AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523

BIBLIOGRAPHIC INPUT SHEET

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Batch 67

1. SUBJECT CLASSIFICATION
A. PRIMARY
TEMPORARY
B. SECONDARY

2. TITLE AND SUBTITLE
Internal and external terms of trade in post-war Philippines

3. AUTHOR(S)
Tryon, J.L.

4. DOCUMENT DATE	5. NUMBER OF PAGES	6. ARC NUMBER
1967	23p.	ARC

7. REFERENCE ORGANIZATION NAME AND ADDRESS
NPA

8. SUPPLEMENTARY NOTES (Sponsoring Organization, Publishers, Availability)
(In Working paper M-9027)
(In Field work rpt.no.14)

9. ABSTRACT
(ECONOMICS R&D)

10. CONTROL NUMBER
PN-AAE-919

11. PRICE OF DOCUMENT

12. DESCRIPTORS

13. PROJECT NUMBER

14. CONTRACT NUMBER
Repas-9 Res.

15. TYPE OF DOCUMENT

AID 590-1 (4-74)

Repro - 9 Rec
NPA PN-AAE-219

INTERNAL AND EXTERNAL TERMS OF TRADE IN POST-WAR PHILIPPINES

by

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Field Work Report #14

April, 1967
M-9027

This paper presents the results of an inquiry into the causes and consequences of changes in both the external and internal terms of trade of the Philippines. Changes in both kinds of terms of trade will have significant effects on the development of a country. It is within the development context that changes in the two types of terms of trade are studied.

The phrase external terms of trade, as used in this paper, refers to the conventional international trade definition of terms of trade, the ratio of export prices to import prices. The phrase internal terms of trade refers to the ratio of the prices of goods traded between the agricultural sector and the rest of the domestic economy. Changes in external terms of trade will result in the redistribution of income between a country and the rest of the world while changes in internal terms of trade have a similar effect between domestic sectors. Both can have important consequences for the development of a country.

Let us first consider the effects of changes in the external terms of trade. Tables I and II present the pertinent data.

Table I shows the price indexes for imports and exports in U. S. dollars and the resulting terms of trade. The terms-of-trade pattern shows a decline from 1950 to 1955, relative stability from 1955 to 1960, a sharp drop between 1960 and 1961, and a slow decline from 1961 to 1965. While rises in import prices and declines in export prices have both contributed to the deterioration of the terms of trade, the import price rise has clearly been the dominant factor.

Two comments about the terms-of-trade data are in order. First, 1950 can be criticized as the base year since the last months of that year were affected by the Korean War boom. This is true, but earlier years appear to be no better. In 1949, Philippine trade was seriously affected by the recession in the United States, yielding terms of trade of 68 for 1949 (with 1950 as 100). Thus, 1949 is so different from other years that it would be completely unsuitable as a base. The terms-of-trade index in 1948 was 103 (with 1950 as 100). Hence, using 1948 as a base would make little practical difference in the results. The immediate postwar years 1946 and 1947 and pre-war years were ruled out because of the dislocations of World War II. The year 1950, therefore, seems to be as good a choice as any for a starting point in this study.

The second comment deals with the exchange controls that existed in the Philippines over the period 1949 to 1965. The Central Bank of the Philippines was organized in 1949, and some exchange controls were then put into effect. The official exchange rate was ₱2:$1, and this rate was fairly close to the free market rate in the early 1950s. The controls in those years were relatively mild. By 1955 the free market rate had reached approximately 3:1, and controls became progressively more strict as the peso weakened. Decontrol was started on a piecemeal basis in 1960, with multiple rates prevailing for a while. The big break was in 1962 when the official rate was set at the prevailing market rate, 3.9:1. However, a system of partial retention of export dollar proceeds made the effective official rate only 3.5:1 for exports. To confuse the picture even more, a great deal of

TABLE I

INDEXES OF PHILIPPINE MERCHANDISE IMPORT AND EXPORT PRICES, TERMS OF TRADE, AND MERCHANDISE IMPORT AND EXPORT QUANTITIES (1950 = 100)

	(1) Import Prices (c.i.f.)	(2) Export Prices (f.o.b.)	(3) Net Terms of Trade (2)/(1)	(4) Import Quantum	(5) Export Quantum
1950	100.0	100.0	100.0	100.0	100.0
1951	112.8	106.7	94.5	124.9	112.2
1952	111.1	84.0	75.7	113.3	125.1
1953	106.0	102.6	96.8	125.2	117.0
1954	101.4	91.1	89.8	138.4	129.9
1955	101.4	83.5	82.4	156.7	141.6
1956	102.8	84.7	82.4	144.4	158.1
1957	106.1	85.9	80.9	171.0	148.3
1958	108.5	89.3	82.3	151.1	163.7
1959	110.8	96.8	87.4	136.7	162.5
1960	113.1	95.3	84.3	151.2	174.5
1961	114.8	87.7	76.4	155.2	168.8
1962	117.0	88.7	75.8	146.9	185.0
1963	123.7	93.7	75.5	145.8	229.9
1964	125.9	92.6	73.6	178.5	235.6
1965	128.0	94.2	73.6	183.5	241.8

Source: Central Bank, Economic Indicators, Vol. XVII, No. 2, December 1965. (The base year has been shifted from 1955 to 1950.)

technical smuggling and outright smuggling is known to have occurred as the controls became tighter.[1] Hence, an accurate picture of the effective exchange rate changes is difficult to put together. Controls were finally dropped completely in late 1965, and the peso remained steady at approximately 3.9:1 through the end of 1966. This fact suggests that one can at least take 3.9:1 as the effective rate from 1962 to 1966.

Some observers have considered the decline in the terms of trade since 1961 to have been the result of the devaluation and lifting of exchange controls, as described above. The lifting of controls appears, however, to have been a minor cause in this decline. While Philippine supplies of copra and possibly tropical hardwoods might have affected world prices, the world supplies of these exports and their close substitutes were not significantly affected by devaluation. Thus the trend in world prices of Philippine exports would have occurred, regardless of the exchange rate. On the import side, the Philippines is surely not a large enough market to affect world prices significantly. It seems unlikely that the devaluation was a major factor in the deterioration of the terms of trade.

While the policies of control and decontrol seem to have had little impact on the external terms of trade, they have had very significant effects

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[1]Smuggling is known to have been particularly bad in 1961. The correct figure for the export quantum index could easily be more than ten per cent above the figure shown in Table I.

on Philippine economic development. Our interest in this paper is to assess the effects of changes in the terms of trade on development. Hence, the history of controls should be kept in mind when attempting to analyze the pattern of Philippine development.

We now turn to the question of how the deterioration of the terms of trade has affected the growth of the Philippines. Table II presents the pertinent information. Column 1 shows gross national product and column 2 the value of exports, both in 1955 prices.

Column 4 shows the so-called terms-of-trade effect.[2] The terms-of-trade effect is a measure of the gain or loss in the purchasing power of exports as a result of changes in the terms of trade from some base period. As such, it shows how much should be added to or subtracted from constant price GNP because of changes in the terms of trade to determine the constant price value of goods and services which are actually available to a country.[3] The terms-of-trade effect is calculated by multiplying constant value exports by the change in the terms of trade from the base year. As shown in column 3, in the Philippines the terms of trade had deteriorated in every successive year in comparison with the base year, 1950. Hence, the terms-of-trade effect was consistently negative.

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[2]See Joseph L. Tryon, "Intersectoral Flows and Capital Transfers," Field Work Report #11, Center for Development Planning, September 1966, pp. 3-8, and United Nations Economic Commission for Latin America, Economic Survey of Latin America, 1951-1952, p. 7ff.

[3]GNP measures what is produced by the nationals of a country. It includes exports and excludes imports. The goods and services actually available for final use by a country will, of course, exclude exports and include imports. The terms-of-trade effect adjusts exports in constant domestic prices for changes in their international purchasing power.

TABLE II

PHILIPPINE GROSS NATIONAL PRODUCT, EXPORTS AND GROSS PRODUCT AVAILABLE
(Millions of pesos, 1955 prices)

Year	(1) Gross National Product	(2) Merchandise Exports	(3) Change in Terms of Trade	(4) Terms of Trade Effect (2) X (3)	(5) Gross Product Available (1) + (4)
1950	6,228	₱ 848	-	₱ -	6,228
1951	6,523	952	- 5.5%	- 52	6,471
1952	7,093	1,061	-24.3	-258	6,835
1953	7,646	993	- 3.2	- 32	7,614
1954	8,058	1,102	-10.2	-112	7,946
1955	8,687	1,202	-17.6	-212	8,475
1956	9,379	1,341	-17.6	-236	9,143
1957	9,707	1,258	-19.1	-240	9,467
1958	9,888	1,389	-17.7	-246	9,642
1959	10,514	1,379	-12.6	-174	10,340
1960	10,804	1,481	-15.7	-233	10,571
1961	11,431	1,433	-23.6	-338	11,093
1962	11,832	1,570	-24.2	-380	11,452
1963	12,457	1,951	-24.5	-478	11,979
1964	12,967	1,999	-26.4	-528	12,439
1965	13,670	2,051	-26.4	-542	13,128

Sources: Column (1): National Economic Council, Statistical Reporter, Volumes III, VI - X.

Column (2): Obtained by multiplying the export quantum index with 1955 = 100 by ₱1,202, the approximate peso value of 1955 exports. The ₱1,202 multiplier is the Central Bank estimate of 1955 exports in dollars multiplied by the approximate free market exchange rate in 1955, ₱3 = $1.

Column (3): Table I.

Adjusting GNP for the terms-of-trade effect provides what might be called gross product available, or GPA. The GPA is shown in column 5.

The significance of the terms-of-trade effect can be best appreciated by comparing the growth rates of the two series. Over the period 1950-1965, GNP in 1955 prices grew at 5.4% annually. The GPA growth rate was only 5.1%. In other words, the deterioration in terms of trade cut the real growth rate of goods and services available to the nation from 5.4% to 5.1%. The 0.3% difference is a reduction in the growth rate of over five per cent. By 1965 the gross product available was more than half a billion pesos less, or about four per cent less, than it would have been had the terms of trade remained constant.

If one considers the effects on growth of per capita GNP, the picture is more striking.[4] Population grew at approximately 3.2% annually. This gives a growth rate of per capita GNP of 2.2% and of per capita GPA of 1.9%. The growth rate of per capita GPA was thus nearly sixteen per cent less than it would have been with no deterioration in the terms of trade. Clearly, the deterioration has had a significant effect on growth of the Philippine economy.

One further point should be made about the terms-of-trade effect. What is one country's loss (gain) is the rest of the world's gain (loss). The terms-of-trade effect measures the redistribution of income between one

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[4]This point was suggested to me by Hans W. Singer.

country and its trading partners. In the Philippine case, the nation's real income was reduced by the amount of the terms-of-trade effect, and the real income of its trading partners--principally the United States, Japan, and Northwestern Europe--was increased by an offsetting amount.

Let us now transfer the discussion to the internal terms of trade of the Philippines. Here we will find that there have been significant changes in the distribution of income between sectors, and these changes reflect important problems in the growth of the nation's economy.

The sectors which will be used for analyzing the internal terms of trade are agriculture and non-agriculture (i.e., the rest of the economy). Agriculture, as used here, is Division 0 of the ISIC, Agriculture, Forestry, Hunting, and Fishing.[5] Non-agriculture covers the remaining divisions, 1-9, including government.

The argument as developed for the Philippines vis-a-vis the rest of the world can now be recast to fit the trade between the two sectors of the economy, agriculture and non-agriculture. Each sector will have its share of gross product originating and, after trade between the two sectors has been taken into account, each will have its share of the gross product available. If the terms of trade between the two sectors have not changed, the growth rates of each sector's gross product originating and gross product

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[5]United Nations, International Standard Industrial Classification of All Economic Activities, New York, 1958.

available will be the same. If, however, the terms of trade between the sectors have changed, the growth rate of gross product available will be greater than that of the gross product originating for the sector favored by the terms-of-trade shift, and the other sector's gross product available will grow more slowly than its gross product originating.[6]

The calculations for determining gross product available for a sector are the same as those for an economy.[7] The terms-of-trade effect is the constant price volume of exports times the change in the terms of trade from the base period. The adjustment will be the same size but of opposite sign for the two sectors. As long as external trade is ignored, the economy as a whole neither gains nor loses; what is gained by one sector is lost by the other.

Before calculating the internal terms-of-trade effect, it is necessary to know the volume of trade between the two sectors and the relative price behavior of the flows in each direction. The principal categories of trade between agriculture and non-agriculture are as follows:

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[6] In order to have a complete picture of how product originating and product available are changing, we should take all of a sector's trade into account, i.e., not just trade with the other sector but also with the rest of the world. This complication will be considered later; for the present, only the effects of internal trade will be taken into account.

[7] See Joseph L. Tryon, "Intersectoral Flows and Capital Transfers," Field Work Report #11, Center for Development Planning, September 1966.

From agriculture to non-agriculture

1. Agricultural goods consumed by non-agricultural households (mostly food).

2. Agricultural goods utilized by non-agriculture as raw materials for non-agricultural production.

From non-agriculture to agriculture[8]

1. Industrial goods and services consumed by agricultural households.

2. Industrial goods used as current inputs to agricultural production (mostly fertilizers and insecticides).

3. Services of the non-agriculture sector used in processing and marketing agricultural products.

Price indexes of these flows are given in Table III. In this table, column 3 is the price index of the goods that agriculture "exports" to the rest of the economy and column 7, the price index of the goods and services that agriculture "imports" from the rest of the economy. Dividing column 3 by column 7 thus gives the internal terms of trade from the viewpoint of agriculture.

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[8]Missing from the flows of goods and services from non-agriculture to agriculture are industrial goods used as capital inputs to agriculture. While this flow is undoubtedly important for certain products of the agricultural sector, it was not possible to make estimates of it. Capital goods purchased from non-agriculture are probably significant in fishing (ships and fishing equipment) and forestry (logging equipment). They should be less important for most agricultural crops and livestock since production of these products is generally not mechanized. Considerable capital investment takes place in the form of land clearing, construction of small buildings, and raising of draft animals, but the bulk of these activities takes place within the sector and is not purchased outside agriculture. The omission of the capital goods flow into agriculture thus probably does not seriously affect the results of this study.

TABLE III

PRICE INDEXES FOR AGRICULTURE AND NON-AGRICULTURE
(1950 = 100)

	(1) Agricultural Consumption Goods	(2) Agricultural Raw Materials for Industry	(3) All Agric. Goods to Non-Agric.	(4) Industrial Consumption Goods and Services	(5) Industrial Goods as Inputs to Agriculture	(6) Industrial Processing & Marketing of Agric. Goods	(7) All Industrial Goods and Services to Agriculture	(8) Terms of Trade for Agriculture (3) ÷ (7)
1950	100	100	100	100	100	100	100	100
1951	107	98	104	109	100	104	107	97
1952	103	94	99	100	94	99	100	99
1953	97	105	100	99	73	100	99	101
1954	96	100	98	97	60	98	97	101
1955	95	95	95	96	59	95	95	100
1956	98	98	98	98	67	98	97	101
1957	101	102	102	98	67	102	99	103
1958	108	108	108	99	67	108	102	106
1959	103	112	107	101	68	107	102	105
1960	110	120	114	103	68	114	106	108
1961	113	139	123	104	72	123	110	112
1962	121	173	141	108	80	141	119	118
1963	133	221	167	109	83	167	130	128
1964	150	191	166	103	86	166	125	133
1965	153	188	167	117	101	167	135	124

Sources: Columns (1) and (4): Consumer Price Index (Central Bank, Statistical Bulletin).

Column (2): Export wholesale prices (Central Bank, Statistical Bulletin).

Column (5): Based on averages of weekly price quotations of Bureau of Commerce.

Column (6): Based on calculations of margins for principal crops. Farm values of these crops were from Bureau of Agricultural Economics, Department of Agriculture and Natural Resources. Values after processing and marketing were from Bureau of Commerce price quotations and Bureau of the Census and Statistics export data.

TABLE IV

GROSS PRODUCT ORIGINATING AND GROSS PRODUCT AVAILABLE IN THE AGRICULTURE AND NON-AGRICULTURE SECTORS OF THE PHILIPPINE ECONOMY, 1950-1965
(Millions of pesos, 1955 prices)

	Gross Product Originating in Agric.	Gross Product Originating in Non-Agric.	Gross National Product	Terms of Trade Between Agriculture & Non-Agric.	Goods & Services Flow from Agriculture to Non-Agric.*	Internal Terms of Trade Effect	Gross Product Available in Agriculture	Gross Product Available in Non-Agric.
1950	2,292	3,936	6,228	100	747	0	2,292	3,936
1951	2,533	3,995	6,528	97	882	-26	2,507	4,021
1952	2,688	4,405	7,093	99	914	- 9	2,679	4,414
1953	2,997	4,649	7,646	101	1,007	10	3,007	4,639
1954	3,146	4,912	8,058	101	1,080	11	3,157	4,901
1955	3,273	5,414	8,687	100	1,102	0	3,273	5,414
1956	3,300	6,079	9,379	101	1,111	11	3,311	6,068
1957	3,358	6,349	9,707	103	1,184	36	3,394	6,313
1958	3,498	6,390	9,888	106	1,284	77	3,575	6,313
1959	3,335	7,179	10,514	105	1,346	67	3,402	7,112
1960	3,209	7,595	10,804	108	1,343	107	3,316	7,488
1961	3,377	8,054	11,431	112	1,389	167	3,544	7,887
1962	3,478	8,354	11,832	118	1,491	268	3,746	8,086
1963	3,647	8,810	12,457	123	1,530	428	4,075	8,382
1964	3,569	9,398	12,967	133	1,614	533	4,102	8,865
1965	3,753	9,917	13,670	124	1,689	405	4,158	9,512

*These data are preliminary estimates. They are based on output figures which, according to the National Economic Council data, account for only two-thirds to five-sixths of national income originating in agriculture. If the NEC data are correct, the flow to non-agriculture would be somewhat larger.

Sources: National Economic Council, Statistical Reporter; unpublished estimates of J. L. Tryon. (See fn. 1.)

Table IV presents estimates of the shares of GNP in 1955 prices originating in agriculture and non-agriculture. The division of GNP between these two sectors is admittedly rough. The national income statistics of the Philippines are estimated on the basis of industrial origin and one would expect that the sectoral breakdown would be fairly accurate. Some conflict with other data suggests, however, that the estimates of national income by industrial origin must be assumed to have significant errors. Fortunately, only a very rough indication of the agriculture- non-agriculture split is necessary for our purposes, and the data seem sufficiently accurate for this study.

Column 4 of Table IV presents the internal terms of trade for agriculture with 1950 as 100. Column 5 gives the total constant price (1955 prices) flow of agricultural goods to non-agriculture (the flow corresponding to exports for the economy as a whole when external terms of trade are being considered). The so-called terms-of-trade effect will be the change in the terms of trade from the base year times the constant price flow from agriculture to non-agriculture. This is given in column 6.

The terms-of-trade effect can be used, as before, to adjust gross product originating to get gross product available. The effect was positive or zero for all years except 1951 and 1952. Hence, the correction to product originating in agriculture is neutral or an addition in all but these two years. For the non-agriculture sector the opposite is true. What is gained by agriculture is lost by non-agriculture. Hence, the correction for non-agriculture has been a reduction or zero in all years except 1951 and 1952.

Within a single economy the terms-of-trade effect can perhaps best be interpreted as a redistribution of income because of changes in the relative prices of the two sectors. In this sense, the gross product available in each sector is its real income. These figures are shown in columns 7 and 8 of Table IV. Over the period 1950-1956 the redistribution of income was practically negligible. From 1957 to 1960 there appears to be a slow shift in favor of agriculture, and from 1960 to 1965 the shift accelerated. An interesting question is raised by the coincidence of the latter phase with the decontrol period; i.e., did decontrol accelerate the shift in terms of trade toward agriculture's favor?

Table V shows the effect of the change in internal terms of trade on the growth rates of gross product originating and gross product available in the two sectors. In the earlier period agriculture and non-agriculture grew rapidly together, and the relationship between prices in the two sectors did not change markedly. In the 1956-60 period agricultural production lagged seriously; at the same time, the terms of trade began to shift slowly in favor of agriculture. Evidently the shift of the terms of trade in favor of agriculture was the result of aggregate demand (and output), particularly the industrial component, rising faster than agricultural output. In the last period, 1960-65, agricultural output had begun to grow again, and one would have expected that this rise would have moderated the shift in the terms of trade. However, during this period the terms of trade shifted even more rapidly in favor of agriculture than before. The reason for this development is still obscure, but divergent growth rates among the components of agricultural output may be part of the explanation.

TABLE V

GROWTH RATES OF SECTORAL GROSS PRODUCT ORIGINATING
AND GROSS PRODUCT AVAILABLE
(Per cent per Year)

	1950-1956	1956-1960	1960-1965	1950-1965
Gross National Product	7.1%	3.6%	4.8%	5.4%
Gross Product Originating				
Agriculture	6.3	-0.7	3.2	3.4
Non-Agriculture	7.5	5.7	5.5	6.4
Gross Product Available				
Agriculture	6.3	*	4.6	4.1
Non-Agriculture	7.5	5.4	4.9	6.1

*Less than 0.1%

The largest contribution to growth in output in agriculture in this period came from products exported to the rest of the world. Growth in food output was relatively slow. Thus the 3.2% growth rate in agricultural gross product for 1960-65 is not growth of food output in response to food price increases but rather growth in export products. The food flow from agriculture grew relatively slow.[9]. As a result, food prices rose. Evidently food output and productivity have been relatively unresponsive to the increased demand which has accompanied growth in GNP and population.

Why has food output been unresponsive to price increases? Rice is by far the most important food crop, and its behavior dominates the pattern of food production.[10] Two major reasons can be suggested for the apparent unresponsiveness of rice output to price increases. The first is the fact that the prices of crops that compete with rice for hectarage have risen more rapidly than rice prices over the period 1955-1965, and farmers have responded by switching to these other crops. Much of the rise in prices of alternative crops was due to devaluation of the peso in the early 1960s. The devaluation, of course, raised the domestic peso prices of the export crops. However, the world prices of export crops had touched bottom in 1955

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[9]On the basis of constant price value added data provided by USCAS, NEC, food output (food crops, livestock, and poultry) grew by an average annual rate of 2.4 per cent between 1960 and 1965 while commercial crops output grew by an average annual rate of 6.0 per cent.

[10]Rice dominates food production, but corn is also important. The comments made here about rice production apply with almost equal force to corn production. See Mangahas, et al, cited in fn. 11.

and since that year had also been rising slowly. The combined effect of the devaluation and the modest improvement in world prices of export crops meant that these crops became relatively more attractive than rice. As Mangahas, Recto and Ruttan[11] have shown, farmers are reasonably price responsive, particularly in terms of hectarage devoted to rice. Hence, as the prices of competing crops rose, both absolutely and relative to the price of rice, the hectarage devoted to rice began to decline. The crop year 1958-9 was the peak year for rice hectarage; a clear down-trend set in after that year. In the late 1950s some land apparently went into tobacco production when a very generous subsidy was established for Virginia tobacco production. About a quarter of the withdrawals since 1960 seems to have been in favor of sugar; the remainder cannot easily be traced, but it seems also to have gone into export crops.[12]

The account given in the previous paragraph is essentially a description of a response based on a given supply function. The second reason that rice output has not risen rapidly enough to keep the terms of trade with non-agriculture stable is the slow adoption of new technology in rice production (a shift in the supply function). Yield of rice per hectare has been variable in the post-war period, with an improvement of only perhaps 10% over the entire period, reflecting very minor shifts in

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[11] Mahar Mangahas, Aida E. Recto and Vernon W. Ruttan, "Market Relationships for Rice and Corn in the Philippines," The Philippine Economic Journal, Vol. V, No. 1, First Semester 1966, pp. 1-27.

[12] Information supplied by Leon A. Mears.

the supply function. This record leaves the Philippines at the bottom of the rice producing countries in yield per hectare.[13]

The picture which emerges from this description is fairly clear. Dynamic elements within agriculture exist, but they have tended to shift out of rice production toward more profitable crops, especially those export crops that benefited by devaluation of the peso. The farmers still producing rice have improved productivity slightly, but the increase in demand for food has had to be met by price increases relative to non-agricultural goods and services and by growing imports of rice.

What conclusions may be drawn about how changes in the two types of terms of trade have affected agriculture? As noted earlier, the devaluation of the peso coincided with a moderate decline in the external terms of trade. For the country as a whole the decline in the external terms of trade meant a loss in real income. For exporters, however, the decline in international prices ended in 1955, and the subsequent period saw increases in world prices plus the increase in peso prices which accompanied the devaluation of the peso. It appears, therefore, that export agriculture benefited significantly on balance, and production of agricultural exports responded well. This response was in part achieved by switching land and other resources from rice production to export crop production. In the

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[13] In crop year 1956-57 the yields were as follows: Taiwan, 2.84 m.t./hectare; Malaya, 2.19; Indonesia, 1.67; Burma, 1.60; Thailand, 1.43; Vietnam, 1.34; Philippines, 1.21. (United Nations, Yearbook of Food and Agriculture Statistics, 1957.) According to figures of the Department of Agriculture and Natural Resources, yields in the Philippines averaged still only about 1.25 metric tons per hectare in 1965-66.

process the export crop producers seem to have benefited most, but those producers who chose to continue rice production must also have gained to some extent since their product could now buy more in the domestic market. Hence, both parts of agriculture--producers of food for the domestic market and producers of export crops--seem to have gained significantly in the process of changing external and internal terms of trade.

While agriculture gained, what happened to non-agriculture? Our results suggest that non-agriculture lost on two counts. First, the cost of food from agriculture was rising relative to the prices obtained for goods and services sold to agriculture. Second, the devaluation of the peso meant that peso costs of imports--on which much of industry is dependent--rose. Thus, while agriculture was gaining from the relative peso price changes through both its domestically consumed goods and exported goods, non-agriculture was losing from the relative peso price changes in its domestically consumed goods and its imported raw materials.

At the present time it is not possible to estimate how much of a redistribution of income has occurred as a result of these developments. To quantify the entire redistribution requires a more elaborate analysis than can be presented in this paper. Evidently, however, the redistribution has been significant since the intersectoral and external trade flows are large relative to total output in both sectors, and the two major shifts in prices studied in this paper have both benefited agriculture at the expense of non-agriculture.

These findings have obvious and important significance for economic development of the Philippines. It is clear that the food producing sector, at least rice producers, has not met the needs of the country. Production of food has grown too slowly, and a major contributing factor has been the failure to increase productivity in rice. Since the technology for increasing rice production is known, this seems to be an area where productivity increases could readily be obtained. The commitment of the Marcos administration to emphasizing increased food production seems appropriate.

As for the export producers in agriculture, one can only conclude that they are doing quite well. The problem in this area is to assure that the profits obtained from export earnings are used constructively, to further development of the country. This problem does not seem to have been tackled by the present administration. These profits could be channeled into constructive uses by suitable measures to tap them for public investment or to channel them into desirable private investment. No program with these explicit objectives has been undertaken. A further problem is that devaluation has made agricultural export products profitable, but the subsequent increase in production has come largely through shifts in resources rather than from increases in productivity. The shift has certainly been desirable, but it should be accompanied by improved productivity to provide a more viable basis for long-term growth of the economy. Productivity of most agricultural export production could be raised considerably.

In the non-agricultural sector we find that the supply of industrial goods and services has continued to expand and output has risen even in the face of rising prices for food and imported raw materials. At this juncture it is not clear that the reasons for this result are healthy. Part of the explanation lies in the policy of favoring industry under the period of exchange controls. Considerable capacity was installed in industry during this period, and it has appeared to be adequate to meet demand without significant price rises. It is possible that eventually demand will press against capacity, and industrial prices will begin to rise.

Perhaps a more serious problem is that while industrial profits have suffered in the period of decontrol, the industrial wage earner seems to have borne the brunt of the squeeze on non-agriculture. Real wage rates for both skilled and unskilled workers have fallen since 1955.[14] One would expect real industrial wages to rise with development, yet we find that they have actually fallen over the period of this study, a significant transition period for the economy. Corroborating evidence is found in National Economic Council studies showing a widening of inequality of income distribution.[15] If the industrial wage earner has indeed been the principal sufferer from the squeeze on non-agriculture, it augurs ill for Philippine development.

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[14] Central Bank, Statistical Bulletin, December, 1965.

[15] P. S. Reyes and T. L. Chan, "Family Income Distribution in the Philippines," Statistical Reporter, Vol. IX, No. 2, April-June 1965.