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INTRASECTORAL CAPITAL FLOWS AND BALANCED  
AGRO-INDUSTRIAL DEVELOPMENT IN THE PHILIPPINES

by

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INTRODUCTION

One of the established generalizations in economics relates to the phenomenon of secular decline of agriculture in the course of development and consequent increasing role of the industrial and services sectors. This is referred to as the process of structural transformation and is based on empirical evidence that shows the share of agriculture in the gross national product and total employment declining as income levels rise<sup>1</sup>. It is attributed mainly to the fact that the income elasticity of food decreases with rising incomes (Engel's Law) which tends to limit effectively the market for agricultural goods. As a consequence, the profitability of resources in agriculture falls and are drawn away toward more productive employment in other sectors. As more resources flow out of agriculture to non-agriculture, the latter's share in GNP and employment grows while that of agriculture diminishes.

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<sup>1</sup>For a review article, see Johnston (1970)

Structural transformation occurs through intersectoral resource transfers and the speed of this transformation is determined by the rate of resource flow. A country adopting an industrialization policy is concerned with accelerating this flow. This is made possible because the rate of resource flow between agriculture and non-agriculture is a function not only of market forces but also of government intervention. For instance, the government may implement policies designed directly or indirectly to increase the rate of flow via induced changes in relative prices of agricultural and non-agricultural goods (i.e., the terms of trade), and consequently, on relative profitability.

Under a free market system, the price mechanism determines the incentive structure that will achieve an optimal allocation of resources intersectorally. Government intervention in terms of price-distorting policies that artificially depress agricultural prices vis-a-vis those of non-agriculture tends to hasten resource flows out of agriculture which has become a less profitable sector. Such an event will have adverse consequences on balanced growth between agriculture and non-agriculture and, in the long run, on the national objectives of food self-sufficiency, increasing exports, and improving income distribution.

An added dimension to the problem is to what extent labor flows out of agriculture have occurred. As indicated earlier, structural transformation involves also the declining share of agriculture in total employment. A mismatch between physical and human capital flows will have a negative consequence on long run productivity levels and thus, on growth and equity objectives.

This paper attempts, **first**, to estimate the magnitude and direction of capital flows between agriculture and non agriculture and second, to measure the extent to which government price intervention policies may have accounted for these flows. From the results, some implications for the strategy of balanced agro-industrial development, and consequently, for the country's development goals, are presented.

#### TRENDS IN NET CAPITAL FLOWS

The estimation of intersectoral capital flows is based on an accounting model where the economy is divided into the agricultural and non-agricultural sectors. Agriculture is defined to encompass all economic activities relating to crops, livestock and poultry, fisheries, forestry, and other agricultural activities.<sup>2</sup> Non-agriculture consists of the rest of the economy.

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<sup>2</sup>This corresponds to Division 1 of the Philippine Standard Industrial Classification (PSIC)

The government and foreign trade sectors are disaggregated into their agricultural and non-agricultural components

Under the model, two kinds of flows may be measured. The first is expressed in terms of the value of goods, while the second is its financial counterpart. Thus, from the viewpoint of agriculture, the difference between the amount of goods agriculture sells to non-agriculture and the world (outflows, OF) and the amount of goods it buys from non-agriculture and the world (inflows IF) constitutes the net agricultural trade surplus. Both flows involve consumer and intermediate goods, while capital goods appear only as an inflow.

The financial counterpart of this surplus includes government taxes paid by the agricultural sector ( $T_a$ ).  $T_a$  represents the claims of the government on part of the produce of the economy which are used to finance public sector operations and capital outlays. But agriculture receives back a part, the whole, or more than its contribution to government revenues in the form of public expenditure outlays ( $C_a$ ). Thus, the net agricultural trade surplus has to be corrected for this factor to arrive at the net capital outflow from agriculture (F). Summarizing, the goods flow side of the model may be stated symbolically as

$$(1) \quad F = OF - IF - C_a$$

where the terms are defined as above

The financial counterpart to this goods flow defines the net capital outflow from agriculture (F) as being equal to saving minus investment in agriculture ( $S_a - I_a$ ) plus government tax revenues minus government expenditures on agriculture ( $T_a - G_a$ ). In equation form, this is shown as <sup>3</sup>

$$(2) \quad F = (S_a - I_a) + (T_a - C_a)$$

The first 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 second term ( $T_a - C_a$ ) represents net public capital outflow.

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<sup>3</sup>For a detailed derivation, including the goods flow side, see de Leon (1982b)

This paper focuses mainly on the estimation of  $F$  from the (goods) flow side <sup>4</sup>. The results are shown graphically in Figure 1. The estimates of net agricultural trade surplus for the 1950s up to the middle of the 1960s are based on an earlier study done by Paauw (1968). Those from the second half of the 1960s to 1978 are derived from input-output data. Despite some differences in methods and data sources, the net two sets of estimates for the overlapping years (1961-1965) are remarkably close.

Expectedly, it is found that the direction of goods flows has been out of agriculture to the rest of the economy. The magnitudes, moreover, have been substantial. The net agricultural trade surplus in real terms (1972 = 100) averaged about 21 percent of gross value added (GVA) in agriculture from 1950-1965 (Table 1). From the late 1960's to mid-1970's, the outflows have been generally lower and, as a proportion of agricultural GVA, only half of those of earlier years.

It will be noted also in Figure 1 that the agricultural terms of trade improved significantly during this period. The reversal in 1975 and general decline since appear to have been accompanied by the rise

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<sup>4</sup>In de Leon (1982a), a crude attempt is made to measure the financial flow side. Given  $F$  from the physical flow side and estimating  $(T_a - G_a)$  empirically,  $(S_a - I_a)$  can be derived residually.

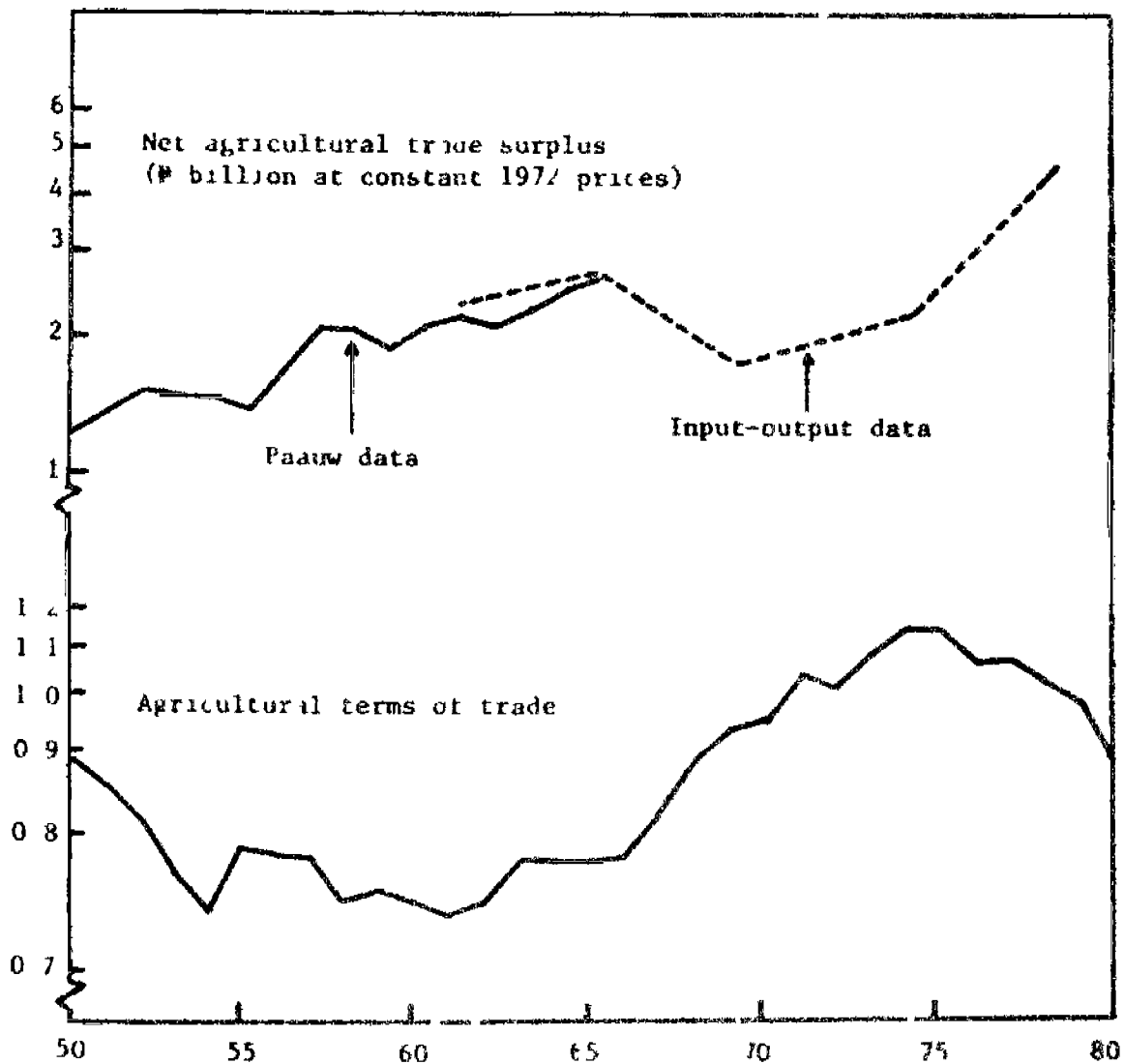


Figure 1 Trends in net agricultural trade surplus (1950-1978) and agricultural terms of trade (1950-1980)



Table 1 Trends in net agricultural trade surplus and agricultural gross value added, 1950-1978 (in million pesos at constant 1972 prices)

PERIOD	AGRIC'L GVA (1)	NET AGRIC'L TRADE SURPLUS (2)	(2) (1)
Paauw data			
1950	5,838	1,290	22
1951 - 1955	7,215	1,560	22
1956 - 1960	9,410	1,974	21
1961 - 1965	11,171	2,373	21
Input-output data			
1961	10,643	2,454	23
1965	11,891	2,669	22
1969	14,417	1,772	12
1974	17,465	2,232	13
1978	21,502	4,590	21

Sources of basic data: NEC, The Statistical Reporter, Vol. 13 No. 1 (January-March 1969) for the 1950-1966 agricultural GVA, NEDA, Philippine Statistical Yearbook (Manila, 1980) and Manila, 1981) for other GVA data, Paauw (1968) and 1-4 tables for net agricultural trade surplus

in net capital outflows from agriculture. Thus, in 1978, the outflow rose again to about 21 percent of agricultural GVA. This inverse relation between the net agricultural terms of trade indicates the importance of changes in relative prices in determining the intersectoral incentive structure.

The picture is different when government expenditures on agriculture ( $G_a$ ) are taken into account (Table 2). Recall that net capital outflow from agriculture ( $F$ ) is derived by subtracting ( $G_a$ ) from net agricultural trade surplus.<sup>5</sup> The direction of net capital flow is still out of agriculture but the magnitude is significantly less for the period prior to 1970. In the 1970's the flow has been dramatically reversed with agriculture benefitting from net capital inflows. This reflects the greater emphasis given by the government on agricultural development in the last decade. There is some evidence, however, that the amount of government resources going into agriculture in real terms appears to be declining in recent years, at least for the economic development expenditure portion.<sup>6</sup>

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<sup>5</sup>The estimation procedure for  $G_a$  is discussed fully in de Leon (1982b)

<sup>6</sup>See de Leon (1982a)

Table 2 Trends in net capital outflow from agriculture  
1956-1978 (in million pesos at constant 1972 prices)

PERIOD	NET AGRIC'L TRADE SURPLUS (1)	GOV'T EXP ON AGRICULTURE (2)	NET CAPITAL OUTFLOW (1) - (2)
Paauw data			
1956 - 1960	1,971	1,581	393
1961 - 1965	2,373	2,114	259
Input-output data			
1961	2,454	1,818	636
1965	2,669	2 237	432
1969	1,772	3 130	-1,358
1974	2,232	5,222	-2,990
1978	4,590	5,567	-977

Sources of basic data Table 1 for net agricultural trade surplus, Office of Budget and Management and Commission on Audit for government expenditures

## IMPACT OF PRICE INTERVENTION POLICIES

There are various factors that may affect resource flows between agriculture and non-agriculture. In general, they are market-related ones and those resulting from government intervention (see Table 3). The relevance of each depends on what kind of flow is being considered. For the purpose here, price intervention policies are examined more closely. The relevant issue is how much of the net capital flow may be attributed to such policies.<sup>7</sup>

There are three ways by which capital can be transferred intersectorally, in this case, from agriculture to non-agriculture. The first two are reflected in the financial flow side, i.e., through net private lending ( $S_a - I_a$ ) and net government expenditures ( $T_a - G_a$ ). Taking these two as given, the third way is through price intervention policies. These policies tend to distort relative prices of commodities (terms of trade). A policy such as price control or export tax artificially reduces the net price agriculture receives for its sales. Agriculture now has to trade more in real goods and services for less in return. In terms of capital flows, the net outflow from agriculture will be greater with the policy than without the policy.

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<sup>7</sup>Policies affecting the quantity variable influence prices also in an indirect way, i.e., by shifting the supply curve right-ward in the long run. Their effect is not measured here.

Table 3 Factors affecting the net capital outflow from agriculture

FLOW	FACTORS <sup>a</sup>	
	Market	Gov't Policy
Goods Flow		
$OF - IF - G_a$	costs of inputs technology income levels output prices	Quantity gov't expenditures on research, extension, and infrastructures  Price tariffs, trade quotas, export taxes, input subsidies, and price control
Financial Flow		
$S_a - I_a$	profitability of alternative investments	Monetary policies (c.g. interest rates, credit allocation)
$T_a - G_a$	-	Fiscal policies (taxes and expenditures)

<sup>a</sup>The factors listed include only major ones affecting resource flows. Note also that government services are generally not marketed and therefore, have no market value.

The penalty actually comes in two forms. First, with respect to trade with the world, it shows up explicitly in tax revenue (export taxes and customs duties). Second, in the case of domestic trade, the penalty is an implicit tax involving transfers through market price distortions. If price intervention policies were eliminated, there would then be no implicit taxes. In the case of explicit taxes, however, it is assumed that the government will impose some other taxes on agriculture to make up for the loss in revenue.<sup>8</sup> This is necessary since the model used to measure the impact of price policies on capital flows requires holding the financial flow constant while asking what is the difference in real resources that would be needed to effect this financial transfer under distorted and undistorted prices.<sup>9</sup>

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<sup>8</sup> The correspondence might not be exact but this seems to be preferable to assuming  $T_a$  would decline.

<sup>9</sup> The model is due to Prof. John H. Power. The financial transfer may not be the same under the two sets of prices. In any case, the simplifying assumption of a constant financial transfer provides an indication of the significance of price intervention policies.

The model may be outlined briefly as follows

$$(3) \quad F = F_d + F_f$$

where net capital outflow consists of the domestic trade and foreign trade components,  $F_d$  and  $F_f$ , respectively. All these are the actual flows or those under distorted prices. Now, since distortions due to price intervention policies arise only in domestic trade, then

$$(4) \quad F_d = \hat{F}_d + T_1$$

$\hat{F}_d$  is the flow that would have occurred if there had been no such policies (or the flow under undistorted prices).  $T_1$  is the implicit tax or the portion of  $F_d$  attributable to price distortions. Substituting equation (4) into equation (3) yields

$$(5) \quad F = \hat{F}_d + T_1 + F_f$$

To estimate equation (5), each component of  $F$  in real terms at undistorted prices is decomposed into a corresponding real flow at distorted prices and a measure of implicit tax. Let  $x$  be a component and  $p$  and  $\hat{p}$  be the distorted and undistorted prices, respectively. Then, the real value of  $x$  under undistorted prices can be expressed as

$$(6) \quad \frac{x}{\hat{p}} = \frac{x}{p} \frac{p}{\hat{p}} = \frac{x}{p} \left( 1 + \frac{p - \hat{p}}{\hat{p}} \right)$$

Note that the second term in parentheses corresponds to the nominal rate of protection (NPR) or implicit tariff (IT). The NPR and IT are measures of the wedge between domestic (distorted) prices and border prices, or the price distortion due to policy.<sup>10</sup> The implicit tax is then  $x/p$  multiplied by NPR or IT. This is aggregated for all components to arrive at the total amount of implicit taxes ( $T_1$ ).

Estimation is done only for 1974 using average NPR's for 1970-1980 taken from David (1982a) and 1974 IT's from Medalla and Power (1979). The former are derived by direct price comparison while the latter are based on the structure of tariffs and indirect taxes which has not changed significantly during the 1970's. Thus, the estimates may be taken as indicative of the conditions during this period. It should be noted also that the relevant flow used is net agricultural trade surplus since government expenditures on agriculture ( $G_a$ ) are not marketed and therefore have no prices.

The results of the exercise are shown in Table 4. It appears that the distortion created by price intervention policies measured

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<sup>10</sup>In NPR and IT estimation, the border (world) price is used to approximate the undistorted price ( $\hat{p}$ ). NPR is used in the case of agricultural sales and IT for agricultural purchases from non-agriculture. For further discussion, see Appendix and also David (1982b).



Table 4 Estimates of the levels of implicit taxes due to price intervention policies, 1974 (in million pesos at constant 1972 prices)<sup>a</sup>

FLOW	UNDISTORTED CAPITAL FLOWS	IMPLICIT TAX	PERCENT DISTRIBUTION
A Total Outflows	13,135	61	1.7
Agric'l sales of consumer and intermediate goods to non- agriculture	13,135	61	
Agric'l exports of consumer and intermediate goods			
B 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 Outflow	-2,144	3,514	100.0

<sup>a</sup>Based on capital flows net of government expenditures on agriculture (G<sub>a</sub>)

Sources of basic data: NEDA 1974 Inter-Industry (Input-Output) Accounts of the Philippines (Manila, 1979) and computer print out of the 1974 import matrix

in terms of the implicit tax has been quite significant. In fact, the estimates indicate that agriculture would have benefitted from private capital inflows<sup>11</sup> had there been no such price-distorting policies. It is also observed that almost all of the distortions came from the high protection of goods that agriculture buys (98 percent of total implicit taxes). This is mostly accounted for by manufactured consumer goods. In general, therefore, agriculture is found to receive negative protection, i.e., it was being implicitly taxed in terms of lower agriculture prices relative to those of non-agriculture. The net effect has been to increase the flow of capital out of the sector relative to what the condition would have been in the absence of these policies.

Recall that the net capital outflow for 1974, calculated above at distorted prices, was -2,990 million pesos — i.e., a capital inflow. The implicit tax, measuring the real burden of the price distortions, exceeds this, however, by more than 500 million pesos, indicating a real capital outflow instead of the measured capital inflow. Since the measured inflows for 1969 and 1978 are much smaller, we can be certain that they also would be swamped by the implicit taxes for those years. Moreover, the measured outflows for the earlier years would have been much greater.

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<sup>11</sup> i.e., the net capital flow minus  $G_a$

SOME IMPLICATIONS ON BALANCED  
AGRO-INDUSTRIAL DEVELOPMENT

Under the standard model of economic development, agriculture's role is seen as providing resources (agricultural surplus) for capital formation in the rest of the economy<sup>12</sup> This view has been challenged on the grounds that agriculture based on modern (chemical-biological) technologies require massive capital inflows<sup>13</sup> Providing a synthesis, Mellor (1967) argues that although the decline of agriculture and growth of non-agriculture is inevitable in development, maximizing short-run capital outflows from agriculture does not necessarily lead to maximum economic growth Agriculture must be seen as an important source of growth requiring a major inflow of certain forms of capital What seems to be implied here is that, in the long run, high levels of economic growth cannot be sustained without first, or at the same time, modernizing agriculture But what has been the Philippine experience?

Philippine postwar development has been centered on an unbalanced growth strategy This involved promoting industrialization via protection of the domestic market Accordingly, among the policies adopted to implement this strategy were quantitative import controls, an overvalued currency, low long term interest rates, and specialized incentives to foreign investors Agriculture, then, was relegated to a supporting role, i.e. to supplying foreign exchange, cheap food, and capital resources

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<sup>12</sup>Agriculture's other "contributions" include providing food for an increasing non-agricultural labor force, earning foreign exchange, and serving as an expanding market for domestic manufacturing (see Johnston and Mellor, 1961)

<sup>13</sup>See, for example, Ishikawa (1967) and Ruttan (1968)

While high rates of industrial growth averaging about 10 percent were recorded during 1950-1960, it became apparent that such rates could not be sustained and the strategy led to several imbalances in the economy. The latter included chronic balance of payments difficulties, periodic food crises, slow employment growth and uneven income distribution. Thus, by the 1960's the government started to dismantle the elaborate structure of economic controls.<sup>14</sup> The basic structure of tariffs, incentives, subsidies, and other price distorting factors, however, remains.

The apparent neglect of agriculture during this period is reflected in the uneven growth of the sector (see Table 5). The relative high growth rates in the early 1950's averaging about 7 percent were due largely to the postwar expansion of the U.S. market and the Korean War which increased demand for export crops.<sup>15</sup> The rate of private capital outflow was minimal. The end of the Korean War and the gradual imposition of tariffs and marketing quotas by the U.S. on certain previously favored exports showed more clearly the adverse impact

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<sup>14</sup>Restructuring included relaxing exchange controls (decontrol) and devaluation in 1960-1962, further devaluation in 1970, and tariff realignment in 1972. For a more detailed discussion, see for instance, Baldwin (1975) and Power and Sicat (1971).

<sup>15</sup>See David and Barker (1979).

Table 5 Average annual real growth rates of agricultural gross value added and net agricultural trade surplus, 1951-1974 (in percent)

PERIOD	AGRICULTURAL GVA	NET AGRICULTURAL TRADE SURPLUS <sup>a</sup>
1951-1955	7.1	0.1
1956-1960	3.9	4.7
1961-1965	2.8	5.1
1965-1974	4.4	-2.0
1975-1980	5.3	-

<sup>a</sup>Due to the preliminary nature of the I-O table for 1978, the estimate of net trade surplus for this year has been omitted. Thus, the growth rates cover only the period 1951-1974.

Source of basic data: Same as Table 1.

of protection measures employed to speed up industrialization. Resource flows out of agriculture increased significantly and overall growth of the sector was at much lower levels. The effects of efforts to move away from import-substituting policies, the introduction of new rice technology, and the general improvement in the agricultural terms of trade during 1965-1975 contributed to a decline in capital outflows and consequent attainment of respectable growth rates in agriculture.

The significant magnitude of net capital flows out of agriculture may have long run consequences also on income distribution. This will be the case if the rate of capital outflow is not at least matched by an equivalent rate of labor outflow. Using a crude measure, estimates of labor outflows from agriculture are shown in Table 6.<sup>16</sup>

Agriculture experienced cumulative net labor inflows before 1960 and in the early 1970s. This pattern is consistent with the sources of agricultural growth during these periods. In the early postwar

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<sup>16</sup>The method involves comparing the actual number of agricultural workers with what the number would be if there were no sectoral transfers. The latter is defined to be the 'natural level', i.e., the number resulting only from changes in births and deaths and in the labor force participation rate. The natural growth rate was estimated at 2.8 percent for 1957-1974. Later years were not considered because of significant changes in the survey procedures after 1974 (see de Leon, 1982b).

Table 6 Net labor flows and net private capital flows between agriculture and non-agriculture, 1957-1974

YEAR	AGRICULTURAL EMPLOYMENT		NET LABOR FLOWS <sup>c</sup> Cumulative (1000)	NET PRIVATE CAPITAL FLOWS <sup>d</sup> Cumulative (Million ₱, 1972 Prices)	K FLOWS L FLOWS (₱1000 per worker)
	Natural <sup>a</sup> (1000)	Actual <sup>b</sup> (1000)			
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 <sup>e</sup>
1971	6,882	6,321	561	27,873	54 <sup>e</sup>
1974	7,476	7,681	-208	31,191	-

<sup>a</sup> Natural growth rate is assumed to be 2.8 percent (see de Leon, 1982b)

<sup>b</sup> The reference month is October except for 1971 which is November and 1974 (1st quarter)

<sup>c</sup> Derived as natural minus actual employment in agriculture

<sup>d</sup> Note that the annual flows are two-year averages to account for the timing problem (labor surveys are done sometime in the year). They refer to the  $(S_a - I_a)$  portion of the financial transfers

<sup>e</sup> 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

Sources of basic data: NEDA, Philippine Statistical Yearbook (Manila, 1980) and NCSO Integrated Survey of Households (Manila, 19 ) for employment data, de Leon (1982b) for net private capital flows

years, agricultural growth was explained mostly by expansion of land which required substantial amounts of labor<sup>17</sup> By the 1950s, the main source of growth was increases in yield with the land frontier closing and this meant a relatively lower labor absorption Accordingly, labor shifts out of agriculture were experienced in the 1960's The reversal of labor flows in the last decade may be attributed to irrigation investments which increased cropping intensity, the new-seed fertilizer technology, and generally, more favorable prices of export crops at least in the early period

But apart from these, it may be surmised that the limited labor absorption in non-agriculture, particularly industry, was a major factor in keeping the growing labor force in agriculture One of the consequences arising out of the import substitution in manufacturing behind heavy protection in the 1950's and 1960's was the overemphasis on large-scale capital-intensive technology An ILO study estimated the capital-labor ratio in all manufacturing at \$23 thousand per worker in 1969 prices The estimates in Table 6 show that even in years when the net labor outflow was positive, the net private capital outflow per worker transferred was far greater than this average

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<sup>17</sup> See David and Barker (1979)



Another view of this apparent imbalance in the economy is in terms of the resource burden shouldered by agriculture vis-a-vis that of non-agriculture. The conventional wisdom is that agriculture is a lightly taxed sector. This seems to be the case if only explicit taxes are considered. Table 7 shows that the explicit taxes paid by agriculture in 1974 amounted to only 7 percent of agricultural gross value added<sup>18</sup>. The comparative figure for non-agriculture is 18 percent. But, as shown earlier, agriculture is also being implicitly taxed via the effects of price intervention policies on domestic trade. This is estimated conservatively at 20 percent of agricultural gross value added<sup>19</sup>. Thus, total effective tax paid by agriculture is almost 30 percent of its GVA.

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<sup>18</sup> Estimates of explicit taxes on agriculture including export taxes are based on a study by Macaranas (1975) and updated in de Leon (1982b).

<sup>19</sup> This excludes the portion of the negative protection due to the coconut levy, sugar pricing, and log export ban where no revenues accrue to the government but are nevertheless implicit taxes paid by producers. They are not included in the estimate of implicit tax on domestic trade. The ratio is consistent with the 10-20 percent or more cited in the studies of Little, Scitovsky, and Scott and 10-15 percent in studies on Pakistan (see Lewis, 1973).

Table 7 Selected indicators of the real resource burden of agriculture and non-agriculture 1971 (in percent)

INDICATOR	RATIO
1 Implicit tax on agriculture to gross value added in agriculture	26.1
2 Implicit subsidy to non-agriculture to gross value added in non-agriculture	1.5
3 Explicit taxes on agriculture to gross value added in agriculture	1.3
4 Explicit taxes on non-agriculture to gross value added in non-agriculture	18.3

Sources of basic data: Tables 1 and 4, Macaranas (1975) and de Leon (1982b)

The implicit taxes paid by agriculture are direct resource transfers to consumers of agricultural products and producers of non-agricultural commodities purchased by agriculture. They are in effect, implicit subsidies from the viewpoint of non-agriculture. As a proportion of non-agricultural GVA, these would amount to over 7 percent. Thus, the total effective tax (net of these implicit subsidies) of non-agriculture as a ratio of its GVA is only about 11 percent.

#### SUMMARY AND CONCLUSION

The findings presented above indicate that over the past two decades, agriculture provided net capital flows to the rest of the economy. While the direction is consistent with the standard development model as borne out also by experiences of other countries (e.g., Japan and Taiwan), the magnitude of the flows may have been quite substantial considering the stage of growth the Philippines is in. It was suggested that the price intervention policies adopted prior to the 1970s to promote industrialization via protection and the increasing regulation of the agricultural sector in the last decade have unduly accelerated these flows. The latter includes undervaluation of exportable products (e.g., sugar, coconuts, and logs) through export taxes, export quotas, and special levies, and government monopoly of marketing.

The general incentive structure resulting from the significant bias against agriculture may not have been conducive to optimal growth. Moreover, the mismatch in labor and capital flows due largely to excessively capital-intensive investments in the industrial sector has forced agriculture to absorb more than its natural growth of labor. This has had adverse effects on agricultural productivity and real incomes.

In recent years, of course, the government has tried to adopt a more balanced growth strategy as reflected in the past and current national development plans. Accordingly, policies have been directed towards export promotion, development of small-scale labor-intensive industries, regionalization, tariff and interest rate reforms, and increasing government expenditures on agriculture, particularly, for irrigation, agricultural credit, rural roads and rural electrification.<sup>20</sup> These expenditure programs may be viewed as compensating agriculture for the adverse effects resulting from price intervention policies. Two points may be raised in this regard. The first is the observation that government expenditures on agriculture in real terms may have been declining in recent years. The second is to question whether these compensatory policies neutralize the disincentive effects of the distortions due to government price policies.

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<sup>20</sup>See, for instance, de Leon (1982a)

The general objective of promoting industrialization is not the problem. What is at issue is the set of policy instruments used to achieve this objective. From the viewpoint of adopting a strategy of balanced agro-industrial development, the need to reduce price distortions in the economy should be an important consideration in determining an efficient policy framework for the overall resource allocation activities of the public sector.

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## APPENDIX

## Definition of Selected Terms Used

**AGRICULTURAL TERMS OF TRADE** is the ratio of the agricultural price index to the index of non-agricultural prices. Empirically, the implicit price deflator for net domestic product of agriculture, fishery, and forestry is used for the former. For the latter, the value-weighted average of the implicit price deflator for net domestic product of the industrial and services sectors is employed.

**EXPLICIT TAXES** are those collected by the government through the formal tax system. Examples are income taxes, export taxes, and customs duties.

**IMPLICIT TAXES** are direct resource transfers between sectors that result from a distortion of relative prices due to price intervention policies. For instance, if a particular policy such as price control artificially reduces prices of agricultural goods relative to those of non-agriculture, agriculture will, in effect, need to trade more in real goods and services for a certain amount of non-agricultural goods. To non-agriculture, this will be equivalent to an implicit subsidy. These taxes are not, therefore, the same as explicit taxes in the sense that they are not levied and collected by the government.

**NOMINAL PROTECTION RATE (NPR)** and **IMPLICIT TARIFF (IT)** are measures of the wedge created between domestic and world (border) prices due to price intervention policies. They are expressed symbolically as

$$\text{NPR} = \left[ \frac{P_d^0}{P_b^0} - 1 \right] \times 100 \quad \text{IT} = \left[ \frac{P_d^1}{P_b^1} - 1 \right] \times 100$$

where  $P_d$  and  $P_b$  denote domestic and border prices, respectively, and subscripts 0 and 1 refer to output



and inputs. A distinction is made between NPR and IT because government policies often create a difference in the domestic price from the viewpoint of the producer and that of the user of the same product. This is not the case for border price.

Tariffs and other forms of import controls (e.g., quotas and licensing) raise domestic over border prices resulting in positive NPR's and IT's. On the other hand, export taxes and quotas, price controls and other export restrictions reduce domestic relative to border price and therefore, NPR and IT will be negative. A negative NPR is a disincentive to agricultural production while a negative IT on agricultural input provides an incentive.



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