THE EFFECTS OF EXTERNAL DISTURBANCES ON PHILIPPINE PRICES, 1970 – 1975

By

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Introduction

Recent international developments have brought about renewed fears of galloping inflation in both developed and developing countries. Nations, big and small alike, are girding for the inflationary spiral expected to result from both the recent and projected increases in oil price by the Organization of Petroleum Exporting Countries (OPEC). Such apprehensions are particularly prominent among small open economies like the Philippines. As a result, most domestic policies are geared towards mitigating the effects of the oil price increases.

In view of this, a quantitative study of the consequences of external shocks on domestic prices of a small open economy is in order. This paper is an attempt at such an endeavor, and is based on the recent Philippine inflationary experience.

Price Trends in the Philippines

The recent years saw some severe changes in Philippine domestic prices. Although an accelerating inflation rate has been felt over the last decade, the price increases experienced in the seventies are exceptional as price indices peaked at record heights.

Bautista's (1974) study on Philippine inflation shows that from 1953 to 1960, prices were relatively stable. The Manila Consumer Price Index (CPI) increased at an average rate of 2.2 per cent annually. This was followed by a mild inflation in the sixties with the CPI rising at an average of 4.5 per cent per year. The seventies, however, saw the onset of a double digit inflation. An average annual increase

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of 12.54 per cent was experienced from 1970 to 1973. But the drastic increase came in 1974 with the annual CPI percentage rise soaring to a record 34.3 per cent. All the Manila price indices peaked during the last quarter of 1974 with the wholesale price index (WPI) peaking first at 352.4 (1965 = 100). This was followed by the retail price index (RPI) at 338.5 and the CPI at 273.9. The rate slowed down in 1975 with the CPI pegging an annual increase of 8 per cent — the highest among the three indices for Manila. Figure I shows annual average trends for each of the price indices over the 1955-1975 period. The trends indicate the unusual price increase in the early seventies.

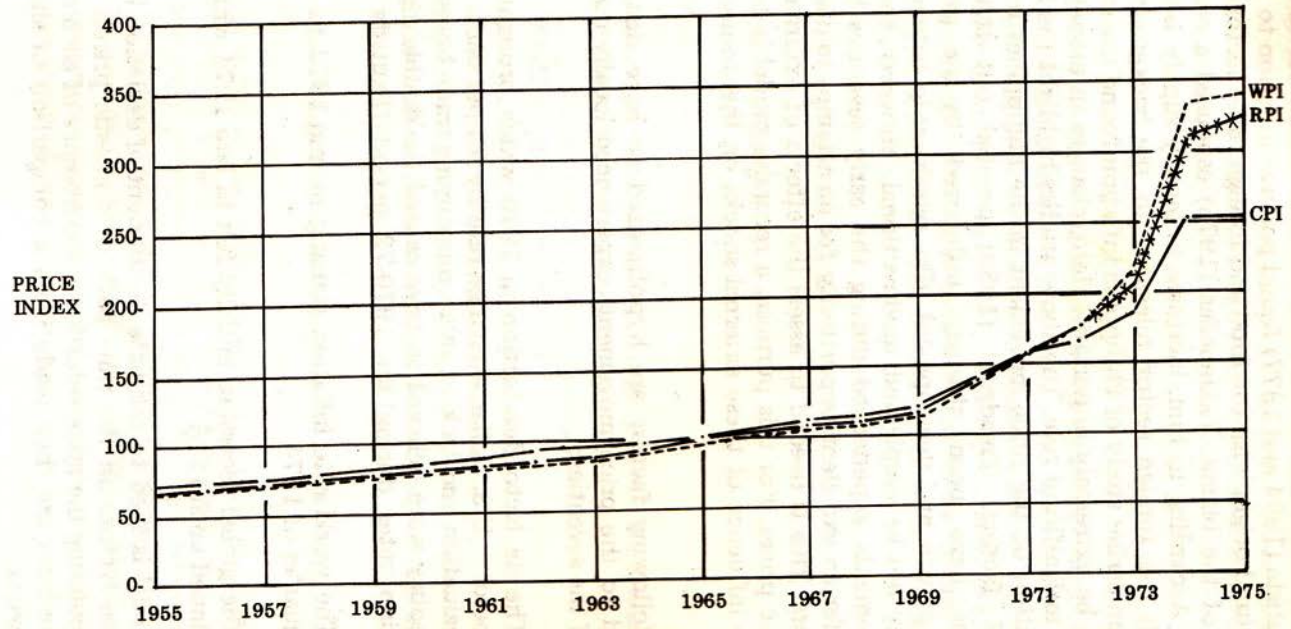
Global Price Trends

World prices, on the other hand, basically followed the same trends. The main features are the relative stability in the fifties and sixties followed by drastic fluctuations during the first half of the seventies. According to the OECD (1974, pp. 25-37) the recent worldwide inflation occurred in two stages. The first was from mid-1972 to October 1973. An excess of world demand for commodities over current supplies characterized this stage, leading to a sharp rise in the price of commodities relative to other goods. The increase in food prices was mainly caused by shortfalls in supply. The corresponding increase in industrial raw material prices on the other hand, was attributed to a rapid upsurge of output and final demand in most developed countries. During this period, the dollar index of the spot price of food rose by 60 per cent. The industrial materials index almost doubled.

The second phase began in October 1973. The expected downward movement of spot prices of commodities due to the easing of demand pressures relative to supply did not materialize. The outbreak of the Middle East war added a new element of uncertainty to the situation. This was followed by oil shortages resulting from an embargo of oil producing countries. The immediate increase in oil prices subsequently led to price increases of oil-based commodities. The uncertainty coupled by general expectations of inflation resulted in a speculative boom in commodity prices. This was unsupported by the underlying level of final demand. Rising prices accompanied by a decline in industrial production then resulted. The recessionary trend continued until 1975 with Gross National Product (GNP) growth rates of most countries exhibiting negative values. The rate of price increase slowed down however, as the effects of recession were felt. The oil price also stabilized as OPEC undertook a scheme of minimized price adjustments.

FIGURE I

GRAPHS OF ANNUAL DATA OF PRICE INDEXES
(Manila and Suburbs)



NOTE: WPI and RPI had common points until 1972

SOURCE: Central Bank Statistical Bulletin, 1975 issue.

LEGEND: ------ Wholesale Price Index (Mla.)
✱✱✱✱✱ Retail Price Index (Mla.)
_____ Consumer Price Index (Mla.)

Analytical Framework

Studies on Philippine inflation offer divergent views as to its causes. Bautista (1974 and 1977) found postwar inflation to be largely of structural origin with the food and foreign trade sectors bearing the brunt of the blame. Valdepeñas (1975) espoused a monetarist viewpoint. According to him, increases in money supply is the main cause, with the foreign sector relegated to the background. Ross (1966) in an earlier study of Philippine inflation found the structural element to be extremely important. Here, changes in money supply assume an insignificant role. The above studies highlight the fact that an explanation of the price movement in the Philippines involves a myriad of factors. Treadgold (1969) pointed out that Philippine prices have been strongly influenced by the process of economic growth and development. The relationship between these factors may not be simple and unidirectional. However, the drastic price movements experienced during the early seventies here and abroad, offer an excellent opportunity for an attempt to disentangle these factors. This is needed to assess the effects of external shocks on domestic prices. For this purpose, a recursive model is developed tracing the influence of these external shocks on the domestic price structure.

The following factors are hypothesized to have significantly contributed to the price movements experienced locally during the first half of the seventies:

1. The de facto devaluation in 1970 which brought up the peso — U.S. dollar exchange rate by 72 per cent. The devaluation and lack of an accompanying trade liberalization policy were believed to have caused the double digit inflation rates during the 1970-72 period (Bautista 1977).

2. The worldwide inflation starting in mid-1972 to the last quarter of 1974.

3. The global recession initially felt in late 1974 which continued until 1975.

The model is used to estimate the amount of deviation induced by the above factors on the time path of domestic prices. This is done by simulating the price behavior in the absence of each of these factors. Inferences are then made from a comparison of simulated and actual prices.

The Wholesale Price Index (WPI) is used as the indicator of domestic prices. The choice is made to concentrate on the relevant commodity groups. Besides, the WPI can be disaggregated into components most suitable to this type of analysis. Three main commodity groupings are used: imports, exports and domestic products consumed at home.

A. *Imports*

In line with the small country assumption, the Philippines is seen as a price taker in the world market for imports. Thus, the domestic wholesale price of imported goods is assumed to be affected by movements in the foreign price of imports and exchange rate. The foreign price, in turn, is hypothesized to be mainly influenced by world prices and GNP. The resulting behavioral equation are as follow:

$$FP_i = f\ (GNPW, WPIW)$$

$$DP_i = f\ (FP_i, XR)$$

Where:

FP_i : Foreign price of import category i (in U.S. dollars) (i = 1, 2, 3, 4)

GNPW : OECD index of world GNP

WPIW : OECD world wholesale price index

DP : Domestic Wholesale Price index of import category i (i = 1, 2, 3, 4)

XR : Exchange rate in pesos per U.S. dollar

World GNP is seen here as a supply variable and therefore, expected to have a negative sign. Everything held constant, an increase (decrease) in GNP would imply an increase (decrease) in production in supplier countries leading to an increased (decreased) supply of commodities in the world market. This subsequently would result in a decrease (increase) in the world prices of those commodities with increased (decreased) supply.

The above equations are tested by using ordinary least squares on time series data from 1955 to 1975. Imported commodities are further subdivided into four categories: oil, food, machinery and the rest. All commodities not belonging to the first three are lumped together in the fourth category. The data for this category are generated by taking the weighted average of the individual commodity data. The regression results are shown in Tables 1 and 2.

All the coefficients are significant up to the 99.5 per cent level except for those of GNPW for food (significant at the 90 per cent level) and machinery (significant at the 70 per cent level) in the foreign price equations. The Durbin Watson Statistics for each equation supports the hypothesis of zero autocorrelation at a significance level of 5 per cent. This does not include the foreign price equation

TABLE 1

Regression Equations Giving the Foreign Price of Imported Goods

Import Category	Intercept	GNPW	WPIW	$\bar{R}^2$	D.W.
Food	−115.636	−0.058 (−2.038)	2.714 (15.795)	0.961	1.807
Oil	−553.079	−0.597 (−5.796)	10.332 (16.602)	0.951	2.328
Machinery	44.481	−0.006 (−0.791)	0.645 (14.347)	0.958	0.799
Rest	18.530	−0.064 (−7.376)	1.310 (24.830)	0.979	1.988

Note: Numbers in parenthesis below the regression coefficients are the t values.

TABLE 2

Regression Equations Giving the Domestic Wholesale Price of Imported Goods

Import Category	Intercept	Foreign Price (FP)	Exchange Rate (X)	$\bar{R}^2$	D.W.
Food	−106.433	1.401	17.352	0.991	1.801
		(18.962)	(8.761)		
Oil	− 2.574	0.28	20.610	0.970	2.120
		(11.790)	(9.931)		
Machinery	−217.482	2.74	11.260	0.952	2.310
		(8.22)	(4.762)		
Rest	−246.721	2.691	16.512	0.981	0.632
		(16.481)	(8.901)		

Note: Numbers in parenthesis below the regression coefficients are the t values.

for machinery and the domestic wholesale price equation for the "rest" where the null hypothesis is rejected even at a 1 per cent significance level. The effects of the exogenous variables on the wholesale price index of imports were obtained by transforming the behavioral equations to reduced form. The results are shown in Table 3.

The reduced form equations reveal that among the exogenous variables considered, GNPW has the least effect on the domestic prices of imports. It is followed by WPIW. Exchange rate changes have the most effect on domestic import prices.

B. *Exports*

The export price is another medium through which business fluctuations abroad can affect domestic prices. With our exports consisting mostly of raw materials, export prices are expected to be sensitive to both the level of economic activity and the movement of prices in each of our trading partners. The level of economic activity is an indicator of demand in the importing country. The higher the

TABLE 3

Reduced Form Equations: Domestic Wholesale Price of Imports

Import Category	Intercept	GNPW	WPIW	XR
Food	−268.324	−0.081	3.801	17.350
Oil	−157.432	−0.167	2.890	20.611
Machinery	− 94.701	−0.016	1.767	11.260
Rest	−196.874	−0.172	3.524	16.512

activity level, the greater the demand for raw materials for production. The overall price level, on the other hand, is made to get the effects of inflation in the importing country. It is hypothesized that Philippine exporters would try to match the price increases abroad in their effort to fetch the highest marginal returns for their products while maintaining their competitiveness. For commodities where a competitive substitute is identified, the price of the competing product is included. It is also expected to move in the same direction as the export price.

However, fluctuations in export prices are not caused by demand variables alone. There are commodities for which the Philippines is a major world supplier. The Philippines has also a large share in supplying these commodities to major importers. For these products, a supply variable such as the export volume is expected to affect the export price. A negative relationship between these variables is hypothesized.

The resulting behavioral equation for exports is given as:

$$FP_i = f(A, PL, PC, X_i)$$

Where:

FP_i : dollar price of export commodity i

A : activity variable in the importing country

PC : dollar price of competing product

X_i : export volume of commodity i

This paper looks at the price behaviour of the country's eight leading export products. They are: copper concentrates, logs and lumber, dessicated coconut, coconut oil, copra meal and cake, bananas, plywood and pineapple. These commodities account for about 55 per cent of total exports.

The regression results indicate that the demand variable, X_i, is not significant in determining the export price level. Likewise, the variable PC was insignificant except in the equation for the export price of abaca and copra. The regression results are reported in Table 4.

The t values indicate that the regression coefficients significantly differed from zero to 97.5 per cent except for the following variables : A in the pineapple equation significant at the 95 per cent level; A in the equation for the price of copra meal cake significant at the 90 per cent level; A in the abaca equation, PL in the banana equation and A in the dessicated coconut equation which are all significant at the 90 per cent level; and A in the coconut equation significant at the 70 per cent level. The Durbin Watson statistic, on the other hand, indicates no significant autocorrelation at the 5 per cent level except for logs and lumber where the test was inconclusive.

A direct relationship between the foreign price and domestic wholesale price of each export commodity considered could not be established. The export component of the WPI is disaggregated only up to the one-digit level of the SITC. A causal relationship is, therefore, formulated by regressing the WPI of the relevant SITC commodity group against the above foreign prices of commodities belonging to that group. The regression results are shown below.

1. $DP_{\text{crude materials}} = 19.266 + 0.574\ FP_{\text{copra}} + 0.072\ FP_{\text{copra}} + 0.201\ FP_{\text{logs/lumber}}$
(10.901) (1.089) (2.592)

$\bar{R}^2 = 0.990$ D.W. = 1.395

TABLE 4

Regression Equations Giving the Foreign Price of Exports (In U.S. Dollars)

Export Commodity	Intercept	A	PL	PC	R^{-2}	D.W.
Abaca	—206.357	0.286 (1.260)	1.902 (3.900)	0.760 (8.019)	0.964	2.490
Bananas	—78.697	0.775 (3.885)	0.729 (1.142)		0.730	1.767
Dessicated Coconut	—365.331	0.702 (0.923)	4.62 (3.254)		0.750	2.584
Oil	—341.242	0.694 (0.787)	3.968 (3.665)		0.656	2.625
Copra	—224.306	0.700 (3.102)	0.992 (2.298)	1.582 (10.303)	0.958	1.925
Copra Meal	—399.129	0.397 (1.41)	4.700 (8.232)		0.927	2.992
Copper	—216.215	1.077 (7.064)	2.26 (3.787)		0.915	2.013
Logs & Lumber	—234.443	0.687 (5.171)	2.98 (5.729)		0.914	1.270
Pineapple	—180.375	1.045 (1.975)	2.531 (4.998)		0.766	1.684
Plywood	—135.593	0.556 (2.250)	1.941 (3.335)		0.903	1.837

Note: Numbers in parenthesis below the coefficients are their t value

2. $DP_{Food} = -38.184 + 0.234\ FP_{Bananas} + 0.605\ FP_{Dessicated\ coconut} +$
(1.876) (8.346)

$0.861\ FP_{pineapple}$
(5.3)

$\bar{R}^2 = 0.962$ D.W. = 1.808

3. $DP_{animal\ \&\ veg.\ oil} = 5.453 + 1.036\ FP_{coconut\ oil}$
(31.296)

$\bar{R}^2 = 0.981$ D.W. = 1.783

4. $DP_{manufactures} = 33.692 + 0.653\ FP_{plywood}$
(12.465)

$\bar{R}^2 = 0.890$ D.W. = 1.073

The foreign price of abaca and copra meal cake did not have significant coefficients and were therefore, dropped from the crude materials equation (equation 1). All remaining coefficients are highly significant except for those of the foreign price of copper in equation 1 with a significance level of 80 per cent. The foreign prices of coconut oil and plywood, being the lone explanatory variables in equations 3 and 4 respectively, can possibly reflect the price effects of other products belonging to the above categories. Thus, inferences made from these equations should consider this factor.

To get an idea of the relative effect of the exogenous variables on WPI of each export category, the behavioral equations are changed to reduced form. They are:

1) $DP_{crude\ materials} = -172.216 + 0.402\ A_{copra} + 0.078\ A_{copper} +$
$0.138\ A_{logs/lumber} + 0.569\ PL_{copra} +$
$0.163\ PL_{copper} + 0.599\ PL_{logs/lumber} +$
$1.582\ PC_{copra}$

2) $DP_{Food} = -103.728 + 0.097\ A_{Bananas} + 0.051\ A_{dessicated\ coco}$
$0.169\ A_{pineapple} + 0.091\ PL_{bananas} + 0.314\ PL_{dessi}$
$coco$
$+ 0.41\ PL_{pineapple}$

3) $DP_{animal\ and\ veg.\ oil} = -348.074 + 0.719\ A_{coconut\ oil} +$
$4.111\ PL_{coconut\ oil}$

4) $DP_{manufactures} = 26.641 + 0.029\ A_{plywood} + 0.1\ PL_{plywood}$

The effect on domestic export prices of price movements in countries importing our exports appears to be stronger than that of changes in the level of economic activity.

C. *Domestic Products Consumed at Home*

Domestic producers of locally consumed products are assumed to follow a cost plus pricing scheme. Thus, price fluctuations abroad are principally felt through changes in prices of imported machinery and raw materials for production. The foreign price equations formulated in section A assessing the behavior of domestic import prices are used in this section. Thus, imported production inputs are categorized into food, oil, machinery and the rest. Home consumed domestic products, on the other hand, are grouped into food, intermediate inputs and manufactured goods, following the disaggregation of the WPI for this sector. The exchange rate is also included in the domestic price equations to get the exchange rate policy effects. The wage rate, likewise, is seen as a relevant variable in the equation for the price of manufactured goods. The equations are tested using OLS on time series data from 1955 to 1975.

The resulting domestic price equations are:

1) DP_{Food}

$= -238.462 + 1.106\ FP_{machinery} + 0.296\ FP_{Food} + 1.305\ FP_{Rest}$
(1.344) (1.218) (2.762)

$$17.116\ XR$$
$$(7.840)$$

$\bar{R}^2 = 0.982$ D.W. = 1.751

2) $DP_{intermediate\ inputs}$

$$= -151.971 + \underset{(9.559)}{0.312\ FP_{Oil}} + \underset{(3.151)}{1.235\ FP_{machinery}} +$$

$$\underset{(1.808)}{0.438\ FP_{rest}} + \underset{(11.329)}{13.136\ XR}$$

D.W. = 1.585 $\bar{R}^2 = 0.997$

3) $DP_{manufactures}$

$$= -235.438 + \underset{(1.711)}{0.065\ FP_{oil}} + \underset{(4.632)}{1.901\ FP_{machinery}} +$$

$$\underset{(2.861)}{0.889\ FP_{rest}} + \underset{(1.089)}{0.172\ W} + \underset{(2.977)}{7.56\ XR}$$

$\bar{R}^2 = 0.994$ D.W. = 1.943

Where:

DP_i : WPI of domestic product category i

FP_i : Dollar price of import category i

W : Money wage rate index of laborers in industrial establishments in Manila and suburbs

XR : exchange rate

All explanatory variables, being production cost variables, have positive signs. The fit appears good for all three equations as shown by the high coefficients of determination and t values (wage rate has the lowest t value, indicating a level of significance of 80 per cent). However, the Durbin Watson test for autocorrelation is inconclusive at the 5 per cent significance level for all three equations. The test though, supports the hypothesis of zero autocorrelation at the 1 per cent significance level.

The foreign and domestic price equations are also in reduced form. This is done to know the net direct effects of the exogenous variables on the WPI of home consumed domestic products. The results are:

1. $DP_{Food} = -199.312 - 0.108\ GNPW + 3.226\ WPIW + 17.116\ XR$

2. $DP_{intermediate\ prod.} = -261.481 - 0.221\ GNPW + 4.59\ WPIW + 13.136\ XR$

3. $DP_{manufactures} = -170.357 - 0.107\ GNPW + 3.062\ WPIW + 0.172\ W_{money} + 7.56\ XR$

The differential effects of the exogenous variables in the above equations conform with the results previously derived. The GNPW variable shows the least effect on domestic prices, followed by WPIW. The XR variable has the greatest impact. The wage rate relatively appears to have less influence in the price setting decisions of producers of manufactured goods. This may be due to the government's low wage policy aimed at maintaining our competitiveness in both the international goods and labor market. This resulted in a lag between price and wage movements.

D. *Summary of Relationships*

A diagrammatic presentation of the relationships formulated in the model is given in Figure 2. The exogenous variables are represented by rectangular blocks and the endogenous variables by circles. The solid arrows indicate the directions of causality in the relationships among variables. The broken arrows represent the aggregation procedure followed to derive the overall WPI. The procedure essentially involves applying the Central Bank weights to

each of the component WPIs (imports, exports and domestic products consumed at home), then adding the results to arrive at the overall WPI.

SIMULATION RESULTS

This paper assesses the effects of exogenous shocks on domestic prices by simulating the conditions prevailing in the absence of each of these shocks. The simulated and actual results are then compared. The simulation is done by initially taking the differences of the model's reduced form equations. A summary of equations is shown in Appendix I.

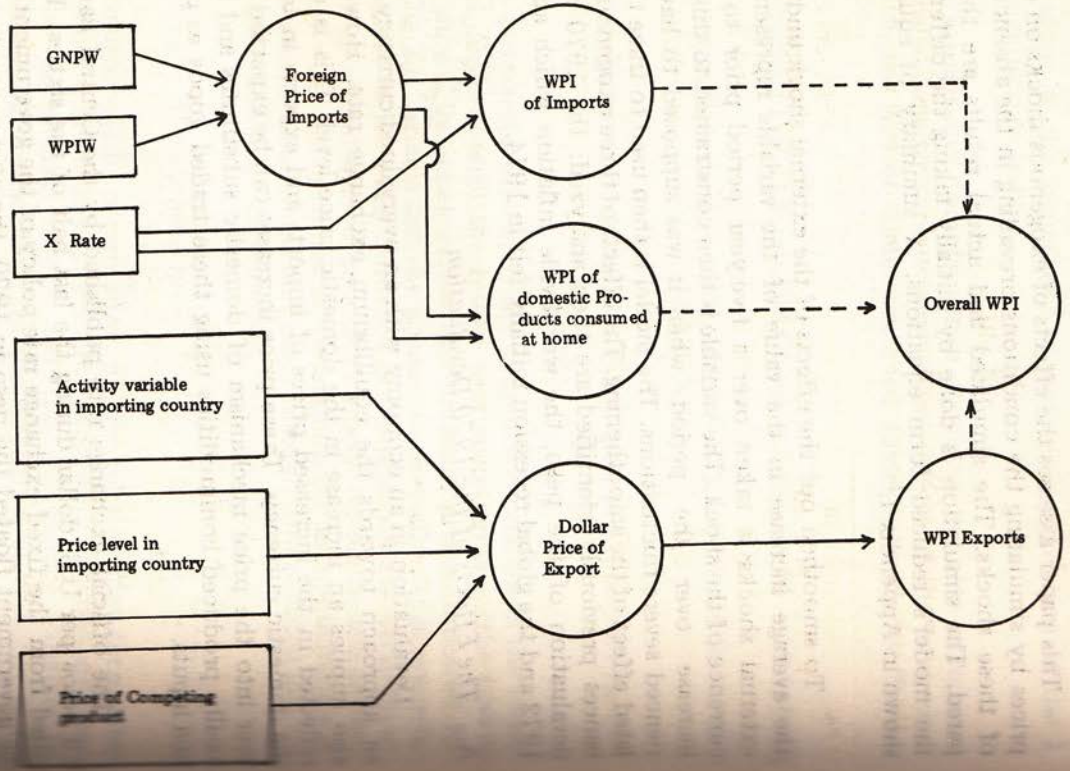
To smoothen out the effects of the external shock under study, the average increase in the value of the variable representing the external shocks is taken over a five-year period prior to the occurrence of the shock. The variable is then constrained to this average increase over the period when it was supposed to have experienced severe fluctuations. The model is then used to trace the simulated effect of the smoothening. The effects of three exogenous disturbances previously identified are then analyzed: the 1970 de facto devaluation of the peso, the worldwide inflation which started in 1972 and the global recession initially felt in 1974.

A. *The Effects of the 1970 Devaluation*

Devaluation in an economy with an overvalued currency implies an approach towards the equilibrium exchange rate. However, it also implies an increase in the domestic price level. This is directly reflected in the increased prices of imports and exports in terms of the domestic currency. These price increases can be expected to spill over into the price mechanism of domestic substitutes and that of locally produced commodities using these traded goods as production inputs.

The official exchange rate published by the Central Bank was 3.9 pesos per U.S. dollar during the last half of the sixties. This resulted from the fixed exchange rate policy of the government. When the government floated the peso in 1970, the exchange rate jumped to 6.01 pesos per U.S. dollar or an increase of 2.112 pesos per U.S. dollar. This was followed by increases of 0.362 and 0.296 pesos per U.S. dollar in 1971 and 1972 respectively.

DIAGRAMMATIC REPRESENTATION OF RELATIONSHIPS
AMONG THE VARIABLES IN THE MODEL



The simulation experiment seeks to assess the effects of these exchange rate changes in 1970 to 1972 when the effects of these exchange rate fluctuations are expected to be substantial. The results are shown in Table 5. The simulated percentage changes are compared with the percentage changes actually experienced during the years considered.

TABLE 5

Comparison of Simulated and Actual Percentage Changes in the Wholesale Price Index (Controlled for Exchange Rate Changes)

Year	% Change in WPI (Simulated)	% Change In (WPI Actual)	Difference (Simulated less Actual)
1970	18.4	23.6	−5.2
1971	6.0	15.7	−9.7
1972	5.7	10.1	−4.4

The results indicate that the de facto devaluation in 1970 caused significant increases in the WPI annual changes for the years 1970-1972. The largest increase at 9.7 percentage points was in 1971. A tapering off was subsequently experienced in 1972. The relative magnitude of the differences in percentage change may lead one to believe that the full price effects of the devaluation was felt in 1971.

B. *The Effects of World Inflation*

Recent studies on inflation (Bautista, 1976 and 1977) attributed much of the price increases in 1971 and 1972 to domestic factors like typhoons and plant diseases causing serious shortfalls in food supply. The effects of price increases abroad, on the other hand, were fully felt locally in 1973 when the oil problem became acute.

The relative magnitudes of the effects of these factors is obtained using the model to control for the effects of worldwide inflation. This is done by getting the annual increase in world prices from 1965 to 1970. This increase is then applied to the years 1971-1975 to smoothen out the drastic increases in world prices during the latter period. The resulting simulated annual percentage changes in the WPI are presented in Table 6. A comparison between simulated and actual percentage changes is also made.

TABLE 6

Comparison of Actual and Simulated Percentage Changes in the Wholesale Price Index (Controlled for Recession)

Year	% Change in WPI (Simulated)	% Change in WPI (Actual)	Difference (Simulated less (Actual)
1971	7.6	15.7	— 8.1
1972	5.6	10.1	— 4.5
1973	4.3	24.5	—20.2
1974	8.6	54.5	—45.9
1975	11.3	2.8	8.5

The results show that inflation from abroad increased the annual percentage change in the WPI by an average of 19.7 percentage points in 1971-74. The relatively substantial increases were felt in 1973 and 1974. This supports the hypothesis that external factors were the major causes of inflation in 1973 and 1974. Domestic factors figured more prominently in the price increases in 1971 and 1972. The 1975 result shows that the control of the price increase rate made the simulated percentage change greater than the actual percentage change. This indicates that the actual price increase rate for that year slowed down to a level lower than the 1965-1970 average— an expected result in view of the worldwide recession.

C. *Effects of Global Recession*

The worldwide recession was felt in 1974 as the developed economies slowed down in response to the brakes applied earlier to halt the growing inflation. The variables supposed to reflect the effects of the recession are GNPW in the foreign price equations for imports and the activity variables in the foreign price equations for exports. Like the preceding simulation exercises, the recession effects are controlled by taking the average annual increase in the GNPW and activity variables for a five-year period prior to 1974. This average increase is then applied to 1974 and 1975 to replace the negative values of the said variables. The simulated annual percentage changes are then compared with the actual percentage changes. The results are shown in Table 7.

TABLE 7

Comparison of Actual and Simulated Percentage Changes in Wholesale Price Index (Controlled for Inflation)

Year	% Change in WPI (Simulated)	% Change in WPI (Actual)	Difference (Simulated less Actual)
1974	45.6	54.5	−8.9
1975	6.7	2.9	3.8

Controlling for recession decreased the annual percentage change in the 1974 WPI by 8.9 percentage points. The unexpected result can be attributed to a possible lag in the domestic price effects of the economic slowdown abroad. The worldwide recession was felt in 1974. Perhaps it took some time for its effects to be fully manifested locally. The 1975 simulation result is expected. It indicates that the global recession caused the rate of increase in the WPI to slow down by 3.8 percentage points.

CONCLUSION

The simulation results show that external disturbances played a prominent role in the price fluctuations experienced locally in 1970-75. Although there were natural calamities occurring during the early part of the period, the influence of external disturbances be-

ame more pronounced later when the inflationary effect heightened nd the economy started sliding into a recession.

This paper has explored the possibilities of a simple disaggregative model as a tool for analyzing inflation in a small open economy. Although there are inherent theoretical and practical problems[2], his short exercise has shown that there were useful inferences derived from it.

[2]See Shourie (1972) for the problems expected to be encountered in making macro models of developing economies.

APPENDIX I

SUMMARY OF EQUATIONS IN FIRST DIFFERENCES

I. WPI of Imports

1) $\Delta DP_{Food} = -0.0812\ \Delta GNPW + 3.8\ \Delta WPIW + 17.35\ \Delta XR$

2) $\Delta DP_{Oil} = -0.167\ \Delta GNPW + 2.89\ \Delta WPIW + 20.61\ \Delta XR$

3) $\Delta DP_{Mach.} = -0.016\ \Delta GNPW + 1.767\ \Delta WPIW + 11.26\ \Delta XR$

4) $\Delta DP_{Rest} = -0.172\ \Delta GNPW + 3.524\ \Delta WPIW + 16.51\ \Delta XR$

II. WPI of Domestic Products Consumed at Home

1) $\Delta DP_{Food} = -0.108\ \Delta GNPW + 3.226\ \Delta WPIW + 17.116\ \Delta XR$

2) $\Delta DP_{intermediate\ products} = -0.221\ \Delta GNPW + 4.59\ \Delta WPIW + 13.136\ \Delta XR$

3) $\Delta DP_{manufactures} = -0.107\ \Delta GNPW + 3.062\ \Delta WPIW + 0.172\ \Delta W + 7.56\ \Delta XR$

III. WPI of Exports

1) $\Delta DP_{crude\ materials} = 0.402\ \Delta A_{copra} + 0.078\ \Delta A_{copper} + 0.138 \Delta A_{logs/lumber} + 0.569\ \Delta PL_{copra} + 0.163\ \Delta PL_{copper} + 0.599\ \Delta PL_{logs/lumber} + 1.582\ \Delta PC_{copra}$

2) $\Delta DP_{Food} = 0.097\ \Delta A_{bananas} + 0.051\ \Delta A_{dessicated\ coconut} + 0.169\ \Delta A_{pineapple} + 0.091\ \Delta PL_{bananas} + 0.314\ \Delta PL_{dessicated\ coconut} + 0.41\ \Delta PL_{pineapple}$

3) $\Delta DP_{\text{animal and vegetable oil}} = 0.719\ \Delta A_{\text{coconut oil}} + 4.111\ \Delta PL_{\text{coconut oil}}$

4) $\Delta DP_{\text{manufactures}} = 0.029\ \Delta A_{\text{plywood}} + 0.1\ \Delta PL\ \text{plywood}$

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