University of the Philippines
SCHOOL OF ECONOMICS

Discussion Paper No. 8603 February 1986

DYNAMIC EFFECTS OF EXCHANGE RATE CHANGES IN THE PHILIPPINES IN 1970-1980

by

Susan S. Navarro

Abstract

In this paper, the dynamic effects of exchange rate changes in the Philippines in 1970-1980 are examined and compared with those found by Bautista for 1956-1968, using his supply oriented, macroanalytic model. The effectiveness of a devaluation as a policy instrument for increasing employment, output and investment was found to have decreased in the 1970s. While having the advantages of having a weaker inflationary pressure, a devaluation therein was found to have introduced a second trade-off, namely lay offs.

A comparison of the effects of a single devaluation in 1970 and those of the series of devaluations in 1970-1980 showed the beneficial effects of the latter over the former on employment, output, investment, exports and imports and its negative effects on the real wage rate.

DYNAMIC EFFECTS OF EXCHANGE RATE CHANGES IN THE PHILIPPINES IN 1970-1980

by

*Susan S. Navarro**

Introduction

In this paper, Bautista's analytical framework in examining the dynamic effects of devaluation in the Philippines in 1956-1968[1] is used to study those in the 1970s. A supply oriented, macroanalytic model is developed and estimated by Bautista from annual data to provide a quantitative framework in the examination of year-by-year effects of a change in the exchange rate. The problem of scarcity of foreign exchange, causing the Philippine authorities to regulate the volume of importation, allowing it to increase only to the extent permitted by the available export earnings is taken into consideration in the model.

The analytical framework is presented in section 1. In section 2, the dynamic effects of a devaluation on employment, output, investment and the general price level in 1960-1980, with 1969 and the corresponding values of the variables therein as the benchmarks, are examined and compared with those obtained by Bautista for 1956-1968. In section 3, the dynamic effects of a devaluation of the Philippine peso of 65%, which

---

*The comments of Dr. Romeo Bautista and of Dr. Amado Castro on an earlier draft of this paper are gratefully acknowledged.

[1] Romeo Bautista, "Devaluation and Employment in a Labor Surplus Economy: The Philippines," Economie Internationale, 26(1973), 543-557.

actually took place in 1970, are examined with 1969 as the benchmark for the eleven year period 1970-1980. The findings therein are compared with those found by using the actual exchange rate changes during the same period. The concluding remarks are in section 4.

Section 1
The Analytical Framework

Following Bautista's specifications of aggregative relationships constituting a macro-model of the Philippine economy for 1956-1968,[2] we obtain the following regression equations, using the ordinary least squares procedure, which are estimated from annual data on the Philippine economy for 1960-1980:

A. An employment equation,

$$(1)\quad N = \underset{}{3637.5} + \underset{(18.57)}{0.1261}\ Y + \underset{(1.45)}{445.4844}\ (100\ P/W^*)$$

$$\bar{R}^2 = 0.971 \qquad D.W. = 2.046$$

B. A production function,

$$(2)\quad Y = \underset{}{4809.05} + \underset{(15.52)}{0.2281}\ K + \underset{(1.96)}{0.8339}\ N$$

$$\bar{R}^2 = 0.998 \qquad D.W. = 0.788$$

C. A price equation,

$$(3)\quad P = \underset{}{11.269} + \underset{(4.06)}{0.0126}\ W^* + \underset{(7.80)}{0.4144}\ P_m + \underset{(1.19)}{0.1485}\ P_{-1}$$

$$\bar{R}^2 = 0.998 \qquad D.W. = 1.199$$

---

[2] The equations obtained by Bautista are in Appendix A.

D. A wage equation,

$$(4)\quad W^* = -157.8 + \underset{(2.24)}{4.8242}\ P + \underset{(8.36)}{0.9522}\ W^*_{-1}$$

$$\bar{R}^2 = 0.996 \qquad \text{D.W.} = 2.287$$

E. An investment equation,

$$(5)\quad I = -2951.1 + \underset{(2.09)}{0.1603}\ Y + \underset{(1.81)}{0.4735}\ M - \underset{(-1.23)}{1.1361}\ W^* + \underset{(1.65)}{45.3690}\ P$$

$$\bar{R}^2 = 0.979 \qquad \text{D.W.} = 0.877$$

F. An export supply equation,

$$(6)\quad X = 794.29 + \underset{(1.22)}{6.4838}\ P_x + \underset{(5.47)}{0.8971}\ X_{-1}$$

$$\bar{R}^2 = 0.912 \qquad \text{D.W.} = 1.751$$

G. A definition,

$$(7)\quad K = K_{-1} + I_{-1}$$

H. A restriction that the country balances its trade transactions after the devaluation, in recognition of the problem of scarcity of foreign exchange,

$$(8)\quad P_m M = P_x X$$

where[3]

N = average annual employment level; in thousand workers

Y = GNP at 1972 prices; in million pesos

P = implicit price index for GNP; P = 100 in 1972

W* = W prior to 1974

= W + A starting from 1974

W = annual money wage rate, computed as equal to the daily wage rate of unskilled industrial workers in Manila multiplied by 250[4]; in pesos

A = the sum of allowances and wage adjustments granted through various presidential decrees[5] starting from 1974; in pesos

K = capital stock[6] at 1972 prices at the beginning of the current year; in million pesos

---

[3]Sources of data:

1) The National Income Accounts, CY 1946-1975 Link Series, National Economic and Development Authority, 1978.
2) The 1981 Philippine Statistical Yearbook, National Economic and Development Authority.
3) The Statistical Bulletin, Central Bank of the Philippines.

[4]This is the method used in Encarnación, Mariano and Bautista, "Macroeconomic Model of the Philippines, 1950-69," The Philippine Economic Journal, X (1971), 133.

[5]The presidential decrees are listed in Appendix B.

[6]$K_{1950} = 2.58\ Y_{1950}$, following the procedure used in Encarnación, Mariano and Bautista, "Macroeconomic Model of the Philippines, 1950-69," p. 133.

P = implicit price index for GNP; P = 100 in 1972

P_{-1} = preceding year value of the implicit price index for GNP

P_m = implicit price index for imports of goods and non-factor services; P_m = 100 in 1972

P_x = implicit price index for exports of goods and non-factor services; P_x = 100 in 1972

I = investment in 1972 prices; in million pesos

M = imports of goods and non-factor services at constant 1972 prices; in million pesos

X = exports of goods and non-factor services at 1972 prices; in million pesos

The numbers in parentheses underneath the regression coefficients are their t-values.

The adjusted wage W^* and price variables were also entered linearly in the employment equation, as Bautista did for 1956-1968. In both cases, the specification of equation (1) has a much better fit, suggesting-as Bautista noted- the absence of money illusion among producers in the demand for Labor.

According to Bautista, equation (3) reflects a cost-push adjustment to an equilibrium price level determined by the wage rate and the import price variables, the latter in view of the economy's heavy dependence on imports.

Like Bautista's export supply equation for 1956-1968, the coefficient estimate for P_x in equation (6) is not significant even at the 10% level of significance. According to Bautista, this probably reflects the lack of stability of an aggregate supply function for Philippine exports. considering that only about six commodities dominated the export trade.

At the mean value, the long run price elasticity of export supply e_x is 0.767. The corresponding value in Bautista's model for 1956-1968 is 0.855. Using 0.420 and 1.38 as alternative values of e_x, as Bautista did, we obtain 3.5511 and 11.6679, respectively, as alternative values of the coefficient of P_x in equation (6). The response of exports to changes in the exchange rate using these values of e_x will be studied in the next section.

The endogenous variables in the model consist of N, Y, P, K, I, W*, M and X, K_{-1}, I_{-1}, W_{-1}, X_{-1}, P_m and P_x are predetermined. Of the two influences on P_m and P_x, namely: the exogenously determined import and export prices when expressed in terms of the foreign currency and the exchange rate, a policy instrument, the latter will be the object of major concern in this paper.

Section 2
Dynamic Effects of a Devaluation

Taking first differences in equations (1)-(8), using the resulting equations to solve for the increments of the endogenous variables over a period of five years, we obtain the dynamic effects of devaluations on

these variables. In view of the significant change in the exchange rate in 1970, we shall use 1969 and the values of the variables therein as the bench marks in this section. That is, we shall consider the values of these variables as initial conditions and then examine the effects of disturbances due to devaluations of 40% and 70% when e_x = 0.420, 0.767 or 1.38. The results are presented in tables 1-4. For purposes of comparison, ΔY and ΔI were also expressed in 1955 prices and the corresponding values of ΔP were computed when P = 100 in 1955.

The following is a comparison of the effects of a devaluation in 1956-1968 as found by Bautista and those that we found for 1960-1980 by using the equations in section 1 of this paper.

A. Employment effects

1. In both periods, 1956-1968 and 1960-1980, the impact effect of a devaluation (i.e. at t=0) on employment is invariant with respect to the price elasticity of export supply.

2. The impact effect on employment in 1960-1980 is greater than that in 1956-1968. However, the employment increments during the next four years in the latter period are considerably greater than those in the former. The sum of the increments over the five-year period following a devaluation is greater in the latter than in the former.

3. In 1956-1968, higher values of the devaluation rate generate higher additional employment. The same is true for the first two years

Table 1

DYNAMIC EFFECTS OF DEVALUATION ON EMPLOYMENT

e_x	t	v = 40		v = 70	
		ΔN for 1956-1968	ΔN for 1960-1980	ΔN for 1956-1968	ΔN for 1960-1980
	0	129	181	223	312
	1	188	14	301	19
0.420	2	184	-9	240	-18
	3	147	-11	182	-20
	4	100	-10	112	-16
0.855 in 1956-1968	0	129	181	223	312
	1	191	15	307	21
0.767 in 1960-1980	2	194	-7	257	-14
	3	166	-8	215	-14
	4	129	-6	168	-9
	0	129	181	223	312
	1	195	17	315	24
1.38	2	206	-3	278	-8
	3	216	-2	254	-5
	4	201	1	225	3

Table 2

DYNAMIC EFFECTS OF DEVALUATION ON OUTPUT

e_x	t	v = 40			v = 70		
		ΔY for 1956-1968 (in 1955 prices)	ΔY for 1960-1980 in 1955 prices	ΔY for 1960-1980 in 1972 prices	ΔY in 1956-1968 (in 1955 prices)	ΔY in 1960-1980 in 1955 prices	ΔY in 1960-1980 in 1972 prices
	0	64	60	151	110	104	261
	1	112	44	111	184	75	190
	2	141	44.5	112	208	77	193
0.420	3	154	47	118	234	81	205
	4	158	49	124	246	86	217
	0	64	60	151	110	104	261
	1	120	47	119	198	81	204
0.855 in 1956-1968	2	163	51	128	247	88	222
0.767 in 1960-1980	3	196	56	142	308	98	246
	4	220	62	155	371	108	271
	0	64	60	151	110	104	261
	1	129	53	134	215	91	230
1.38	2	190	62	157	293	108	272
	3	308	73	184	426	127	320
	4	381	83	209	499	145	366

Table 3

DYNAMIC EFFECTS OF DEVALUATION ON INVESTMENT

e_x	t	v = 40			v = 70		
		ΔI in 1956-1968 (in 1955 prices)	ΔI in 1960-1980 (in 1955 prices)	ΔI in 1960-1980 (in 1972 prices)	ΔI in 1956-1968 (in 1955 prices)	ΔI in 1960-1980 (in 1955 prices)	ΔI in 1960-1980 (in 1972 prices)
	0	74	158	435	134	276	761
	1	115	32	87	204	55	151
	2	120	12	33	209	21	57
0.42	3	101	8	23	176	15	40
	4	66	7	19	115	12	33
	0	97	170	468	175	297	819
0.855 in 1956-1968	1	157	43	118	278	74	205
	2	176	23	62	309	39	108
0.767 in 1960-1980	3	160	18	50	329	32	88
	4	93	16	45	260	29	79
	0	125	191	527	224	334	921
1.38	1	210	63	173	365	109	301
	2	428	41	114	429	72	199
	3	303	36	99	451	63	174
	4	258	33	92	428	58	161

Table 4

DYNAMIC EFFECTS OF DEVALUATION ON THE GENERAL PRICE LEVEL[7]

e_x	t	v = 40			v = 70		
		ΔP for 1956-1968 (P = 100 in 1955)	ΔP for 1960-1980 P=100 in 1955	ΔP for 1960-1980 P=100 in 1972	ΔP for 1956-1968 (P = 100 in 1955)	ΔP for 1960-1980 P=100 in 1955	ΔP for 1960-1980 P=100 in 1972
	0	11.1	23.4	9.3	19.4	41.1	16.3
0.855 in 1956-1968	1	20.2	5.0	2.0	35.2	9.1	3.6
	2	27.8	2.5	1.0	48.6	4.3	1.7
0.767 in 1960-1980	3	34.5	2.3	0.9	60.3	3.8	1.5
	4	40.5	2.3	0.9	70.8	3.8	1.5

[7] The same sets of price increments can be obtained for e_x = 0.420 or 1.38. The price effects are invariant with respect to the price elasticity of export supply.

following a devaluation in 1960-1980. In the succeeding three years, however, higher values of the devaluation rate generate greater decreases in employment. An exception to this is the fifth year when $e_x = 1.38$ during which a higher value of the devaluation rate generates higher additional employment.

4. In 1956-1968, the employment increment rises from the initial value, reaches a peak in the second, third or fourth period, and finally decreases over time. According to Bautista, this appears to suggest that between the two opposing influences on employment induced by the devaluation, namely: higher output and prices on the one hand and higher money wage on the other, the dynamic effects of the latter dominate eventually.

In 1960-1980, the employment increment decreases considerably from the initial value during the second year. Layoffs occur during the third and the fourth years. The situation improves during the fifth year when layoffs decrease (if $e_x = 0.420$ or 0.767) or employment increases (if $e_x = 1.38$). It seems that in 1960-1980, the negative effect of higher money wage on employment dominates the positive effect of higher output and prices during the second and the third years after a devaluation. It is eventually dominated by the latter.

B. Output effects

1. The impact effect of a devaluation on real output is invariant with respect to the price elasticity of export supply in both periods.

2. In both periods, higher values of e_x or of the devaluation rate v generate higher output increments.

3. In 1956-1968, the output increment increases over time. In 1960-1980, the output increment decreases from the initial value during the second year and increases thereafter.

4. The output increments in 1960-1980 are less than those in 1956-1968.

C. Investment effects

1. The impact effect of a devaluation on the investment increment in 1960-1980 is greater than that in 1956-1968. For succeeding years, the investment increments in the former period are less than the corresponding ones in the latter. The sum of the investment increments over the five year period following a devaluation in the former is less than that of the latter.

2. In both periods, the investment effect of a devaluation increases with the export elasticity and with the devaluation rate.

3. In 1956-1968, the investment increment rises from the initial value, reaches a peak in third or fourth period and then decreases over time. In 1960-1980, the investment increment decreases through time.

D. Price effects

1. In both periods, the price effect is invariant with respect to the price elasticity of export supply.

2. In 1956-1968, the price increment increases through time. In 1960-1980, it decreases through time.

3. Like the investment effect, the impact effect of a devaluation on the price increment in 1960-1980 is greater than those in 1956-1968. For succeeding years, the price increments in the former period are less than the corresponding ones in the latter. The sum of the price increments over the five year period following a devaluation in the latter period is greater than that of the former.

Section 3
Dynamic Effects of the Actual and One Shot Exchange Rate Changes in the 1970s

In this section, the dynamic effects of a single devaluation of 65%, which actually occurred in the Philippines in 1970, are examined over the period 1970-1980 with 1969 as the benchmark. The findings therein are then compared with those found by using the actual exchange rate changes[8] in the Philippines during the period 1970-1980, also with 1969 as the benchmark. The results are presented in tables 5 and 6.

---

[8] Source of data: International Financial Statistics Yearbook, 1984, International Monetary Fund.

Table 5

DYNAMIC EFFECTS OF A ONE SHOT EXCHANGE RATE CHANGE IN 1970

Year	t	ΔN	ΔY	ΔI	ΔP	ΔW*	ΔM	ΔX	W*/P
1970	0	291	243	760	15.11	72.92	251	236	24.38
1971	1	20	190	191	3.32	85.45	225	212	24.43
1972	2	-13	206	101	1.62	89.18	202	190	24.96
1973	3	-13	229	82	1.40	91.66	181	170	25.56
1974	4	-9	251	74	1.40	94.00	162	153	26.17
1975	5	-4	272	68	1.42	96.38	146	137	26.78
1976	6	-0.15	291	62	1.46	98.81	131	123	27.38
1977	7	4	308	58	1.50	101.30	117	110	27.98
1978	8	7	325	53	1.53	103.85	105	99	28.58
1979	9	11	340	49	1.57	106.47	94	89	29.18
1980	10	14	354	46	1.61	109.16	85	80	29.77

Table 6

DYNAMIC EFFECTS OF ACTUAL EXCHANGE RATE CHANGES IN 1970-1980

Year	t	v	ΔN	ΔY	ΔI	ΔP	ΔW*	ΔM	ΔX	W*/P
1970	0	0.65	291	243	760	15.11	72.92	251	236	24.38
1971	1	0	20	190	191	3.32	85.45	225	212	24.43
1972	2	0.0538	23	236	204	3.68	99.12	236	222	24.52
1973	3	-0.0075	-16	250	92	1.55	101.83	207	195	25.18
1974	4	0.0498	21	302	183	3.55	114.05	219	206	25.43
1975	5	0.0613	35	356	230	4.60	130.78	239	225	25.56
1976	6	-0.0093	-4	375	96	1.98	134.08	207	195	26.34
1977	7	-0.0078	-2	399	72	1.68	135.78	180	170	27.18
1978	8	0.0007	9	425	79	2.03	139.08	162	153	27.94
1979	9	0.0054	18	450	86	2.34	143.70	150	141	28.64
1980	10	0.0249	34	483	126	3.31	152.79	152	143	29.14

The following is a comparison of the results of the calculations as described in the preceding paragraph. Case 1 refers to a single 65% devaluation in 1970. That is, the exchange rate is assumed to remain unchanged during the succeeding years. Case 2 refers to the situation where the actual exchange rate changes in 1970-1980 in the Philippines are used to determine their dynamic effects on the macroeconomic variables which are listed below.

A. Case 1: Effects of a single devaluation in 1970

The following are the dynamic effects of a 65% devaluation of the Philippine peso in 1970 under the assumption that no exchange rate change follows it:

1. Employment effects

The employment increment decreases considerably from the initial value during the second year of the devaluation. There are layoffs during the third to the seventh years as the employment change ΔN becomes negative. The situation starts to improve in the fifth year as the number of layoffs starts to decrease, after which employment increases at an increasing rate. The graph of ΔN is U-shaped with the minimum point occurring at t=3.[9]

---

[9] t=3 corresponds to 1973, t=4 to 1974, t=5 to 1975, etc.

2. Output effects

Like the graph of ΔN, that of the output change ΔY is U-shaped with the minimum occurring at t=1 at a positive value of ΔY equal to 190. The minimum point of the output change occurs at an earlier date than that of the employment change. That is, the output increment starts to increase while layoffs are occurring. The increases in the nominal and the real wages, as stated below, might have caused an increase in demand and a consequent increase in output. Eventually, increases in employment are observed starting from the sixth year after the devaluation, as discussed above.

3. Investment effects

The investment increment decreases through time, with the most drastic change in it occurring during the second year.

4. Price effects

The graph of the price increment is U-shaped, with its minimum occurring when t=3 and 4 at a positive value of ΔP. The most drastic change in the price increment occurs during the second year. Beyond the first year, the price effect is very weak.

5. Nominal and real wage effects

The nominal and the real wages increase through time.

6. Trade effects

The export increment decreases through time. Since imports are assumed to be made possible only to the extent allowed by the availability of foreign exchange earnings, the import increment also decreases through time.

Case 2: Effects of actual exchange rate changes in the 1970s

The following are the dynamic effects of the actual exchange rate changes in the Philippines during the period 1970-1980 with 1969 as the benchmark. Since there was no change in the exchange rate in 1971 after the 64% devaluation in 1970, the actual dynamic effects in this case (case 2) for the first two years after the 1970 devaluation are the same as those in case 1. The differences occur from the third year hence-forward. With the exception of the layoffs that occurred after the appreciation of the Philippine peso when t=3, 6 and 7, the increments of employment, output, investment, price, nominal wage, imports and exports are greater in case 2 than in case 1.

1. Employment effects

The layoffs that followed the appreciation of the Philippine peso (when t=3, 6 and 7) were greater than those that followed the

single devaluation in case 1.

2. Output effects

The output increment increases through time.

3. Investment effects

Devaluations were followed by increases in the investment increment while appreciations were followed by decreases in it. The investment increments are positive.

4. Price effects

Like the investment effect, depreciations were followed by increases in the price increment while appreciations were followed by decreases in it. The price effects are positive. Beyond the first year, the price effect is weak.

5. Nominal and real wage effects

The nominal wage increment increases through time. The real wage increases through time and is less than that of case 1.

6. Trade effects

Until the fifth year after the change in the exchange rate in 1970, devaluations were followed by increases in the import and export increments while appreciations were followed by decreases

in them. The increments decrease thereafter.

Conclusions

There seem to be significant structural changes in the Philippine economy between 1956-1968 and the 1970s. A devaluation of the Philippine currency seems to have less beneficial effects on employment, output and investment with a weaker inflationary pressure in the latter period than in the former.

In the case of the single devaluation in 1970 (case 1), the country's dependence on imported raw materials and machinery seems to be most heavily felt during the early years following the devaluation, as the import increment decreases and consequently, the investment increment decreases drastically. As a result, the output and the employment increments decrease, followed by layoffs. The increasing nominal and real wages, however, might have helped in increasing the local demand for output. In later years, the substitution of labor for the decreasing investment increment takes place to sustain the increases in demand. Beyond the first year, the inflationary pressure is weak.

The series of devaluations in the 1970s, though very small in magnitude, helped to sustain higher increments in employment, output, investment, exports and imports than would otherwise have been the case in its absence. It seemed beneficial also to the labor sector as it increased the nominal wage increment. However, it seemed to cause a deterioration in the real wage.

It appears, therefore, that the effectiveness of a devaluation as a policy instrument for increasing employment, output and investment has decreased in the 1970s as compared to that of the previous decade. Moreover, it seems to have negative effects on the real wage rate, if applied in succession instead of given as a single shot, while seeming to improve the condition of the labor sector by increasing nominal wages. While having the advantage of having a weaker inflationary pressure, a devaluation in the 1970s has introduced a second tradeoff, namely layoffs.

In view of the above mentioned considerations, the desirability of the foreign exchange rate as a policy instrument in the Philippines seems questionable. Other policy instruments can be used to solve the urgent economic problems of a poor country like it. Much has been said about the merits and demerits of export led and import substitution strategies for economic growth. What is needed to hasten, or to make possible, the development of the Philippines? Is it the outward or the inward nature of a strategy or the nature of the product or products being promoted? Oil suddenly caused the inflow of financial resources into the Middle East. Is there a similar product which the Philippines has not yet discovered for itself? Among many other possible solutions, the elimination of waste and inefficiency in the government[10] might generate the much needed savings and restore the seemingly lost confidence of investors.

---

[10] The possibility of large scale waste and inefficiency in the government is mentioned in Emmanuel de Dios (ed.), An Analysis of the Philippine Economic Crisis, University of the Philippines Press (1984), p. 71.

Appendix A

The following equations were estimated by Bautista from annual data on the Philippines for 1956-1968:

(1)' $$N = 2203.3 + \underset{(23.66)}{0.4771\ Y} + \underset{(1.71)}{191.6\ (100\ P/W)}$$

$\bar{R}^2 = 0.984$ D.W. = 2.34

(2)' $$Y = 61.15 + \underset{(7.89)}{0.2640\ K} + \underset{(2.36)}{0.4948\ N}$$

$\bar{R}^2 = 0.997$ D.W. = 2.61

(3)' $$P = -8.076 + \underset{(2.08)}{0.0102\ W} + \underset{(5.36)}{0.1798\ P_m} + \underset{(9.10)}{0.7627\ P_{-1}}$$

$\bar{R}^2 = 0.995$ D.W. = 1.62

(4)' $$W = -107.4 + \underset{(3.23)}{3.202\ P} + \underset{(8.17)}{0.8305\ W_{-1}}$$

$\bar{R}^2 = 0.980$ D.W. = 1.91

(5)' $$I = -251.2 + \underset{(9.09)}{0.1680\ Y} + \underset{(2.94)}{0.3281\ M} - \underset{(-3.51)}{1.095\ W} + \underset{(2.47)}{8.864\ P}$$

$\bar{R}^2 = 0.987$ D.W. = 2.21

(6)' $$X = 96.73 + \underset{(1.13)}{1.874\ P_x} + \underset{(4.17)}{0.7470\ X_{-1}}$$

$\bar{R}^2 = 0.848$ D.W. = 1.61

where

1. W = annual money wage rate of unskilled industrial workers; in pesos.

2. The definition of all the other variables in equations (1)' - (6)' are the same as those in section 1. However, real variables are expressed above in 1955 prices, rather than in 1972 prices as in section 1, and $P_x = P_m = P = 100$ in 1955.

Appendix B

The allowances and adjustments which were provided for by the following presidential decress were included in the computation of the variable A in this paper [A added to the annual money wage rate W equals the variable W* in this paper]:

1. PD 442 granting 10 paid holidays, namely: New Year's Day, Maundy Thursday, Good Friday, the ninth of April, the first of May, the twelfth of June, the fourth of July, the thirtieth of November, the twenty-fifth and the thirtieth of December; done on May 1, 1974.

2. PD 525 requiring employers in the private sector to pay their employees who are receiving less than ₱600 a month emergency allowance of ₱50.00 a month if their capitalization is more than 1 million pesos, ₱30.00 if their capitalization is more than 100 thousand pesos but does not exceed 1 million pesos, and ₱15.00 if their capitalization is 100 thousand pesos or less; done on July 31, 1974 and should take effect immediately, In the absence of data on capitalization of private firms, an emergency allowance of ₱30.00 a month was included in A effective August 1, 1974.

3. PD 851 granting a 13th month pay for private employees receiving not more than ₱1000 a month, regardless of the nature of their employment; done on December 16, 1975.

4. PD 1123 granting an across-the-board increase of ₱60 in emergency allowance as provided in PD 525 effective May 1, 1977.

5. PD 1614 providing for the payment of ₱60 monthly allowance to non-agricultural workers effective April 1, 1979. Section 4 of chapter IV of this Decree states that nothing in the Decree shall be construed to withdraw or reduce any existing allowances, bonuses, and other benefits provided under existing laws, decrees, wage orders and other issuances or employer practices or policies.

6. PD 1634 requiring private employers to pay each of their employees whose wage or salary is not more than ₱1500 a month, a monthly additional emergency living allowance of ₱60 effective September 1, 1979 and another ₱30 a month effective January 1, 1980. Employers who gave increases in wages and/or allowances of less than ₱60 a month on or after August 1, 1979 were required to pay the difference.