terms of the difference in the cost of borrow-
ing between agricultural and non-agricultural loans multiplied
by the value of agricultural loans granted. Another method is
to estimate the amount of subsidy accruing to the sector due to
the difference between the nominal interest rate and the rate of
inflation.

Differences in interest rates, between agricultural and non-
agricultural loans from formal financial institutions are small,
at most, 2 percent. Moreover, interest represents only part of
the costs of borrowing. Typically non-agricultural loans entail
less transactions cost than agricultural loans for borrowers.
Assuming that interest rate policy has meant a cost of
borrowing differential of 6 percent in favor of agriculture,

the effective subsidy rate amounts to only 1 percent. Even
if the interest rate differential is increased two or three
times in magnitude it is clear that the interest rate subsidy
will not alter significantly the unfavorable incentive structure
in agriculture vis-a-vis non-agriculture created by price policies
On the other hand, the low interest rate policy seriously
impairs the ability of rural financial markets to efficiently
perform the financial intermediation process. It does not
provide incentives for mobilizing financial savings and induces
an allocation of credit that is based on size of collateral and
wealth rather than on productivity of credit use.

The impact of the low interest rate policy has been generally
regressive. The subsidy is shouldered by the lower-income popula-
tion, i.e., holders of currency bank deposits, and taxpayers
through inflation, low interest rates on savings, and direct
government outlay. Only about 10 percent of the total implicit
interest rate subsidy is received by agriculture. Within agri-
culture, credit allocation is also not consistent with employment
and equity objectives. Low-cost credit for agricultural machinery
shifts the incentive system against use of labor without any sign-
ificant impact on yield. Less than 15 percent of the value of
loans in the World Bank Credit Mechanization Program in the
Philippines was used for power tillers of small farmers. Four-
wheeled tractors and other larger farm equipment were purchased

with the bulk of the loans by sugar farmers with 50 hectares
or more who constituted less than 10 percent of total number
of farmers.

In supervised credit programs, only farm operators are
usually entitled to institutional credit despite the significant
numbers of landless households in the rural areas. Rice has been
the emphasis but rice farmers are actually better off than average
farmers in corn, coconuts, tobacco, and other crops. Within the
rice sector, priority was given to irrigated areas close to
primary markets, i.e., relatively progressive locations with
the greatest potential for rapid increases in production in the
short-run. The procedure of setting loan limits on a per hectare
basis means a higher credit ceiling for larger farms. Perhaps an
even more important dimension of inequity in distribution of the
implicit subsidies involved in these programs was reported by
Esguerra in a recent analysis of Masagana 99. The study
estimated that two-thirds of the implict subsidies have been
received by participating financial institutions as incentives
to lend to small farmers and only one-third by the farmer borrowers
mainly from non-repayment of loans. Furthermore, the distribution
of the subsidies accruing to farmer borrowers has been biased in
favor of larger farmers. The subsidy to farmers can be increased
through higher default rates but this would simply transform super-
vised credit into a costly vehicle for effecting income transfers.

Chapter 5

PUBLIC EXPENDITURE POLICIES

Thus far, our discussion has focused on policies affecting
economic incentives. Aside from their impact on resource allo-
cation, price and financial policies also affect technological
development and income distribution which are also major concerns
of agricultural development. However, public expenditure policy
has been a more direct instrument of promoting technological
change and improving income distribution in agriculture.

In this section, the changes in the level and distribution
of public agricultural development expenditure by policy tools from
1955 to 1980 are examined. The analysis attempts to infer prior-
ities pursued by the government from the allocation of the budget
over time rather than to quantify the economic effects of the
different types of public expenditures such as research, exten-
sion and so forth.

The basic source of data is the national budget published
by the Ministry of the Budget. These have been compiled and class-
ified earlier by Capule,

Public expenditure is
the sum of current operating expenditures and capital outlays.
In this analysis, only national government expenditures which
comprised about 80 percent of the total budget from 1955-1975
and about 90 percent thereafter are covered because the expend-

itures of local government cannot be broken down according to
our classification of policy instruments. Furthermore, class-
ification of public expenditures by sector and by policy instru-
ments for agriculture was limited to economic development expend-
itures which formed about 15 percent in 1965 to 40 percent by
1980 of the total budget. Even within economic development, it
was not possible to divide the infrastructure budget sectorally.
And likewise, there were measurement problems in allocating expend-
itures for the other government functions: general administration,
defense, education, health, and other social services.

Trends and Relative Size of Public Agriculture Expenditure

The size of public allocation to agriculture provides a
clear indication of government's commitment to that sector.
In Table 10 the trends and relative importance of economic
development expenditures on agriculture are presented. Public
expenditures for agricultural development rose almost ten times
between 1955 and 1980 or an average annual rate of 12 percent
in real terms. This high growth rate is consistent with the
general acceleration of total government outlay especially for
economic development during the past decade. The increased
emphasis on infrastructure and non-agricultural development in

Table 10. Selected indicators of trends and relative importance of national public economic development expenditures on agriculture.

Year	Public expenditure in agriculture (₱million, 1972 prices)	Public economic development expenditure in agriculture as percent of		
		Net Value added in agriculture	Public ecpnpmic development expenditures	Total public expenditures
1955	122	1.5	15.0	5.3
1956	176	2.1	19.4	6.9
1957	205	2.4	22.3	7.9
1958	167	1.9	21.0	6.8
1959	166	1.8	19.8	6.6
1960	179	1.9	18.2	6.3
1961	182	1.8	19.0	6.1
1962	206	2.0	19.3	6.4
1963	355	3.2	30.0	9.9
1964	306	2.8	27.1	8.4
1965	265	2.2	26.1	7.3
1966	264	2.2	26.0	7.1
1967	296	2.4	23.5	7.2
1968	416	3.1	27.6	8.8
1969	435	3.2	25.8	8.3
1970	361	2.6	23.5	7.1
1971	452	3.1	26.7	8.5
1972	567	3.8	20.7	8.9
1973	767	4.9	18.0	9.0
1974	1,061	6.8	20.4	10.4
1975	1,308	7.7	24.4	11.4
1976	1,018	5.7	19.8	8.3
1977	1,110	6.0	29.2	9.7
1978	1,648	2.5	32.4	12.5
1979	1,394	6.6	26.2	10.1
1980	1,242	5.6	17.7	9.0

the later period is apparent from the sharp rise in annual
growth rate of the total economic development budget from 5
percent to 19 percent before and after 1970
compared to agriculture which grew at 10 percent and 15 percent,
respectively.

Between 1955 and 1980 public expenditures in agriculture
as percent of agricultural value added increased much faster
than the share of total government expenditures to gross national
product (from 2 percent to 7 percent in agriculture compared to
10 percent to 14 percent for the total). It should be noted
that this was not due to any dramatic sectoral shift in govern-
ment priorities with respect to expenditures policy but rather
due to the decline in the share of value added in agriculture.
The share of agriculture to total government expenditures
increased only slightly over time. However, in terms of the
public economic development expenditures, agriculture's share
while varying from year to year remained at about 23 percent
over the whole period with infrastructure receiving the greatest
allocation (from 60 to 70 percent).

Table 11 presents the trends in public expenditure in
agriculture by policy tools while Table 12 shows the same
changes in terms of the percentage composition of expenditures.
As noted in the footnotes, some limitations exist in the avail-
able breakdown of data but these would not significantly affect

| Pricing and Marketing | | | | Irrigation | Research and Extension | | | Bd |
Price Support[b/]	Input Subsidies	Credit Subsidy	Total[d/]		Reserach[e/]	Extension	Total	Agrar Refor
–	–	–	–	43	9	28	37	3
–	–	–	–	86	10	33	43	5
–	–	–	–	92	10	35	45	20
–	14	–	15	50	10	38	48	21
–	28	–	29	20	12	43	60	10
–	22	–	24	24	13	52	65	15
–	14	–	16	27	15	55	70	14
83	14	–	97	36	17	63	80	13
143	12	–	155	32	17	70	87	19
97	9	–	106	18	17	76	93 –	29
41	13	–	54	21	18	80	98	33
24	10	–	34	25	17	77	94	29
25	6	2	33	40	17	72	89	31
24	3	10	37	35	21	73	94	35
27	2	12	28	39	22	75	97	38
20	2	6	25	120	19	66	85	38
14	3	8	30	187	19	71	90	45
13	4	13	68	171	24	104	128	67
38	9	21	83	411	44	198	242	107
45	18	20	60	635	55	202	257	128
38	22	–	46	382	56	175	231	135
33	13	–	43	381	64	167	231	95
39	4	–	35	864	77	170	247	103
29	6	–	35	565	102	249	351	110
30	5	–	27	417	108	224	332	143
21	6	–			92	261	353	130

Pricing and Marketing				Irrigation	Research and Extension			Social De[v]	
Price Support[b/]	Input Subsidies	Credit Subsidy	Total[d/]		Research[e/]	Extension	Total	Agrarian Reform	Com D
-	-	-	-	35.2	7.4	23.0	34.0	2.5	
-	-	-	-	48.9	5.7	18.8	24.5	2.8	
-	-	-	-	44.9	4.9	17.1	22.0	9.8	
-	7.7	-	8.2	27.5	5.5	20.9	26.4	11.5	
-	16.9	-	17.5	12.0	7.2	28.9	36.1	6.0	
-	12.3	-	13.4	13.4	7.3	29.0	36.3	8.4	
-	7.7	-	8.8	14.8	8.2	30.2	38.4	7.7	
29.0	4.9	-	33.9	12.6	5.9	22.0	27.9	4.5	
40.3	3.4	-	43.7	9.0	4.8	19.7	24.5	5.4	
31.7	2.9	-	34.6	5.9	5.6	24.8	30.4	9.5	
15.5	4.9	-	20.4	7.9	6.8	30.2	37.0	12.5	
9.1	3.8	-	12.9	9.5	6.4	29.2	35.6	11.0	
8.4	2.0	0.7	11.1	13.5	5.7	24.3	30.0	10.5	
5.8	0.7	2.4	8.9	8.4	5.0	17.5	22.5	8.4	2
6.2	0.5	2.8	9.5	5.7	6.1	17.2	23.3	8.7	2
5.5	0.6	1.7	7.8	10.8	5.3	18.3	23.6	10.5	2
3.1	0.7	1.8	5.6	26.5	4.2	15.7	19.9	10.0	1
2.3	0.7	2.3	5.3	33.0	4.2	18.3	22.5	11.8	
5.0	1.2	2.7	8.9	22.3	5.7	25.8	31.5	14.0	1
4.2	1.7	1.8	7.7	38.0	5.1	18.7	23.8	11.8	
2.9	1.7	-	4.6	48.5	4.3	13.4	17.7	10.3	
3.2	1.3	-	4.5	37.5	6.3	16.4	22.7	9.3	
3.5	0.4	-	3.9	34.3	6.9	15.3	22.2	9.3	1
1.8	0.4	-	2.2	52.5	6.2	15.1	21.3	6.7	
2.2	0.4	-	2.6	40.5	7.7	16.1	23.8	10.3	
1.7	0.5	-	2.2	33.6	7.4	21.0	28.4	10.5	1

Footnotes - Tables 11 and 12.

$\underline{a/}$From 1975, under a new format, the national budget presents support to government corporations under a separate chapter. This is included in our data for the 1975-1980 period. The 1979 and 1980 figures are estimates.

$\underline{b/}$It has not been possible to obtain the complete figures for 1955-1961 based on the level of disaggregation of our data. It should be noted, however, that during this period the National Rice and Corn Corporation (NARIC) was already engaged in price stabilization activities, mainly in the form of rice procurement and distribution. Our working table shows expenditures for the administration of sugar and other quota products. These are relatively small and have been omitted here although these are included in the totals. Note also that a major part of the total outlay for price support is accounted for by expenditures of the Rice and Corn Administration, later the National Grains Authority (1963-1980).

$\underline{c/}$As explained in the text, the data under this policy refer only to expenditures related to the administration of the Agricultural Guarantee and Loan Fund (AGLF) and are available only for 1967-1974.

$\underline{d/}$The 1958-1962 totals include the omitted expenditures of the Sugar Quota Administration (see footnote b above).

$\underline{e/}$Excludes research expenditures of state colleges and universities.

$\underline{f/}$A large part of expenditures on community development were allocated for the construction and maintenance of roads and bridges.

Source: de Leon (10).

the general pattern indicated in the tables. It is obvious that
public expenditure policies have been aimed primarily at raising
productivity through irrigation, extension, and research and
improving income distribution through agrarian reform and rural
community development. Budgets for environmental management and
conservation may be viewed both as a tool for enhancing long-
run productivity in natural resources and the economy as a whole
and improving income distribution between present and future
generations.

Trends in public expenditure for price and marketing policies
reported here do not reflect government's changing priorities be-
cause these figures grossly understate the cost of operating the
national agencies involved in the marketing of
rice, corn, sugar, fertilizer, and other agricultural commodities.
A significant and increasing part of their expenditure originate
from cheap loans from the Central Bank via government financial
institutions but data for these are difficult to obtain. Interest
rates are at a highly subsidized rate of 6 percent and account-
ability for non-repayment has not been strictly enforced.

Extension received the highest allocation prior to the
1970s (27 percent), even higher than irrigation from 1959 to
to 1971. Extension's share has declined except during the
peak of Masagana 99 in 1973-1974 while expenditures for research
have steadily increased but the latter is still only about one-

fourth of extension. Expenditures for social development may
also have been as significant as extension in the early period
because for the years with available data their share averaged
22 percent. Agrarian reform activities consisted mainly of
land resettlement projects in the pre-martial law period and
administration of land reform in rice and corn after 1972. Rural
community development programs included grants-in-aid, self-help
projects and cooperatives development.

Irrigation investment has been subject to short-run fluct-
uations; it was high in the late 1950s and this picked up again
in the 1970s. Hayami and Kikuchi found a strong correlation
between shifts in investment and short-run changes in the world
price of rice.The increase of irrigation investment in the 1970s
may also be related to other factors. Studies at IRRI in 1976
indicate that irrigation investment has a higher social benefit-
cost ratio than price support and fertilizer subsidy except when
a high discount rate is used for large-scale high cost projects
(Hayami, et. al., 1977).

Policy thrusts of international financial institutions such
as the World Bank and Asian Development Bank which have financed
a major part of rehabilitation and construction of new irrigation
systems may have influenced the government's own choice of policy
priorities. Changes in the sectoral distribution of official
development loans reported in Table 13 indicate that this may

Table 13. Distribution of official development loans by sectors,
1954-1979 (percent).

	1952-1969	1970-1974	1975-1979	1970-1979
1. Agriculture	22.0[a]	22.5	33.1	31.1
a. Agriculture[b]		18.3	9.5	11.7
b. Irrigation		5.8	17.5	14.6
c. Integrated Area Development		1.0	5.1	4.1
d. Rural Infrastructure		-	1.0	.7
2. Industry	29.0	18.0	15.3	16.0
3. Power and Energy	36.0	22.8	16.7	18.2
4. Transportation	11.0	22.2	19.1	19.9
5. Others[b]	2.0	11.9	15.8	14.8

[a] No breakdown is available.

[b] Includes education, population and water supply loans.

Source: National Economic and Development Authority.

be the case. The growth in the share of agriculture from 22 percent to over 30 percent in the 1970s was due primarily to expansion of irrigation investment.

Agricultural Research

With the growing land constraint, technological change through research and extension will increasingly be an important means of augmenting agricultural production. However, the productivity of research and extension depends not only on their total budget but also in the way these budgets are utilized. The following discussion essentially summarizes previous analysis of Evenson on the nature and direction of research and extension in the Philippines.

Although the agricultural research system in the Philippines is generally regarded as one of the more advanced in Asia, expenditures for both research and extension which amounted to only 0.45 percent and 0.91 percent of value added of agricultural production, respectively, are low by international and even by Southeast Asian standards. As in other developing countries, extension programs have been emphasized to a much greater extent than research. Moreover, except for sugar, most of agricultural research and extension is supported by the public sector with some assistance from external agencies.

Economic benefits from research will be highest in areas/
commodities where potential improvements in technology and size
of market are great. In practice, allocation of research has
been influenced by the supply of scientific manpower and other
social objectives such as improving nutrition levels and equi-
table geographic distribution of research expenditure. In terms
of congruence between distribution of research and size of
markets which is presently the only quantifiable variable,
Table 14 indicates that relatively more research investments
have been directed to commodities of minor economic importance,
neglecting some major commodities as shown by the ratio of re-
search spending to gross value of the commodity. The incon-
sistency between distribution of research budget and commodity
value seems to have worsened between 1973 and 1980; their corre-
lations decreased from 0.91 to 0.23. Thus the increase in real
research investment over this period has not been accompanied
by a closer matching of research spending with economic import-
ance.

Sugar, pineapples, bananas, citrus, fruits, and coffee,
which are all important export crops appear to have very little
research budget. Cotton, legumes, tobacco, root crops, vegetables,
and poultry which are of lesser economic importance receive
relatively high research attention. A relatively low priority
is given to corn, an important crop and the staple food and

Table 14. Measures of importance of agricultural research expenditures, by commodities

Commodities	Research spending as % of gross value by commodity 1980	Commodity research share in total research spending 1973/74	1980	Commodity share in gross value of all commodities 1973/74	1980
Crops		.440	.448	.592	.621
Coconut*	.125	.072	.058	.084	.087
Corn and Sorghum*	.132a/	.060	.039	.065	.065
Fiber crops	.994b/	.040	.041		.007
Fruit crops*	.087	.040	.026	.070	.072
Banana	.004				
Pineapple	.003				
Mango	.070				
Citrus	.046				
Others	.250				
Legumes*	1.29	.030	.051	.007	.008
Ornamental horticulture		.002	.014		
Plantation crops		.006	.011		.042
Rubber	.130				
Cacao	.206				
Coffee	.004				.037
Cereals	.047	.060	.047		
Rice	.034			.187	.169
Wheat	high				
Root crops	.540	.014	.072		.030
Sugar cane	.011	.058	.011	.050	.053
Tobacco	.594	.020	.034		.005
Vegetables	.430	.040	.044		.019
Fisheries*	.150	.080	.158	.113	.174
Forestry*	.190	.132	.144	.111	.192
Livestock*	.080	.170	.067	.177	.112
Beef-carabeef	.035	.060	.021	.066	
Pork	.070	.04	.007	.052	
Poultry*	.400	.04	.005	.047	.041
Dairy			.009		
Pasture		.039	.021		
Socio-economics		.050	.101		
Soil and water resources		.067	.072		

* The correlation between shares in the research budget used in the value of all commodities was 0.91 in 1973/74 and 0.73 in 1980. The nine commodities correlated are identified by "*".

a/ For corn, this figure is 0.95%.

b/ For abaca, this figure is .163%. The relatively higher research expenditure is for cotton.

Adapted from Evenson, Waggoner and Bloom.

major source of income of the poorer farmers. Also, judging
from our very low yields compared to Thailand which has a
similar resource endowment and has only recently become a major
exporter of corn, there seems to be a strong
potential for expanding corn production in the Philippines.
Research in coconut and forestry is comparatively small and
funded mainly from taxes directly levied on their producers for
this purpose in contrast to other commodities where the cost of
research is shouldered by the taxpayer in general.

In rice research which has primarily been conducted at the
International Rice Research Institute (IRRI) since 1962, the newly-
developed technology has been generally regarded as more suitable
to irrigated conditions. The fact that modern varieties have been
adopted in 70 percent of rainfed areas, however, demonstrates the
potential of technology development in rainfed areas. It has
been estimated that if the cost of irrigation development is in-
cluded, increasing production through investment in rainfed rice
may have a benefit-cost ratio greater than for irrigated rice.
In recent years, IRRI has devoted more resources to develop rice
varieties especially suited to rainfed areas.

Agricultural Extension

Although the commodity breakdown of extension expenditures
is not available, the emphasis of extension on rice is quite

evident. The Masagana 99 Program caused the jump in extension
expenditures in 1973-1974 as extension agents assumed the role
of loan administrators. In Table 15, the regional breakdown
of extension shows the ratio of extension expenditures to value
added in agriculture to be higher in the major rice-producing
regions of Central Luzon and Southern Tagalog especially when
the budgets of the U.P. College of Agriculture and the govern-
ment agencies in Manila are allocated to these regions. The
relatively intensive extension in Ilocos is consistent with
the high research expenditures and numerous supervised credit
programs in tobacco and cotton reported earlier.

Most assessments of extension services in the Philippines
stress the problems of organization and quality of personnel.
Evenson, on the other hand, raises a more fundamental issue as he
tries to explain the much heavier investment in extension compared
to research in Philippine agriculture. Part of the reason
is clearly the cheaper cost of manpower for extension versus re-
search. But perhaps more important, there seems to be a general
belief among policymakers that agricultural technology is highly
transferable from regions with high research focus to regions
with a high extension emphasis. It is not clear, however,
whether suitable technology exists or is being produced by other
nations. It should be stressed therefore that the value of
extension depends essentially on availability of appropriate
technology.

Table 15. Public expenditures for agricultural extension by region, 1979.

Region	Agricultural Extension (₱ million)	Value Added in Agriculture (₱ million)	Extension Expenditures Relative to Agricultural Value Added (percent)
Ilocos	9.9	2,987	0.33
Cagayan Valley	5.5	3,069	0.18
Central Luzon	13.2	4,246	0.31
Southern Tagalog	17.6	8,639	0.20
Bicol	4.4	3,725	0.12
Western Visayas	9.9	6,238	0.16
Eastern and Western Visayas	5.5	5,153	0.11
Central and Northern Mindanao	6.6	7,278	0.09
South & Western Mindanao	9.9	11,978	0.08
UPCA Manila	27.5	-	-

a/Due to data constraints, the figures for agricultural extension are based on 1975 proportions by region.

Sources: Evenson, Waggoner, and Bloom and NEDA.

Recent analyses of supervised credit programs and the nature
of inefficiencies on rice farms lead us to question conventional
approaches of current extension programs. First, technical
inefficiencies tend to be more important than allocative ineffi-
ciencies in explaing low productivity of rice farms (Mandac, 1978).[13]
This is consistent with empirical studies which overwhelmingly
show that farmers in less-developed countries maximize expected profits
(Schultz, 1964). Thus an effective extension program should focus
on teaching principles of new farm technology or farm practice
rather than emphasize the application of recommended input
levels. Extension workers cannot be expected to make better
decisions than farmers given the great heterogeneity of physical
and market conditions across farms. More often than not, uniform
levels of fertilizer and agricultural chemicals are simply recom-
mended over a wide geographic area without due consideration to
individual farmers' resource conditions.

Second, the common belief that extension would be more effect-
ive if tried with low-cost credit and vice versa is not clearly
borne out by empirical evidence. In the case of rice, the modern
varieties introduced in 1967 have already been rapidly adopted in

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[13] Technical inefficiency refers to the inability of farmers
to achieve potential maximum output for every level of input.
Allocative inefficiency refers to the inability of farmers to
use the optimum level of inputs given their resources and level
of knowledge.

67 percent of irrigated areas and in 45 percent of rainfed areas prior to the Masagana 99 Program. The fact that the rate of adoption has increased to 85 percent and 71 percent, respectively, in 1979 cannot be attributed to the Masagana 99 Program but rather should be viewed as a continuation of the long-run adoption process of the new technology.

In the case of corn, there has been little dissemination of new varieties developed in the early 1970s despite the Maisan 77 and Masaganang Maisan programs because the new technology apparently did not offer higher profitability for the farmer. Extension and development of financial markets are indeed important components of rural development but the strategy of linking the two should guard against dissipating the efforts of scarce competent technicians in loan administration because this has not significantly raised repayment rates in supervised credit programs.

Chapter 6

DOMESTIC RESOURCE COST AND
COMPARATIVE ADVANTAGE

Economic policies particularly those which distort relative
prices have been shown to have generally discriminated against
agriculture. An extremely important question to ask,therefore,
is whether or not this policy structure leads to a more (less)
efficient resource allocation thereby increasing (decreasing)
national output. Do government policies encourage resources to
shift toward more socially profitable economic activities? An
attempt is made to answer this question by evaluating if the
Philippines has a comparative advantage in various agricultural
activities based on estimates of domestic resource cost of foreign
exchange. Domestic resource cost (DRC) represents the social cost
of converting Philippine resources into foreign exchange through
production for export and import substitution. A DRC lower than
the shadow exchange rate (SER) indicates comparative advantage,
since the SER represents the social value of foreign exchange.
Moreover, selecting activities with lower DRCs means reducing the
social cost of balancing the foreign exchange budget.

Industries characterized by high effective protection rates
are likely to have high excess profits or a high level of ineffi-
ciency or both. Bautista and Power's analysis of the manufacturing

sector indicates that DRC's are higher for industries with higher
EPR's and lower for exports which frequently have negative protect-
ion. "Competition in export markets forces firms to be cost cons-
cious, while the highly protected domestic market induces complacency
in domestic resource use among inward-oriented industries."

The fact that agriculture survives and indeed grows despite
negative protection indicates an inherent comparative advantage that
is generally confirmed by our estimates of DRC's (Table 16). DRC's
are generally below the shadow exchange rate of ₱8.88.[13] The only
exception is broiler production. Cabanilla, however, has argued that there
will likely be a favorable change in comparative advantage in the
near future given the poultry sector's historical record of product-
ivity growth as a result of effective international transfer of new
production technology, local management efficiency and the nation's
impending breakthrough in corn production. Poultry may represent
a successful case of an infant industry where initial growth was
induced by high levels of protection.

Cultivated land per worker has started to decline in the 1960's
and thus expansion of agricultural production means increasing
competition for land use (David and Barker,1979). For evaluating

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[13] Based on the assumption that the degree of peso overvaluation
is 20 percent, a rather conservative assumption given the growing
deficit in balance of payments financed by heavy foreign borrowing
since the mid-1970's.

Table 16. Domestic resource cost of selected agricultural products
(₱/$).

	REFERENCE YEAR	DRC
Rice	1979	6.3–6.9[a]
Corn	1979, 1980	8–9
Copra	1976	5.9–6.2
Sugar	n.a.	n.a.[b]
Cotton	1975–1981	7.22
Swine[c]	1978, 1980	6–8
Cattle	1978, 1980	6–8
Chicken	1978, 1980	11–20
Eggs	1978, 1980	7–8
Logs	1974, 1977–1979	3.4–5.5
Lumber	1974, 1977–1979	6.2–6.9
Plywood & Veneer	1974, 1977–1979	4.7–6.0

[a] The range represents differences across technology, location, time, and/or source of data.

[b] Not yet available.

[c] Estimates for livestock and poultry are based on commercial type of production.

comparative advantage across agricultural commodities, land might
be a more relevant limiting factor to consider than foreign exchange.
It might seem useful, therefore, to examine closely not only the
ranking of DRC's between agriculture and non-agriculture but with-
in agriculture, across the different commodities.

Although the latter is of course an interesting and important
issue, it may not be possible to provide conclusive interpretations.
Difference in DRC's across agricultural commodities is much narrower
than between agriculture and non-agriculture and given the usual
measurement error involved in the empirical estimation of DRC's,
it would be more prudent to interpret the patterns we find as indi-
cative rather than as basis for recommending which crop to promote.
In any case, one basic assumption we wish to stress is that the
private sector will generally make optimal allocation decisions
if the government permits price signals that conforms to real
resource scarcities.

The most important conclusion from these estimates of DRC's
is that almost without exception the major agricultural activities
demonstrate comparative advantage. Given the good overall perform-
ance of agriculture in the 1970's in the face of what we have
found to be adverse government policies, this result is not
surprising.

Chapter 7

PRICE INTERVENTION POLICIES AND INTER-
SECTORAL CAPITAL FLOWS

In the introduction, it was hypothesized that the secular decline in the share of the agricultural sector in the Philippine economy has been accelerated by domestic economic policies which discriminated against agriculture. In this chapter, the role of price intervention policies in affecting this process of structural change is examined by measuring their impact on intersectoral capital flows. The implications of these policies on income distribution is also analyzed first by comparing the rate of taxation between agriculture and non-agriculture, taking into account the implicit taxes from these price intervention policies and second by relating the rate of intersectoral capital flows of capital to that of labor.

There are two types of capital that is extracted or tranferred from agriculture to industry as development proceeds. The first comes from the intersectoral movement of financial resources. In real terms, these are, of course, in the form of the excess of the goods agriculture sells at home and abroad over the goods it purchases from domestic non-agriculture and the world. The second is the intersectoral movement of human capital, i.e., labor resources in the rural sector migrating to the urban areas to seek more productive employment. The cost of rearing and training this labor supply is a form of capital investment borne by the agricultural sector. As

a residual employer, the agricultural sector also bears the cost of
supporting surplus labor in the rural areas until they can be
productively employed in the non-agricultural sector (Yotopoulos
and Nugent,1976). There is, then, a benefit to agriculture from
the transfer of this labor.

Trends in Net Capital Flows

This analysis focuses on the net capital flow in real
terms. This can be expressed in both physical (left hand side) and
financial (right hand side) terms and can be divided into private
and government net capital flows.

$$OF - IF - G_a = (S_a - I_a) + (T_a - G_a)$$

Outflows (OF) consist of the amount of total goods agriculture
sells to non-agriculture and to the world; inflows (IF), the amount
of intermediate and consumer goods. agriculture purchases from non-
agriculture and the world. The difference between OF and IF is
equivalent in financial terms to savings (S_a) minus investment (I_a)
in agriculture plus tax revenues from agriculture (T_a). The term
$(S_a - I_a)$ may be interpreted as net private lending, i.e., the
amount of private investible funds from the agricultural sector
available for capital formation in the rest of the economy. The
government through its sectoral source of revenues (T_a) and allo-
cation of expenditures (G_a) also accounts for part of the net
capital flows.

The direction and rate of intersectoral capital flows is
determined by both market forces and government policies via
their impacts on relative profitability. Net private capital
flows respond essentially to the sectoral pattern of private
profitability. There is also some evidence that even public
investments are affected by profitability considerations
(Hayami and Kikuchi, 1975).

In Fig. 3, , Pasur's time series estimates of net private
capital outflow from agriculture from 1950-1965 are depicted
together with de Leon's estimates based on data from the input-out-
put table for 5 years between 1961-1978.[14/] Despite the differ-
ence in methods and data sources, the two sets of estimates
for the overlapping years (1961-1965) are remarkably close.

As expected, there has been a substantial net private capital
outflow from agriculture throughout the whole period (Table 16).
This has risen from 1950-1965, averaging about 21 percent of agri-
cultural gross value added. Between the mid-1960's and mid-1970's,
net private capital outflows were generally lower, and as a propor-
tion of agricultural value added only half those of earlier years.

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[14/]Net private capital flow is measured empirically as OF-IF
which is equal to $S_a - I_a + T_a$. T_a was not   subtracted because
time series data are not available. An attempt was however, made to
estimate in a rough way T_a and G_a. The general magnitude are The
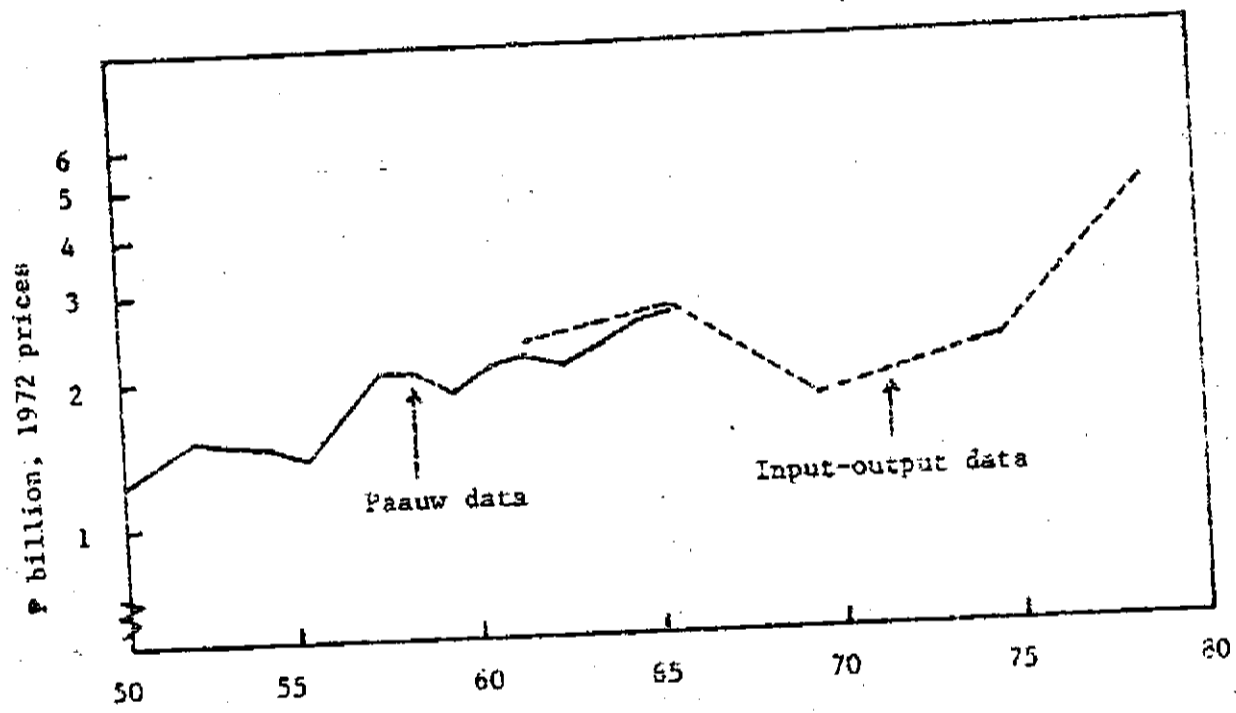discussed in the next section.

Fig. 3.   Trends in net private capital outflows from Philippine
          agriculture, billion ₱ at 1972 prices.

Table 16 . Trends in net private capital outflows from agriculture and agricultural value added, million pesos, 1972 prices.

	Agricultural GVA (1)	Net Capital Outflows (2)	(2)/(1)
Paauw [1]			
1950	5,838	1,290	.22
1951-1955	7,215	1,560	.22
1956-1960	9,410	1,974	.21
1961-1965	11,121	2,373	.21
de Leon [2]			
1961	10,643	2,454	.23
1965	11,891	2,669	.22
1969	14,412	1,772	.12
1974	17,465	2,232	.13
1978	21,502	4,590	.21

[1] Estimates from Paauw, D. S., "The Philippines: Estimates of Flows in the Open, Dualistic Economy Framework," U. P. School of Economics, 1968.

[2] Estimates from de Leon, M. S. J., Intersectoral Capital Flows and Price Intervention Policies in Philippine Agriculture, Unpublished Ph.D. dissertation, University of the Philippines at Los Baños, November 1982.

Agricultural terms of trade improved significantly during this
period (Fig.2). As agricultural terms of trade dropped after
1975, net private capital outflow in 1978 rose to twice the
levels in the 1960's and was again about 21 percent of agricul-
tural value added. This inverse relation between net private
capital outflow and agricultural terms of trade is a clear in-
dication of the latter's importance in affecting intersectoral
incentive structure.

Price Intervention Policies and Net Private
Capital Flows

There are three ways by which capital can be transferred
from agriculture to non-agriculture. Two have been noted already,
namely, net private lending $(S_a - I_a)$ and net government revenues
$(T_a - G_a)$. Taking these two as given, a third way is through price
intervention policies. These can require agriculture to trade more
in real goods and services for less in return by distorting the
terms of trade. Customs duties, for example, make manufactured
goods more expensive to buy, whether domestically or internationally;
while export taxes reduce the net price agriculture receives for
its sales both at home and abroad.

With respect to trade with the world, these penalties show
up explicitly in tax revenue (export taxes and custom duties). In
contrast, they are implict taxes involving transfers through
market price distortions in the case of domestic trade. If the

price intervention policies were eliminated, the implicit taxes would disappear. We assume however, that the government would impose some other taxation measures on agriculture to make up for the loss in revenue from explicit taxes. The correspondence might not be exact, but this seems to be preferable to assuming that T_a would decline.

Our main interest then, is in measuring the proportion of total net private capital outflows that could be attributed to price intervention policies. To do this, we take net private lending and net government revenues as given and ask simply what is the difference in real resources that would be required to accomplish this financial transfer under distorted and undistorted prices. The difference, then, would represent the implicit tax in real terms.

It is not likely, of course, that the financial transfer would be exactly the same under the two sets of prices. Absence of price intervention policies might mean more investment in agriculture. It might also mean more saving, however, as agriculture's real income improved. Likewise, it is difficult to predict the direction of change of $T_a - G_a$. In any case our assumption of a constant financial transfer enables us to gauge the general

magnitude and importance of the effects of price intervention policies.[15/]

Table 17 shows the results of this exercise. It is evident that most of the implicit tax is attributed to protection of the goods agriculture buys. This is partly due to the fact that only domestic trade enters into the calculations so that the effect of export taxes on agriculture's sales is not present. The other important factor is the high average protection of manufactured consumer goods.

The implicit tax in 1974 turns out to be considerably greater than the estimated explicit taxes agriculture pays (₱1,275 million) based on Macaranas estimate of the tax revenue contributed by

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[15/] To do this we take each component of the net private capital flow and decompose it into a corresponding real flow at undistorted prices and a measure of the implicit tax. Let x represent one of these components and p and $\hat{p}$, be distorted and undistorted prices, respectively. Then

$$\frac{x}{p} = \frac{x}{\hat{p}} \frac{\hat{p}}{p} = \frac{x}{\hat{p}} \left(1 + \frac{\hat{p} - p}{p} \right).$$

This can also be written as

$$\frac{x}{\hat{p}} = \frac{x}{p} \left(1 + \frac{p - \hat{p}}{\hat{p}} \right)$$

This is more convenient because the second term in parentheses corresponds to a nominal rate of protection, or implicit tariff. The implicit taxes from each component, then are aggregated to get the total. It is evident that some represent negative protection on agriculture's sales, while others represent positive protection on agriculture's purchases.

Table 17. Estimates of net private capital flow from domestic
trade based on undistorted prices and levels of
implicit tax due to price intervention policies.

(in million of pesos at 1972 prices)

FLOW	UNDISTORTED CAPITAL FLOWS	IMPLICIT TAX
Total Outflows	13,135	61 (1.7)[a/]
Agric'l sales of consumer & intermediate goods to non-agriculture	13,135	61
Agric'l exports of consumer & intermediate goods		
Total Inflows	15,279	3,453 (98.3)
Agric'l purchases from non-agriculture of: consumer goods	13,144	3,045 (86.7)
intermediate goods	2,089	402 (11.4)
investment goods	46	6 (0.2)
Agric'l imports of: consumer goods intermediate goods investment goods		
Net Private Capital Outflow	-2,144	3,514 (100.0)

[a/] Figures in parentheses are percentage distribution of implicit
tax among different components of outflows and inflows.

agriculture to the total tax collections (7%) at start of the
1970's which will reach 13 percent if export taxes were included.[16/]
The explicit tax including the export taxes as a ratio of agricul-
tural value added amount to 7 percent while the same ratio for
non-agriculture is about 18 percent. Implicit tax from price
intervention policies on domestic trade is conservatively estimated
at 20 percent and hence total effective tax paid by agriculture
is nearly 30 percent of agricultural value added. The implicit
tax paid by agriculture is a direct resource transfer to consumers
of agricultural products and producers of non-agricultural commo-
dities purchased by the agricultural sector. It is therefore an
implicit subsidy from the point of view of non-agriculture. The
total effective tax (net of this implicit subsidy) as a ratio of
value added in non-agriculture is then on the average only about
8 percent, though this may be quite different across the various
non-agricultural sub-sector. Compared to this then, the agricul-
tural sector is excessively taxed especially when we consider the
much lower per capita income in agriculture compared to non-agri-
culture.

[16/] This excludes the part of the negative protection on exports
of coconut, sugar, and logs due to the coconut levy, pricing on
sugar, log export ban where no revenues accrue to the government
but are nevertheless implicit taxes paid by producers that are not
included in the estimate of implicit tax on domestic trade.

On the other hand, it is possible that the agricultural
sector has received the benefits from proportionately more of
public expenditures. Rough estimates indicate this possibility
when sectoral allocators for major general expenditures such as
defense, education, health and infrastructure are based on
agriculture's share in employment and income. This procedure
may, however, overstate the benefits received by agriculture.
Moreover, even benefits considered to be directly received by
agriculture such as irrigation, extension and research do not
fully accrue to agriculture. By raising productivity they help
to keep agriculture prices low, because of relatively inelastic
demand, and thereby benefit non-agricultural consumers.

In any case, when we add the implicit tax from price inter-
vention policies the result remains a positive net capital out-
flow from agricultural even if we treat de Leon's government
expenditure estimates as an additional inflow. This can be seen
from Table 19, where the expenditure estimates are in column (2)
and the net capital flows before consideration of the implicit
tax are shown in the last column. The implicit tax was estimated
for 1974 at about ₱3.5 billion, which exceeds the highest value
of capital inflow (also for 1974) calculated without the implicit
tax. Since the price intervention system became even more adverse
to agriculture after 1974, and the absolute value of the figures
in the last column decline rapidly after that year, we can

conclude that the net outflow including both expenditure estimates
and implicit tax was substantial in the 1970s.

Table 19 . Net public and private capital outflows from agriculture, 1957-1978 (in million pesos at constant 1972 prices).a/

YEAR	Gov't. Taxes (T_a) (1)	Gov't. Expenditures (G_a) (2)	Net Public Flows $(T_a - G_a)$ (3)	Net Private Flows $(S_a - I_a)$ (4)	Net Total Flows (4)+(3)
Average 1957-1966	213	1,927	− 1,714	2,032	318
1967	282	2,520	−2,238	1,950	−288*
1968	288	2,766	−2,478	1,714	−764*
1969	289	3,130	−2,841	1,483	−1,358
1970	302	2,982	−2,680	1,562	−1,118*
1971	771	3,059	−2,288	1,185	−1,103*
1972	858	3,779	−2,921	1,190	−1,731*
1973	1,049	4,791	−3,742	1,090	−2,651*
1974	1,275	5,222	−3,947	957	−2990
1975	1,471	5,328	−3,857	1,351	−2,506*
1976	1,443	5,539	−4,096	1,968	−2,128*
1977	1,382	5,020	−3,638	2,618	−1,020*
1978	1,448	5,567	−4,119	3,142	−977

a/The estimate for inbetween 1-0 years indicated by an asterisk are obtained by straightline interpolation of F'.

Sources of basic data: National budget reports of the Budget Commission (Ministry of the Budget) and GAO (COA), Macaranas (1975), World Bank (1976) and NEDA, Philippine Statistical Yearbook (Manila).

Intersectoral Capital Flows vs Labor Flows

A rapid transfer of capital out of agriculture may be economic-
ally efficient if this direction is towards more socially profitable
investments. It may also not have serious long-run negative conse- /
quence on income distribution if the rate of capital outflow is at
least matched by an equivalent rate of labor outflow. What has been
the rate of labor outflows?

By comparing the actual number of agricultural workers with
what the number would be without sectoral labor shifts (i.e., the
natural level,[17] a crude estimate of labor outflows from agriculture
has been derived for selected years shown in Table 19 . Cumulative
net labor inflows to agriculture were experienced before 1960, and
in the early 1970's. From the viewpoint of agricultural demand,
this pattern is consistent with the sources of agricultural growth
during this period. In the early postwar years, growth in agricul-
ture was explained mostly be expansion of land under cultivation
which required substantial amounts of labor (David and Barker, 1979).
With the closing of the land frontier by the 1950's, agricultural /
growth had to depend mainly on yield increases which implied a much

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[17]The "natural" level is defined as the number of workers
resulting only from births and deaths and in the labor force
participation rate. This turned out to be about 2.8% in the
rural sector between 1957-1974. Later years were not considered
because of the significant changes in the survey procedures after
1974.

Table 20 . Net labor flows and net private capital flows between agriculture and non-agriculture, 1957-1974.

YEAR	AGRICULTURAL EMPLOYMENT		NET L FLOWS[c]	NET PRIVATE K FLOWS[d]	K FLOWS
	Natural[a] (1000)	Actual[b] (1000)	Cumulative (1000)	Cumulative (Million ₱ 1972 Prices)	L FLOWS
1957	4,675	4,997	-322	1,873	—
1960	5,079	5,224	-145	7,481	—
1965	5,831	5,725	106	18,277	182[e]
1971	6,882	6,321	561	27,873	54[e]
1974	7,476	7,684	-208	31,191	—

[a]Natural growth rate is assumed to be 2.8 per cent (see de Leon, 1982b).

[b]The reference month is October except for 1971 which is November and 1974 (4th quarter).

[c]Derived as natural minus actual employment in agriculture.

[d]Note that the annual flows are two-year averages to account for the timing problem (labor surveys are done sometime in the year).

[e]Labor outflow estimates are adjusted for portion absorbed by the government sector. Adjustment factor is the proportion of private employment to total employment. Note that net labor inflows are not adjusted since the government sector falls under non-agriculture (see text and footnote 39 for additional notes).

Sources of basic data: NEDA, Philippine Statistical Yearbook, Manila, 1980) and MCSO, Integrated Survey of Households (Manila, 19) for employment data.

lower labor absorption than in the previous period. Labor had to
shift out of agriculture in the decade of the 1960's. Though
agricultural growth continued to be based on increasing product-
ivity on a limited land base, irrigation development by doubling
and sometimes tripling cropping intensity together with the new
seed fertilizer technology raised labor demand in rice. The
generally more favorable prices of major export crops at least
in the early 1970's must have also contributed to the apparently
higher labor demand.

It should be emphasized, however, that labor demand in the
non-agricultural sector would be a more important determinant of
intersectoral labor outflows because   the level of labor pro-
ductivity, average wage, and average family income is still much
higher in this sector. Labor will voluntarily transfer to industry
if there are job opportunities. The fact that a significant part
of the growing labor force remains in agriculture indicates a
limited demand for labor in industry. Previous studies have al-
ready documented the relatively capital intensive nature of in-
dustrialization that was promoted by the structure of government
policies (ILO, 1974).   An estimate of the 1973 ILO Mission
put the capital-labor ratio in all manufacturing at about ₱23
thousand per worker in 1969 prices. Our data show that even in
years when the net labor outflow was positive the private capital
outflow was far greater than enough to match this capital labor
ratio.

It is obvious then that the objective of accelerating the industrialization process by artificially depressing agricultural incentives will increase the factor share of capital relative to labor in the total economy and hence worsen income distribution.

CHAPTER VIII

Summary and Conclusions

Price intervention policies in the broad sense, including industrial protection and exchange rate policies, have created an incentive structure that is significantly biased against agriculture. Before the 1970's, this bias was due mainly to the policy objective of promoting industrialization via tariff protection. During the 1970's, however, the agricultural sector became increasingly regulated leading, perhaps inadvertently, to an undervaluation of exportable products, especially sugar, coconuts, and logs, through export taxes, export quotas, special levies, and government monopoly of marketing. While prices of other agricultural products may not be substantially distorted, protection of manufactured inputs has introduced some measure of disincentive effect on their production. In contrast there are examples of substantial penalties on agricultural raw materials, depressing their prices more than enough to offset the penalty imposed by economic policies on agricultural processing.

Meanwhile the penalty imposed on agriculture by the overvaluation of the peso has also been shown to be substantial and even a partial correction of this by foreign exchange adjustments have had a dramatic impact on agricultural terms of trade. Distortions in the price of

foreign exchange have been due both to the overall protection
system and the tendency to delay foreign exchange adjustments·
to correct balance of payments disequilibrium.

Credit policies mainly through interest rate subsidies have /
not significantly altered the unfavorable economic incentives in
agriculture caused by price intervention policies. Credit quotas/
and special credit programs have not prevented the decline in real
loanable funds to agriculture in the 1970's. Borrowers allocate
additional liquidity to activities where marginal profits or
utility are highest, and cheap credit cannot overcome the dis-/
advantage of depressed prices and profitability.

Public expenditure policies, however have tended to promote
agriculture, particularly through extension, research, and irriga-
tion development, all of which increase agricultural productivity.
Expenditures on infrastructure in general will also benefit agri-
culture by expanding markets. Though these public expenditures
have been concentrated in rice in the past, the emphasis in recent
years has shifted to non-rice agricultural sectors.

The policy structure affecting agriculture is primarily
influenced by the general objective of promoting industrialization.
The basic problem is not in the objective but in the set of policy
instruments used to attain this objective. Artificially depressing

agricultural prices to raise the profitability of the industrial
sector will have negative long-run consequences on agricultural
production and thus on the objectives of food self-sufficiency,
increasing exports, and improving income distribution. Farmers
are price responsive. Other studies have indicated that public
investments and technological developments in agriculture have
in part been induced by higher agricultural prices.

Constraining the growth of agriculture will also limit the
speed of industrialization since the agricultural sector by its
sheer size will continue to be an important source of capital,
foreign exchange, and food for this effort, as well as a potential
source of market demand for its products. Indeed, the analysis
of comparative advantage indicates that agriculture in general
offers socially profitable opportunities for providing these
resources. This comparative advantage would be more effective in
the absence of these policy biases. Price intervention policies,
therefore, have led to inefficient resource allocation and hence
lower economic growth. Moreover, while we have made no attempt
to quantify the income distribution effect of these policies, it
is perhaps fair to comment that subsidizing industrialization and
urban consumption through implicit taxation of agriculture repre-
sents an additional burden on a sector that is characterized by
relatively low per capita income.

The policy implication of our analysis is not simply to
increase protection in agriculture but to reduce distortions
created by economic policies in general. The broad reforms in
the tariff and interest rate policies currently being instituted
have a potentially favorable impact on the agricultural sector.
The general reduction in tariff protection in manufacturing
coupled with the policy of letting the peso float will reduce
somewhat the extent of the bias against agriculture. Reforms in
the financial system, including a more flexible interest rate
policy may allow more financial resources to flow into agriculture.
These reforms will improve the global economic policy climate for
agriculture.

Turning to sector specific price intervention policies, we
note that these have often been directed toward aims that, in
themselves, are commendable. Among these are the promotion of
processing or other use of raw agricultural products, the provision
of food and other necessities to the poor at relatively low and
stable prices, and the strengthening of the country's bargaining
position in international trade. To these ends the government has
imposed export taxes and quotas, various price control measures
and, in some cases, government monopoly of marketing. The effect
has generally been to depress agricultural prices, thereby harming
incentives to production and reducing incomes of a large proportion

of the nation's poor families. What needs to be emphasized is that there are more efficient and more equitable ways of pursuing these objectives.

Consider first the processing or use in manufacture of raw agricultural products — e.g., converting copra into coconut oil, corn into meat products, or raw cotton into textiles. These manufacturing activities can be subsidized directly through fiscal incentives of the BOI sort, instead of by depressing prices to farmers. There are two principal advantages of this alternative policy. First, the disincentive to production of the raw product is eliminated; and, second, the burden of the subsidy is borne by the general tax payer, rather than by poor farmers. There is a gain in both efficiency and equity.

With regard to the aims of providing cheap food and say, cooking oil, again it is not clear why the burden of subsidizing the urban poor should be borne by the rural poor. Furthermore, the urban rich gain along with the poor under the present system. A preferable alternative policy would emphasize subsidies to agricultural production to keep food supplies abundant, thereby benefitting both rural and urban poor, again at the expense of the general taxpayer, though the latter would also gain as consumer.

Strengthening the country's position in international trade is another policy objective that has led to more government inter-

ventions, specifically in directly taking over marketing though this may not be the only motive for its control of marketing. The case for this is, we think, rather weak. The Philippines is not in a position to influence world prices for even its major exports in the long run. To the extent that some degree of monopoly power exists, the ideal policy would be an export tax equal to the reciprocal of the estimated world demand elasticity for the product. An unfortunate by-product of the government's attempt to attain monopoly power in world markets has in some cases been the attainment of very substantial monopsony power. In coconut and cotton, there is revealed a very strong indication that this power has been used to depress prices to the farmer.

In the case of the government marketing of rice and corn two of the most important agricultural products in agriculture, our studies indicate that in recent years domestic prices have been near border for both food grains. A key determinant of the domestic price of rice is the government's decision about the level of exports, while its import decision plays a key role in determining the domestic price of corn. Evidently, however, the government does not take into account in making these decisions the undervaluation of foreign exchange that is due to both industrial protection and balance of payments disequilibrium. This should seem surprising, since the government elsewhere in

its decision making is perfectly willing to place a premium
on earning or saving foreign exchange. This is seen in the
set of BOI incentives, in the price differential allowance for
domestic components in the automobile industry, and in many
other instances where the government indicates that it under-
stands the real social value of foreign exchange. That it does
not apply this in its own decisions in its monopoly control of
rice and corn exports and imports is indicative of the govern-
m a n t ' s unwillingness to treat agriculture on par with
manufacturing, tourism and shipping, as foreign exchange earners
and savers.

What would be a similar policy toward rice and corn, taking
into account the premium that should be attached to foreign
exchange? Rice exports should be expanded and corn imports
reduced (gradually, of course, as supply responds to price) until
both domestic prices are 20 percent above border prices, this
being the minimum estimate of the proportion by which the peso is
overvalued. Failure to do this means keeping the domestic prices
of rice and corn below their social values. We hasten to add that
these domestic prices are prices to producers, which could be
accompanied by subsidies to consumers to keep prices at present
levels. Again, as above, the argument is the same. It is better
from the stand point of incentives to production and equity in income
distribution to keep food and feed cheap in this way, rather than
by depressing prices to farmers.

This approach, of course, simply tries to correct the
distortionary impact of economic policies on domestic pro-
duction of food staples and to satisfy the objective of keeping
food and feed cheap. While a 20 percent protection rate is
conservative compared to industrial protection, the absolute
amount of the subsidy required to maintain a cheap staple
policy would be tremendous up to about one fourth of the govern-
ment budget. Limiting this subsidy to the poor segment of society
(e.g., only corn for food and not for feeds) will reduce this but
there may be difficult problems of enforcement. The government
has to some limited extent reduce this penalty by input subsi-
dies but whether through inputs or output subsidies, it is not
likely that the government can manage to offset the penalties
due to foreign exchange rate distortions. It is therefore neces-
sary to adjust quickly to balance of payments disequilibrium and
to reduce tariff protection on manufacturing to minimize the heavy
penalty received by agriculture from an overvalued peso.

There are other important issues related to the growing
nationalization of marketing of agricultural crops that has gone
beyond staple foods. This typically has reduced instead of
increased competition. With less incentive to minimize the unit
cost of marketing, service to buyers and sellers will likely be
less efficient. The private sector has also expressed concern
about the uncertainties introduced by this system since it is
easier to arbitrarily change prices. It has also provided a

means for raising implicit taxes that are difficult to account for and are more arbitrarily allocated. Government marketing monopolies may also hamper market adjustments to new economic opportunities. For example, government monopoly in rice exporting prevents the quality premiums in world prices from being reflected in the domestic market. Rice farmers and millers, therefore, have no incentive to produce rice with low percentage of brokers, limiting profitable exports. Domestic prices do not differentiate quality by this standard. The marginal cost of achieving better quality rice may be lowered by simply allowing private traders to export.

Finally, if the alternative policy approach set out above were adopted, the total taxation of agriculture, both explicit and implicit would be considerably reduced. This is beneficial insofar as disincentives to efficient production are reduced and obvious inequities are mitigated. Agriculture should, however, pay its share of the cost of government services and this is likely to require some strengthening of income and land tax collection as part of an overall reform. In other words, the above arguments have not intended to imply that agriculture was overtaxed per se: but rather that the means by which agriculture was taxed were inefficient and inequitable. Our study did not extend into the area of tax reforms, but this would represent one of the logical extension of this research.

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