

ANALYSIS OF THE CAUSES OF INFLATION:
THE CASE OF KOREA

by

KIM, SEOK JOONG

Kim

B. S., Chungbuk National University, 1982

A MASTER'S REPORT

submitted in partial fulfillment of the

requirement for the degree

MASTER OF ARTS

Department of Economics

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1984

Approved by: .

Lloyd B. Thomas

Major Professor

LD
2668
.R4
1984
K555
C. 2

AL1202 662215

ACKNOWLEDGEMENT

I wish to express a sincere gratitude to Chungbuk National University for giving me the opportunity to pursue my masteral studies.

I am specifically grateful to Dr. Lloyd Thomas, my major professor, for his invaluable advice and guidance. I also thank Drs. Patrick Gormely and James Rhodes, who not only taught me but also served on my committee.

Appreciation is extended to Professors in Chungbuk National University for their encouragement.

Finally, my deepest gratitude goes to my parents, brothers and sisters for the moral support and encouragement they have provided me.

**THIS BOOK CONTAINS
NUMEROUS PAGE
NUMBERS THAT ARE
ILLEGIBLE**

**THIS IS AS RECEIVED
FROM THE
CUSTOMER**

TABLE OF CONTENTS

	Page
LIST OF TABLES -----	iv
LIST OF FIGURES -----	v
 Chapter	
1. INTRODUCTION	
OBJECTIVE OF STUDY -----	1
SCOPE AND METHOD OF THE STUDY -----	2
2. DEFINITION AND CAUSES OF INFLATION	
DEFINITION OF INFLATION -----	5
CAUSES OF INFLATION -----	5
DEMAND-PULL INFLATION -----	6
COST-PUSH INFLATION -----	9
MIXED INFLATION -----	11
3. INFLATION IN KOREA	
GENERAL SITUATION -----	14
POTENTIAL CAUSES OF INFLATION -----	17
REASONS FOR CHOOSING VARIABLES -----	19
4. ECONOMETRIC ANALYSIS	
SIMPLE REGRESSION -----	37
MULTIPLE REGRESSION -----	49
5. CONCLUSION -----	53
6. APPENDIX-----	55
7. BIBLIOGRAPHY -----	62

LIST OF TABLES

Table	Page
1. Major Economic Indicators, 1971-1980 -----	16
2. Comparison of WPI with Other Countries -----	17
3. Comparison of Wage and Productivity -----	27
4. Exchange Rate of Won to U.S. Dollar -----	29
5. Relative Inflation Rates and Depreciation, 1975-1980 -----	30

LIST OF FIGURES

Figures	Page
1. The Inflationary Gap -----	7
2. Demand-Pull Inflation -----	9
3. Cost-Push Inflation -----	10
4. Mixed Inflation -----	12
5. The Relationship among Variables -----	19
6. The Rate of Change of M1, M2, and Real GNP -----	20
7. The Rate of change of Velocity and WPI -----	22
8. The Rate of Change of Government Expenditure and WPI -----	23
9. The Rate of Change of Exports, Export Price, and WPI -----	24
10. Wage-Push Inflation -----	25
11. The Rate of Change of Import Price, WPI, and Imported Energy -----	28
12. Inflationary Expectations -----	33
13. Scatter Diagram of logP and logM -----	39
14. Scatter Diagram of logP and logV -----	40
15. Scatter Diagram of logP and logG -----	41
16. Scatter Diagram of logP and logE -----	42
17. Scatter Diagram of logP and logW -----	43
18. Scatter Diagram of logP and logI -----	44
19. Scatter Diagram of logP and logF -----	45
20. Scatter Diagram of logP and logP _{t-1} -----	46
21. Determination of Price Change -----	48

Chapter 1

INTRODUCTION

OBJECTIVE OF STUDY

Korea, a newly industrialized country (NIC) with a recent history of rapid economic development, has been experiencing a serious conflict between economic growth and price stability. Rapid growth has resulted in a shortage of skilled labour and has forced the country to import substantial amounts of capital goods and industrial materials, including crude petroleum.

In addition, policy-makers have been obliged to provide continuous and sustained monetary and fiscal stimuli to support the country's ambitious development plans. A problem common to Korea and many other NICs is the apparent lack of compatibility of sustained economic growth with price stability.

The mere fact that so much theoretical and empirical attention is paid to inflation suggests that it is considered an extremely important economic problem.

Needless to say, the exercise of public policy designed to alleviate inflationary pressures requires some knowledge about the cause of such pressures.¹

And inflation can be treated effectively only if its causes are accurately diagnosed. Noting the failure of economists to diagnose the root causes of inflation in many cases, Paul Samuelson and Robert Solow comment that: "Just as generals are said to be always fighting the wrong war, economists have been accused of fighting the wrong inflation."²

The purpose of this paper is to examine the nature and causes of inflation in Korea for the period (1971-1980) during which the development plans were actively implemented.

SCOPE AND METHOD OF THE STUDY

In analyzing the causes of inflation, all variables can be expressed as either percentage change or in index form. In this paper, the price equation is estimated using variables expressed in index numbers.

Inflation is generally measured by three indices - wholesale price index, consumer price index, and GNP deflator. The wholesale price index is used as the price variable in this study.

Taking the wholesale price index, money supply index, velocity index, import price index, exchange rate index, wage index, government expenditure index, and export index as basic data,³ this paper analyzes the relationship

between the price variable and each explanatory variable. But it might be regrettable that several variables which can be considered as causes of inflation are omitted because of data limitations.

The period of analysis extends from January, 1971 to December, 1980. Under the purpose mentioned in section 1, the analysis is carried out by means of simple and multiple regression.

NOTES

¹ Yiannis P. Venieris and Frederick D. Sebold, ~~Macroeconomic Models and Policy~~ (New York: John Wiley & Sons, 1977), p. 607.

² P. Samuelson and R. Solow, "Analytical Aspects of Anti-Inflation Policy," ~~American Economic Review~~, May, 1960, p. 177.

³ A brief description and value of the data are presented in APPENDIX.

Chapter 2

DEFINITION AND CAUSES OF INFLATION

DEFINITION OF INFLATION¹

Inflation means a continuous or persistent rise or upward trend in the general level of prices. Prices may be extremely high and yet inflation may not currently exist if the level of prices is not continuing to increase. One would not want to label as inflationary a momentary upward twitch of the price level, especially if it is soon reversed.

Economists make a sharp and important distinction between the system of relative prices and the general price level. Relative prices describe the terms on which different goods and services exchange for one another ; the general price level describes the terms on which some representative bundle of goods and services exchanges for money.

So inflation has intrinsically to do with money. It is fundamentally a monetary phenomenon. Some would go further and agree with Friedman that "Inflation is always² and everywhere a monetary phenomenon."

CAUSES OF INFLATION

One key issue is the identification of the fundamental cause or causes of inflationary pressures.

Whilst few would deny that inflation is a monetary phenomenon in the sense that it is accompanied by a rise in the quantity of money, many would deny that its origins are monetary.

Since the determination of individual prices is based on demand - and supply conditions, it should not be surprising that when economists have attempted to explain movements in the general level of the index of commodity prices, they have emphasized either demand or supply factors.

Does inflation arise from the demand side of the goods-factors-assets markets, from the supply side, or from some combination of the two - the so-called mixed inflation?

Demand-pull Inflation

Demand-pull theories were divided between the quantity theory, which emphasized the causative role of monetary changes, and Keynesian theories of inflation, which emphasized nonmonetary impulses.

The quantity theory approach. For the pre-Keynesian quantity theorists, the simple equation of exchange provided the means for analyzing inflation. Real output and velocity were considered fairly independent of the stock of money and prices, especially in the longer run. The former depended

**THIS BOOK
CONTAINS
NUMEROUS PAGES
WITH DIAGRAMS
THAT ARE CROOKED
COMPARED TO THE
REST OF THE
INFORMATION ON
THE PAGE.**

**THIS IS AS
RECEIVED FROM
CUSTOMER.**

upon such real factors as the size of the labour force, the stock of capital, the state of technology, and so forth, whereas the latter depended upon certain institutional practices. Given this independence, the general level of prices bore a direct relationship to the stock of money. In this framework, inflation must primarily be caused by variations in the stock of money about its trend rate of growth, and secondarily by variations in the level of output about its trend growth.

The Keynesian approach. Keynesian demand-inflation analysis has frequently been summarized in the concept of an inflationary gap. The so-called inflationary gap is shown diagrammatically as follows.

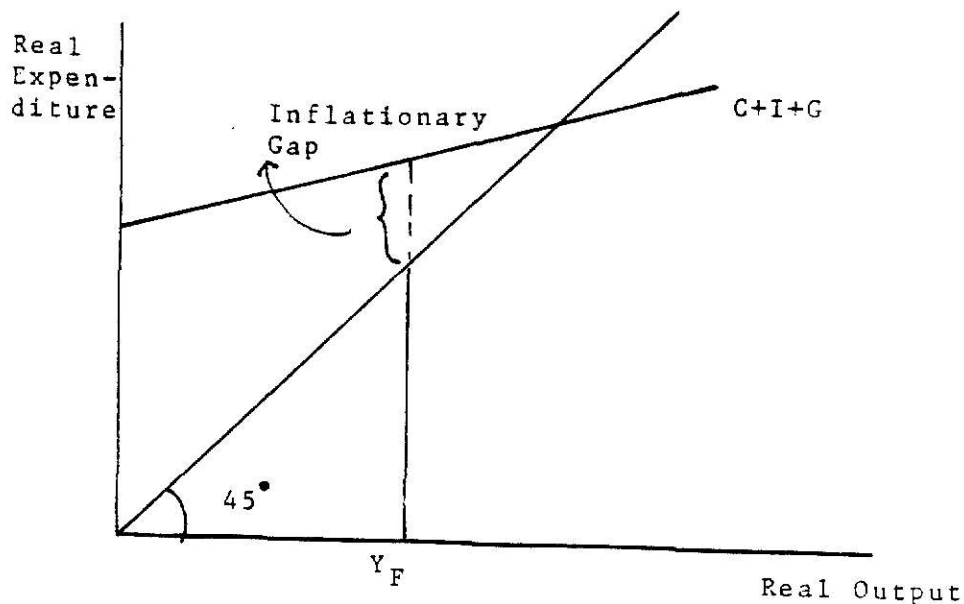


Figure 1. The Inflationary Gap

The gap occurs because at full employment(Y_F) the desired level of real expenditures for consumption, investment, and government outlays exceeds the output which the economy is capable of producing.

The Keynesian concentration on the flow of expenditures as the cause of the pull of demand on prices leads to the conclusion that a society can have nonmonetary inflation; their cause must obviously be too high a level of $C+I+G$.

Demand-pull theory also can be explained with the aid of aggregate demand and supply curves. In Figure 2, the horizontal axis represents real national income or GNP; the vertical axis represents the price level. Aggregate demand curves D are drawn sloping downward. Aggregate supply curve S is drawn sloping upward, and when full-employment is reached, this line becomes vertical.

Pure demand-inflation theorists tend to assume that at some income level Y_0 corresponding to full employment, the aggregate supply function is completely inelastic, as drawn.

No income lower than Y_0 is a full-employment one, and increases in demand beyond D_0 as to D_1 and D_2 raise the price level from P_1 to P_2 and P_3 .

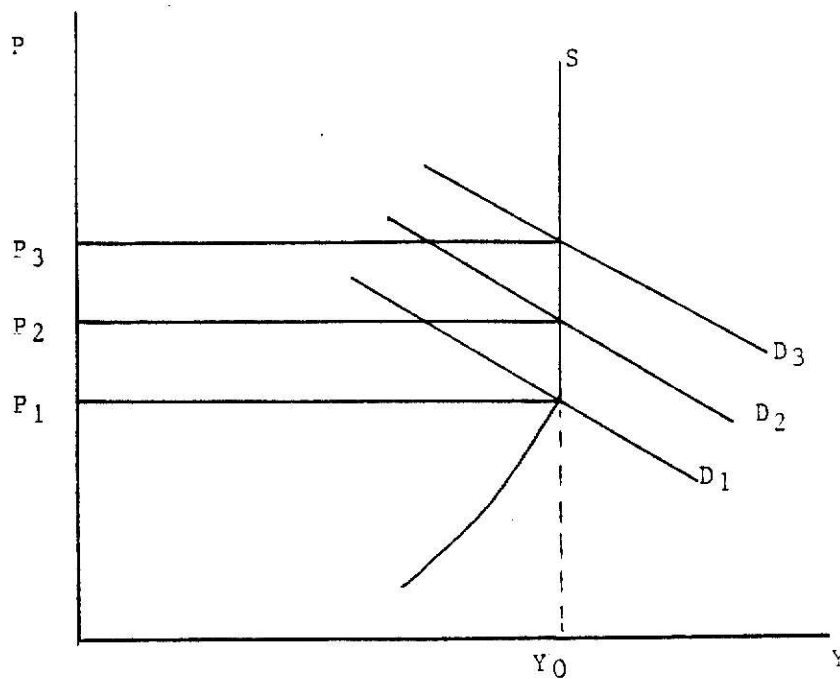


Figure 2. Demand-pull Inflation

Cost-push Inflation

When price levels increase with unemployment substantially in excess of a frictional or structural minimum, or when wages and prices rise at the same time as substantial unemployment exists during a business-cycle recession, it is difficult to postulate that inflation is due to excess demand.

Cost-push inflation was initiated in its various versions by a wage-push from small unions facing an inelastic demand curve for labour, rivalry among groups of unions, profit-push generated through a struggle for income shares among any set of subgroups in society.

Figure 3 illustrates a cost-push inflation. Suppose that there were adverse supply shocks or slowdown in productivity growth. Beginning at price level P_0 and real income Y_0 , aggregate supply decreases to S_1 . Now all of demand can not be satisfied at P_0 ; that is, aggregate output demanded is greater than aggregate output supplied. As a consequence, the price level rises to P_1 . Then if aggregate supply decreases further, to S_2 , all of demand can not be satisfied, and the price level rises to P_2 . This inflationary process continues until there are no further decreases in aggregate supply. In Figure 3, cost-push inflation is characterized by rising prices and falling income.

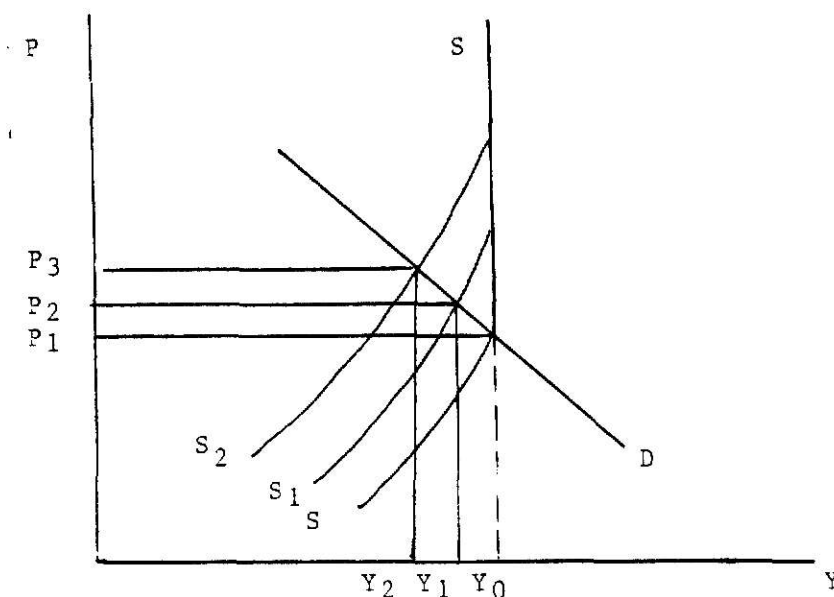


Figure 3. Cost-push Inflation

But, in this case, we need to be careful about the once-and-for-all shift in the aggregate supply curve. An once-and-for-all shift in the aggregate supply curve can only result in an one-shot increase in the price level and a temporary burst of inflation in the process of moving from one price level to a higher one.

We can explain such continued inflation only by continued leftward aggregate supply shifts supported by policy authorities who have committed themselves to maintaining full employment.

Mixed Inflation

It should be emphasized that it is no easy matter to separate cost-push and demand-pull effects in empirical studies of a real economy. In the real world, inflation may arise from some combinations of the two - the so-called mixed inflation. This theory is illustrated in Figure 4, where there are interrelated shifts in the aggregate supply and demand curves. This situation can take place when union claims higher wage because of increase in cost-of-living and government increases expenditure in order to stimulate aggregate demand.

In Figure 4, point "a" represents the initial position of the economy. If the aggregate supply schedule shifts leftward because of wage increase by union bargaining, price

rises from P_0 to P_1 . In order to reduce unemployment, which increased because of the leftward shift in aggregate supply, the government can use expansionary fiscal policy. As a result, the aggregate demand schedule shifts from D_1 to D_2 and the price level increases again, to P_2 . With this process, the price level continues to rise as long as decreases in aggregate supply occur and as long as government maintains commitment to high levels of output and employment.

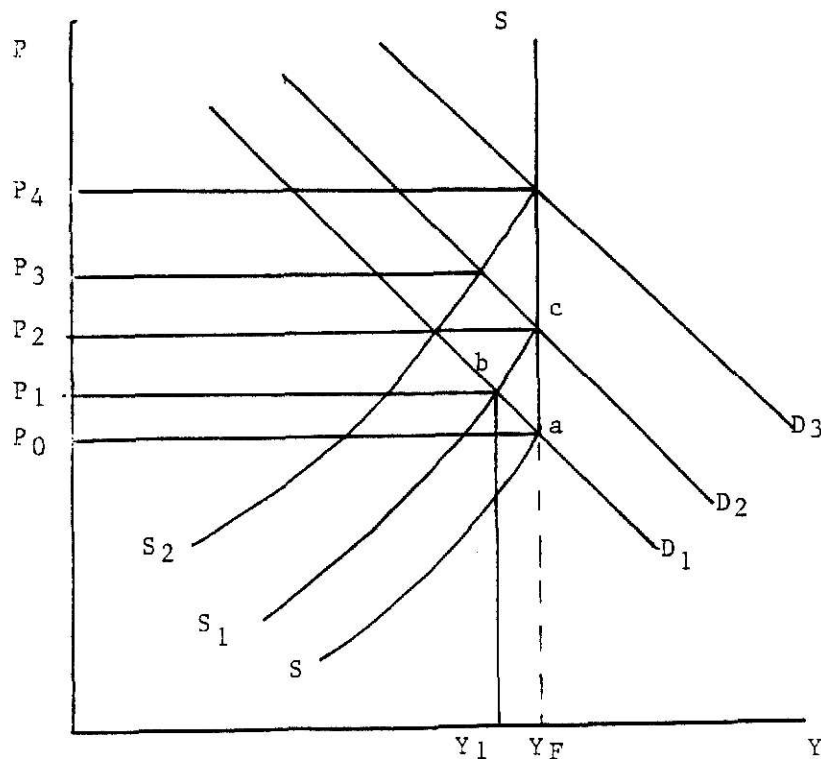


Figure 4. Mixed Inflation

NOTES

¹This part of paper greatly depends upon the studies of Solow and Thomas.

Robert Solow, "The Intelligent Citizen's Guide to Inflation," The Public Interest, Winter, 1975, pp. 30-66.

Thomas, L. B., Money, Banking, And Economic Activity(Englewood Cliffs: Prentice-Hall, 1982), pp. 494-498.

²Friedman Milton, Dollars and Deficits(Englewood Cliffs: Prentice-Hall, 1968), p. 39.

³Five works have been invaluable reference sources for this section.

Gail E. Makinen, Money, The Price Level, And Interest Rates(Englewood Cliffs: Prentice-Hall, 1977), pp.313-335.

Laurence H. Meyer, Macroeconomics: A Model Building Approach(Cincinnati: South-Western, 1980), pp.192-208.

Martin Bronfenbrenner and Franklyn D. Holzman, "Survey of Inflation Theory," American Economic Review, September, 1963, pp. 593-661.

Robert J. Gordon, "Recent Development in the Theory of Inflation and Unemployment," Journal of Monetary Economics, April, 1976, pp. 185-219.

Richard H. Leftwich and Ansel M. Sharp, Economics of Social Issues(Plano, Texas: Business Publications, 1984), pp.335-363.

Chapter 3

INFLATION IN KOREA

GENERAL SITUATION

Since the early 1960s, Korea has made remarkable economic progress. At the beginning of the 1960s, Korea was one of the poorest developing countries, with heavy dependence upon agriculture and a weak balance of payments, financed almost entirely by foreign grants.

By the late 1970s it had become a semi-industrial, middle-income country with a strong external payments position. Export-led development was a powerful "engine of growth" for the whole economy.¹

However, the rapid growth in the 1970s, particularly between 1975 and 1978, created bottlenecks in the economy and led to strong inflationary pressures. While suppressed by price controls in some sectors, inflation was becoming painfully obvious in areas such as housing and agricultural products.

The chronic inflationary expectations were also becoming a serious social and economic problem, and together with a tightening labour market, caused money wages in manufacturing industry to increase by 33 % p.a. during 1975-

78 while real wage growth (at around 18 % p.a.) clearly outstripped the 10 % annual growth in productivity.

Aided by subsidized credit directed by the government through the financial system, the investment in some heavy industries was excessive. The rapid growth of the money supply and domestic credit associated with the investment boom led to a sharp rise in Korea's price level, compared with its trading partners.

To tackle the problems of inflation and structural imbalances, a far-reaching program of stabilization-cum-restructuring was announced in April, 1979. The general strategy was to follow tight monetary and fiscal policies while at the same time initiating basic structural changes aimed at giving greater play to market forces, further opening up the economy to international competition.

But the program was overwhelmed by a series of unexpected shocks and, during 1979 and 1980, the Korean economy experienced the most difficult period in its recent history. The oil price increases in 1979 and 1980 raised Korea's petroleum import bill from about \$2.3 billion in 1978 to \$5.8 billion in 1980. In October 1979, President Park was assassinated. This was followed by a period of very severe social unrest. And the weather turned out to be unfavorable, resulting in a drop in agricultural output of about 22 % in 1980, or over 4 % of GNP. Also, the interna-

tional circumstances were not good for the Korean economy. A large part of the price increase in 1980 was due to external factors, particularly oil prices and devaluation of the won. The rate of increase of wholesale prices accelerated from 12 % in 1978 to 39 % in 1980.

Table 1. Major Economic Indicators,
1971-1980 (Annual Rate of Change, %)

Year	Real GNP	M1	M2	WPI	CPI	Wage	a b	
							Ex	Im
1971	9.4	16.4	20.8	8.8	13.4	15.4	17.1	27.3
1972	5.8	45.1	33.8	13.8	11.7	17.5	21.8	27.0
1973	14.9	40.6	36.4	6.9	3.2	11.5	31.3	35.1
1974	8.0	29.5	24.0	42.1	24.3	31.9	29.5	41.9
1975	7.1	25.0	28.2	26.6	25.3	29.5	29.1	39.5
1976	15.1	30.7	33.5	12.1	15.3	35.5	34.5	36.9
1977	10.3	40.7	39.7	9.0	10.2	32.1	37.2	37.8
1978	11.6	24.9	35.0	11.7	14.4	35.0	36.2	39.5
1979	6.4	20.7	26.4	18.8	18.3	28.3	32.5	40.2
1980	-6.2	16.3	26.9	38.9	28.7	23.4	40.2	50.4

Source: Economic Planning Board(E.P.B.), Major Statistics
of Korean Economy(Seoul: E.P.B.), 1982.

a: Rate of exports to GNP

b: Rate of imports to GNP

Table 2. Comparison of WPI With Other Countries

Year	Korea	U.S	Japan	U.K	Germany	Taiwan
1971	45.7	65.2	63.3	59.0	77.0	58.4
1972	52.0	68.1	63.0	62.1	79.0	61.0
1973	55.6	77.0	73.9	66.7	84.2	74.9
1974	79.0	91.5	97.1	81.9	95.6	105.3
1975	100.0	100.0	100.0	100.0	100.0	100.0
1976	112.1	104.6	105.1	117.3	103.7	102.8
1977	122.2	111.0	107.0	140.5	106.5	105.6
1978	136.5	119.7	104.3	153.3	107.8	109.3
1979	162.1	134.7	111.9	172.0	113.4	124.5
1980	225.2	153.6	131.8	200.0	121.5	

Source: IMF, International Financial Statistics

POTENTIAL CAUSES OF INFLATION

As we see in Chapter 2, the economic theories which explain the causes of inflation can be divided into two major groups - demand-pull and cost-push theories. And there exist so many causes of inflation. Because inflation is the process of continuous rise in the general level of prices,

it would not be correct to try to explain inflation with respect to a special sector in the economy.

In this paper, we assume that inflation is not only a monetary phenomenon, but that there are structural factors which cause inflation. Based on this assumption, we can think of following function.

$$(1) \quad P_t = f(M_t, V_t, G_t, E_t, W_t, I_t, F_t, P_e)$$

where P_t = wholesale price index
 M_t = money supply index
 V_t = velocity index
 G_t = government expenditure index
 E_t = export index
 W_t = wage index
 I_t = import price index
 F_t = foreign exchange rate index
 P_e = price expectation

The right-hand terms represent the factors which are considered as causes of inflation in Korea. Figure 5 illustrates the relationships.

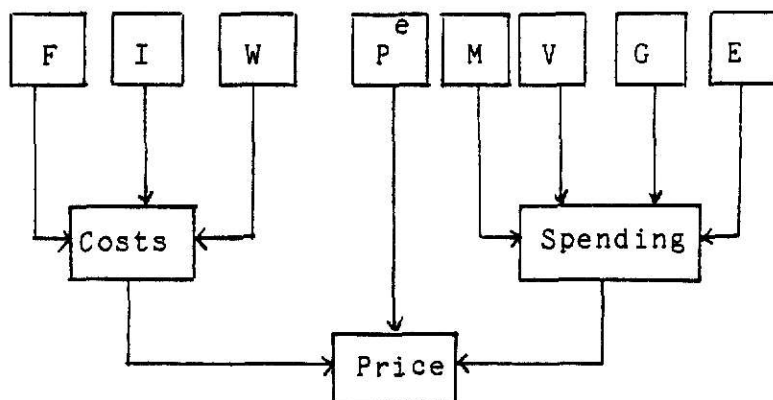


Figure 5. The Relationship among Variables

REASONS FOR CHOOSING VARIABLES

Money Supply

Most economists agree that inflation can not continue without sustained growth in the money supply. A simple way of establishing the relationship between the money supply and price level is provided in the following equation :

$M V = P Q$, in which M is the money supply, V is the velocity of circulation, P is the price level or price index, and Q is the quantity of final goods and services produced during the year.

The equation states that the stock of money times the velocity of money equals the price times the quantity of goods traded. The price level and output tend to move in the same direction as the money supply. Given a constant or relatively constant V, the inflation rate is closely connected with the growth rate in the money supply as the economy expands and nears full employment. In Korea, the

average rates of increase of M1 and M2 during 1971-1980 were 29.0 %, and 30.5 % respectively, compared with the rate of real GNP increase of 8.2 %. We can think that the increase of money supply which far exceeds the rate of potential real GNP increase is a major cause of inflation. Also the report³ by the Korean government noted this point as follows:

The quantitative expansionary policy aimed at achieving rapid economic growth in a short period was enormously successful at the initial stage of development when the economy was small and simple. However, this policy gave rise to an increase in money supply and inevitably inflation.

The following figure shows the pattern of change of M1, M2, and real GNP over the years.

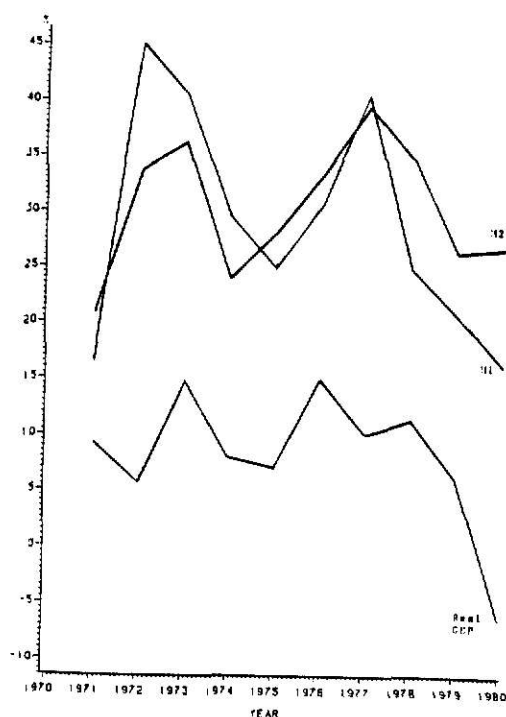


Figure 6. The Rate of Change of M1, M2, and Real GNP

Velocity

Velocity, V , is the ratio of nominal gross national product, Y , to money, M , i.e., Y / M . It measures the turnover rate of the average dollar in M , that is, how many times a dollar was used in transactions involving Y during the year.

Selden argues that inflation could only have been caused (proximately) by one or more of the following :
"An increase in stock of money, an increase in monetary velocity, or a decrease in real income."⁴

When prices are going up, money becomes a less desirable form in which to hold assets. In consequence, people tend to economize on their money balances. Money becomes like a hot potato with people anxious to pass it on rapidly.⁵

One can almost see the velocity of circulation increasing as people scurry to get rid of cash. As we see in Figure 7, the pattern of change of velocity shows the same direction as the inflation rate. That is, velocity has increased continuously. The average rate of increase of velocity was 12.3 % compared with the average rate of increase of WPI, 18.9 % during 1971-1980.

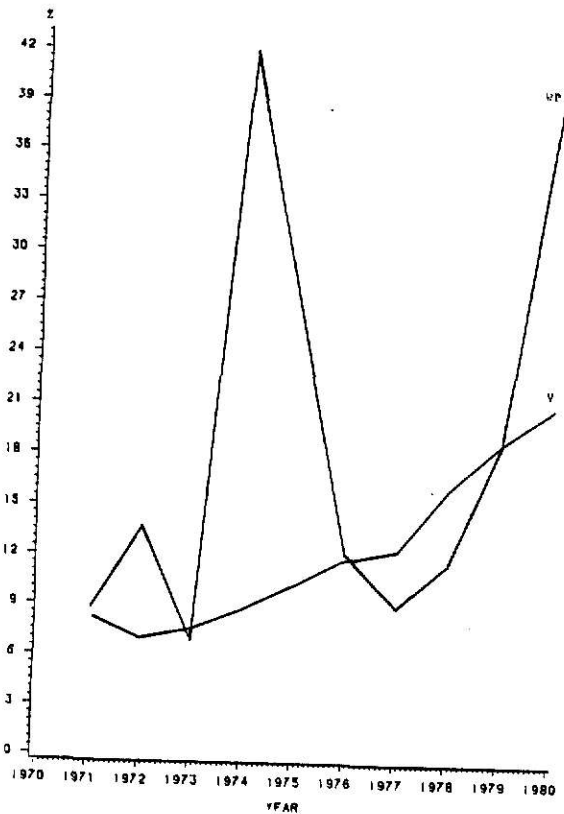


Figure 7. The Rate of Change of Velocity and WPI

Government Expenditure

In Keynes' income-expenditure model, government expenditure plays a significant role as a factor which affects aggregate demand, therefore, the price level.

The average rate of increase of annual budget expenditure from 1971 to 1980 was 32.0 %. This high rate might be due to national defense and economic development expenditure. In Figure 8, we can see that the pattern of government expenditure and WPI move almost in the same direction.

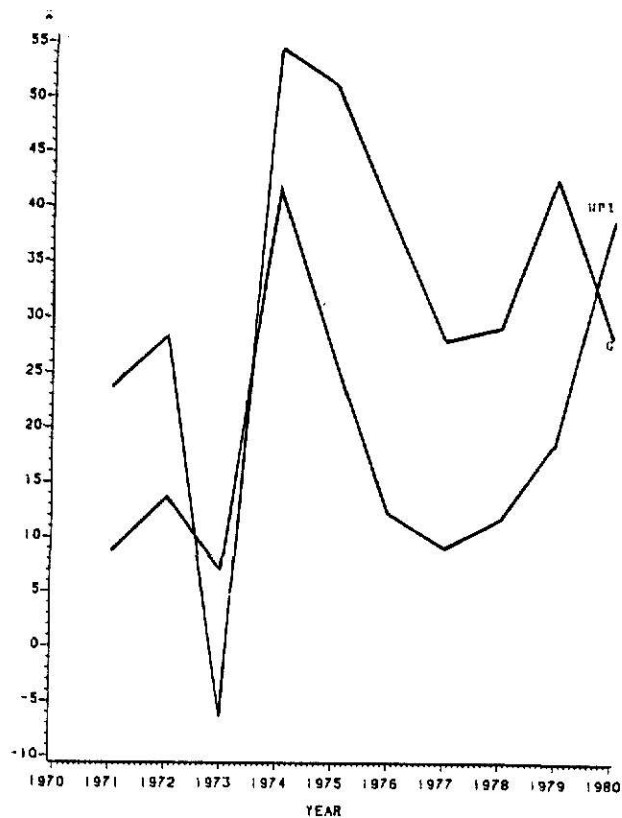


Figure 8. The Rate of Change of Government Expenditure and WPI.

Export

Exports are an important component of aggregate demand. Especially in Korea whose economy is based on the expansion of export-oriented manufactured goods, the change in exports is considered to have an impact on the general price level and on the national economy. The average rate of change of exports and export prices was 36.4 % and 9.2 % respectively.

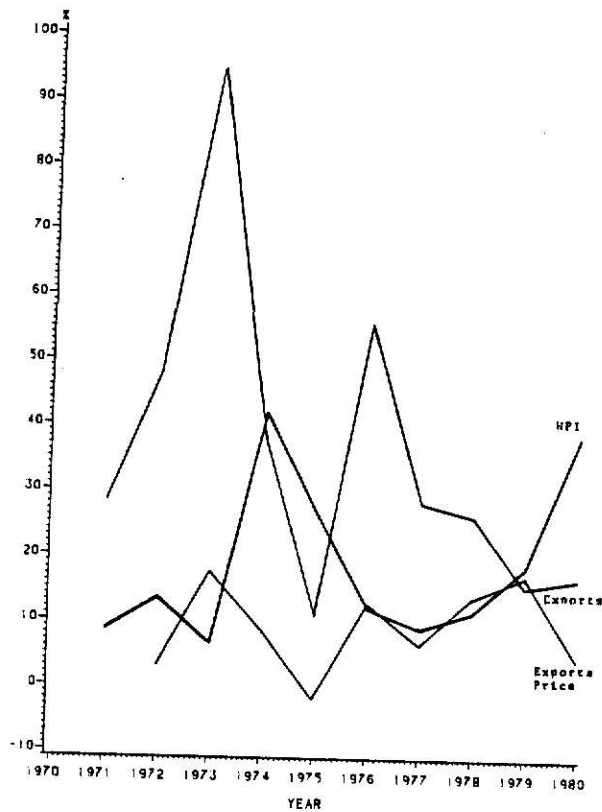


Figure 9. The Rate of Change of Exports, Export Price, and WPI.

Wage

Wage pressure is suggested as a possible cause of inflation. The effect of wage increases on inflation is frequently referred to as wage-push. The effect of the rise in money wages is to force the aggregate supply schedule leftward and stimulate a rise in the general price level.⁶ Figure 10 illustrates the wage-push inflation.

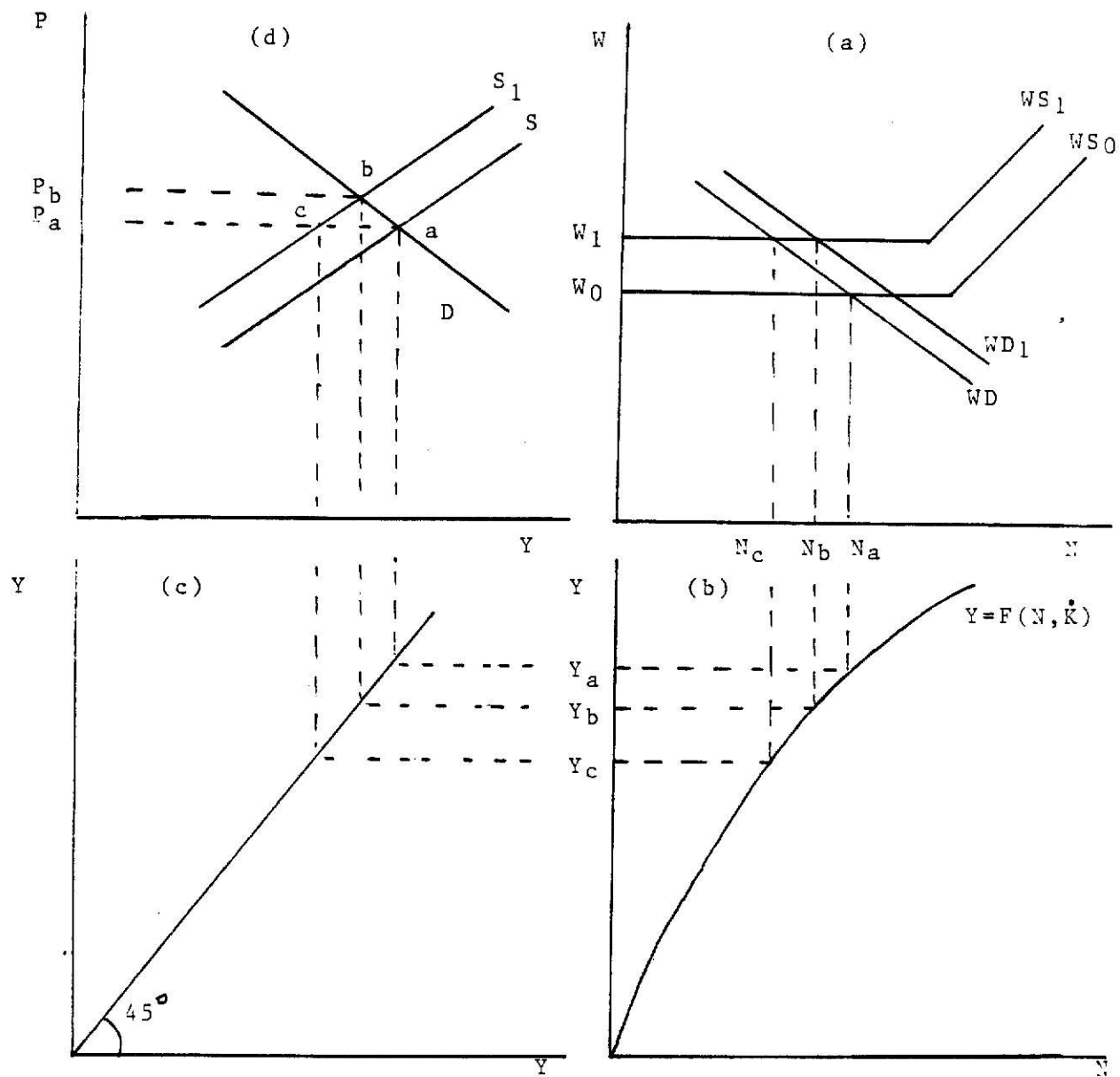


Figure 10. Wage-Push Inflation

Begin in panel (a). Suppose there is an exogenous leftward shift in the labor supply curve from WS_0 to WS_1 . A change in W from W_0 to W_1 causes the labor supply schedule to shift leftward. Along the new labor supply schedule, each price level is associated with a lower level of employment than was originally the case. Or a higher wage forces producers to require a higher price level at each level of employment.

Because employment and output are positively related through the production function, shown in panel (b), this can be translated to mean that each level of output will require a higher price level. Thus, the aggregate supply schedule shifts leftward from S to S_1 (panel d).

The inflationary effect of the rise in the autonomous money wages is given in panel (d). As the aggregate supply schedule shifts, a temporary disequilibrium is created at the initial price level, P_a . The excess of aggregate demand over aggregate supply exerts pressure on prices, and a price rise ensues.

To the extent that the rate of increase of nominal wages is larger than that of productivity, it is inflationary. In Korea, nominal wage increase exceeded the increase of productivity greatly.

Table 3. Comparison of Wage and Productivity Growth
(Annual Rate of Change, %)

Year	Productivity Growth	Wage Growth
1971	8.9	15.4
1972	7.7	17.5
1973	8.3	11.5
1974	10.1	31.9
1975	11.0	29.5
1976	6.8	35.5
1977	10.2	32.1
1978	11.5	35.0
1979	15.5	28.3
1980	10.4	23.4

Source: E.P.B., op. cit., 1982.

Import Price

Korea has suffered from scarcity of natural resources. That is, Korea has depended upon the international commodity and factor markets greatly. This made it very sensitive to foreign market circumstances.

Therefore, fluctuations in the world market had a direct impact on the home market through import price change.

Especially, the rises in the price of raw materials and crude oil were regarded as main factors of cost-push.⁷

The average rate of reliance on imported energy was 62.2 % during 1971-1980. And the rate of change of the import price index was 14.8 % during 1972-1980.

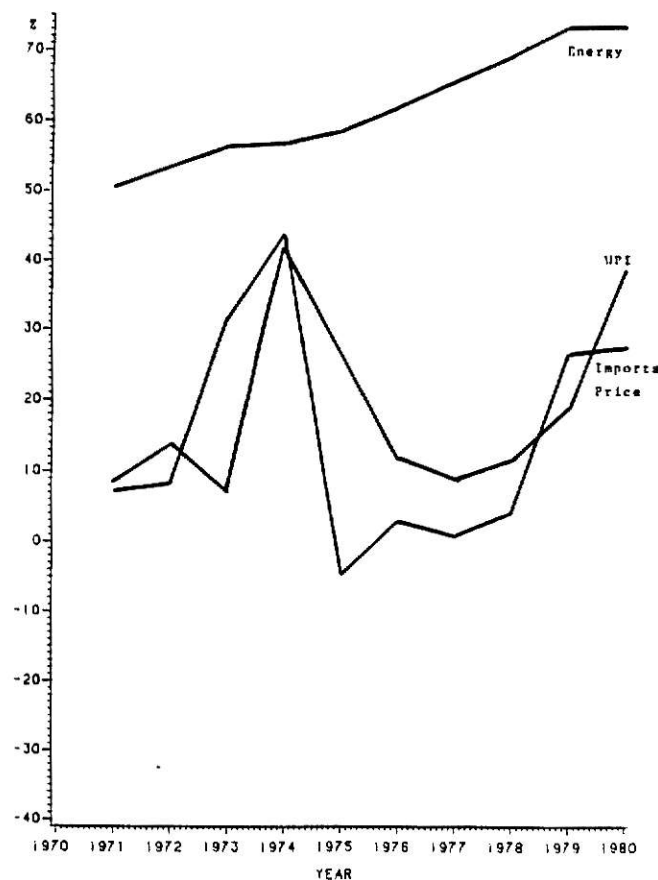


Figure 11. The Rate of Change of Imported Energy, Import Price Index, and WPI

8

Exchange Rate

As the dependence of the Korean economy on foreign markets is very large, variations of exchange rates are considered as a main cause of inflation.

As we see in Table 4, the value of the won with respect to the U.S. dollar has decreased continuously.

Table 4. Exchange Rate of Won to U.S. Dollar(Won End of Year)

Year :	1971	1972	1973	1974 -1979	1980
Won :	370.80	397.50	398.50	484.00	659.90

Source: E.P.B., op. cit., 1982.

That is to say, the won has depreciated. Usually, a country with a higher inflation rate than that of the U.S. had a depreciating currency, and most countries with a lower inflation rate experienced appreciation.

Table 5 illustates this pheonomenon.

Table 5. Relative Inflation Rates and Depreciations,
1975- 1980 (Prices Are GNP and GDP Deflators)

Country	National Inflation Less U.S. Inflation	Depreciation Relative to U.S. Dollar
Australia	20	6
Canada	11	18
France	20	1
Germany	-20	-25
Italy	82	36
Japan	-17	-33
Korea	109	36
Malawi	30	8
U.K.	56	-18

Source: IMF, International Financial Statistics

The 1st column of the Table shows the total percentage change in each country's price level between 1975 and 1980, minus the change in the U.S. price level. Thus, Korean prices rose 109 % more than did U.S. prices in this period.

The 2nd column shows the total depreciation of each country's currency relative to the U.S. dollar. Each country with a higher inflation rate than that of the U.S. had a depreciating currency, with the exception of the U.K. And Korea experienced the sharpest depreciation.

Many industries, working for the home market or producing export goods, use imported goods as inputs. When import goods become more expensive because of rise in the exchange rate, the price of these inputs and the cost of production will rise. Eventually it leads to an increase in the general price level.

According to the purchasing power parity (PPP) doctrine, changes in the exchange rate between any two countries should equal percentage changes in the ratio of price indexes of the respective countries. If the general price level rises in greater proportion in a country relative to foreign country, then local currency should depreciate correspondingly relative to foreign currency.

If PPP held exactly, the two columns in Table 5 would be identical. This is certainly not the case, but there are significant tendencies in this direction. Countries with a higher inflation rate than that of the U.S. had a depreciating currency.

In the case of Korea, the percentage change in the won is less than percentage change dictated by PPP. So the nominal value of the won has decreased but its real value is shown to increase. This situation seems to have made a contribution to the increased imports and corresponding chronic trade deficits.

Price Expectation

One of the social ills which stemmed from rapid economic growth in Korea was the stimulus to inflationary expectations. This continued over time and the expectation of further inflation became a serious social and economic problem. Under the strong inflationary expectations, everybody who held surplus money wanted to preserve its real value, and this desire showed up as speculative investment in real estate, particularly luxurious apartments and commercial buildings in metropolitans areas where lack of housing has become important.

There is no generally accepted way in which to model inflationary expectations. How to estimate current expectations and explain their formation is very controversial. Traditionally, inflationary expectations have been thought of as some average of past rates.

In this paper, we will make the simplifying assumption that the expected rate of inflation is equal to last period's rate of inflation.

$$(2) \quad \dot{P}_t^e = \dot{P}_{t-1}$$

Individuals tend to form expectations for the present partially on the basis of what has happened in the past. We can illustrate the impact of price expectations with the following Figure 12¹⁰.

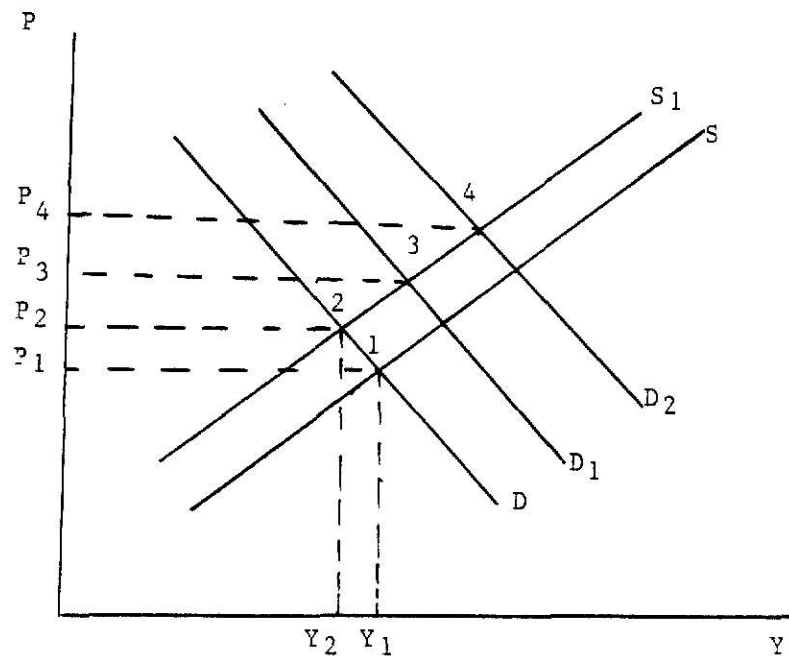


Figure 12. Inflationary Expectations

Assume that the economy has been at a particular equilibrium position for the past several periods, and let that position be represented in period 1 by point 1 in Figure 12. Suppose now that in period 2 an exogenous shock occurs, thus disturbing the system. For the illustration, presume that the labor supply schedule shifts leftward due to the negotiation of a higher level of money wages.

The immediate repercussion of this event is that the aggregate supply schedule shifts leftward, determining a new equilibrium at point 2, where the price level takes on a higher value, P_2 . Given the rise in the price level from P_1

to P_2 over the second period, consumers or investors or both revise their expectations of the change in prices to transpire in the third period.

In that the aggregate demand schedule of periods 1 and 2 was based on a given set of price expectations, the upward revision can be expected to cause a reallocation of current consumption or investment or both, with the net result being a rightward shift in the aggregate demand schedule. But as this happens, the price level is forced up further, reaching P_3 by the end of the period. As the fourth period opens, the rise in prices from P_2 to P_3 in the previous period makes its influence felt; consumers and/or investors revise their expectations again, based upon their recent experience.

If the price rise from P_2 and P_3 was greater than that from P_1 to P_2 , then we can expect price expectations to be pushed upward even further, causing another rightward movement of the aggregate demand schedule, and a movement to a new price level P_4 .

So far we have explained the theoretical rationale for the selected variables - money supply, velocity, government expenditure, exports, wage, import price and foreign exchange rate. In the next chapter, statistical analysis will be carried out with these variables.

NOTES

¹Thomas Stern. et al., The Korean Economic "Miracle" Yesterday, Today, and Tomorrow (Washington: Korea Economic Institute of America, 1983), p.33.

²We can express this in terms of rate of change, i.e.,
 $\dot{M} + \dot{V} = \dot{P} + \dot{Q}$.

³Government of the Republic of Korea, The Fifth Five-Year Economic and Social Development Plan : 1982-1986 (Seoul: R.O.K., 1982), p.10.

⁴R. T. Selden, "Cost-Push versus Demand-Pull Inflation, 1955-57," Journal of Political Economy, February, 1959, pp.1-20.

⁵Rudiger Dornbusch and Stanley Fischer, Macroeconomics (New York: McGraw-Hall, 1978), p.234.

⁶Venieris and Sebold, op. cit., pp. 610-616.

⁷A paper which suggests that imported-related-cost increases play a pivotal role in Korean inflation is

Chong Kiew Liew, "The Impact of Higher Energy Prices on Growth and Inflation in an Industrializing Economy : the Korean Experiences," Journal of Policy Modeling, September, 1980, pp. 389-408.

⁸Three works have been invaluable reference sources for this section.

Bo Södersten, International Economics (New York: Harper & Row, 1970), pp. 308-312.

Gerald M. Meier, International Economics: The Theory of Policy (New York: Oxford University Press, 1980), pp.261-262.

Wilfred Eithier, Modern International Economics (New York: W.W. Norton, 1983), pp. 353-357.

⁹Four works have been invaluable reference sources for this section.

Dornbusch and Fisher, op. cit., pp. 407-411.

Sherman J. Maisel, ~~Macroeconomics~~ (New York: W.W.Norton, 1982), pp. 131-135.

Thomas M. Humphrey, "Some Recent Developments in Phillips Curve Analysis," ~~Economic Review~~, Federal Reserve Bank of Richmond, January/February, 1978, pp. 15-23.

Venieris and Sebold, op. cit., pp. 618-619.

Chapter 4

ECONOMETRIC ANALYSIS¹

In this chapter, we will examine the relationship among the variables chosen in Chapter 3. There are many statistical investigations in which the main objective is to determine whether a relationship exists between two or more variables. For this purpose we use regression analysis.

SIMPLE REGRESSION ANALYSIS

A mathematical equation that allows us to predict values of one dependent variable from known values of one or more independent variables is called a regression equation.

Once a reasonable linear relationship has been ascertained, we usually try to express this mathematically by a straight line equation called the linear regression line.

With the dependent variable, P , and independent variables, M, V, G, E, W, I, F, P^e , we can express relationship. But for a more useful interpretation of the relationships, we need to transform the variables. So the double log model will be used as following.

$$(3) \log P_t = B_0 + B_i \log X_{it} + U_{it}$$

where $\log P_t = \log$ of wholesale price index
 B_0 = intercept term

B_i = regression coefficient
 $\log X_{it}$ = log of independent variable
 U_{it} = random error term

One attractive feature of the double log model is that the slope coefficient B_i measures the elasticity of P with respect to X_{it} , that is, the percentage change in P for a given (small) percentage change in X_{it} .

With this basic model(3), we will try simple regression analysis and then get R^2 , MSE, and F-statistics. As a result, we can know whether an independent variable, X_{it} , has any explanatory power for the given model or not. All estimations will be carried out with Cochrane-Orcutt correction for autocorrelation. Also, scatter diagram will be presented because the best way to start the analysis of data involving two or more variables is to plot the data. The results of estimation are as follows, with standard errors in parentheses.

Money Supply (M)

$$(4) \quad \log P_t = 0.087909 + 0.308156 \log M_t$$

$$(0.010471) \quad (0.070857)$$

$$MSE = 0.000551 \quad F \text{ statistic} = 18.91$$

$$R^2 = 0.1392 \quad \hat{\rho} = 0.9742133$$

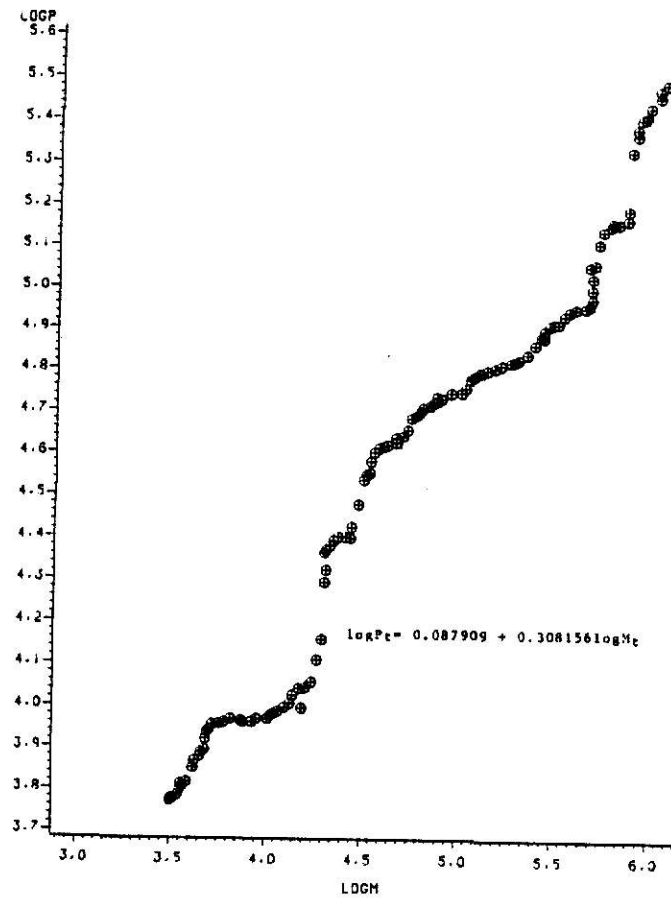


Figure 13. Scatter Diagram of logP and logM.

Velocity(V)

$$(5) \quad \log P_t = 0.317510 + 0.704993 \log V_t$$

$$(0.074127) \quad (0.063010)$$

$$MSE = 0.007764$$

$$F \text{ statistic} = 125.18$$

$$R^2 = 0.5169$$

$$\hat{\rho} = 0.7529276$$

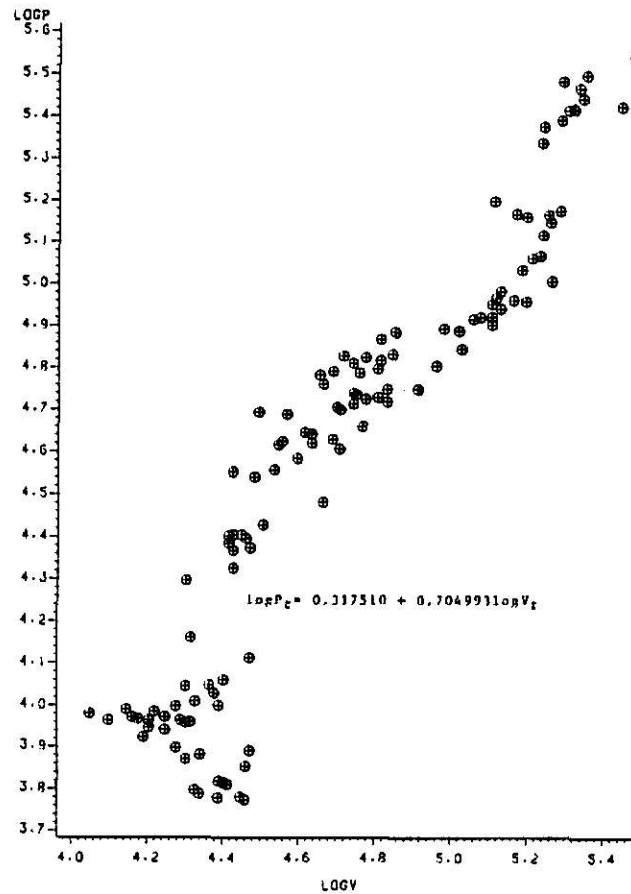


Figure 14. Scatter Diagram of logP and logV

Government Expenditure(G)

$$(6) \quad \log P_t = 1.579038 + 0.439519 \log G_t$$

(0.074081) (0.024549)

$$MSE = 0.026558 \quad F \text{ statistic} = 320.54$$

$$R^2 = 0.7326 \quad \hat{\rho} = 0.3723412$$

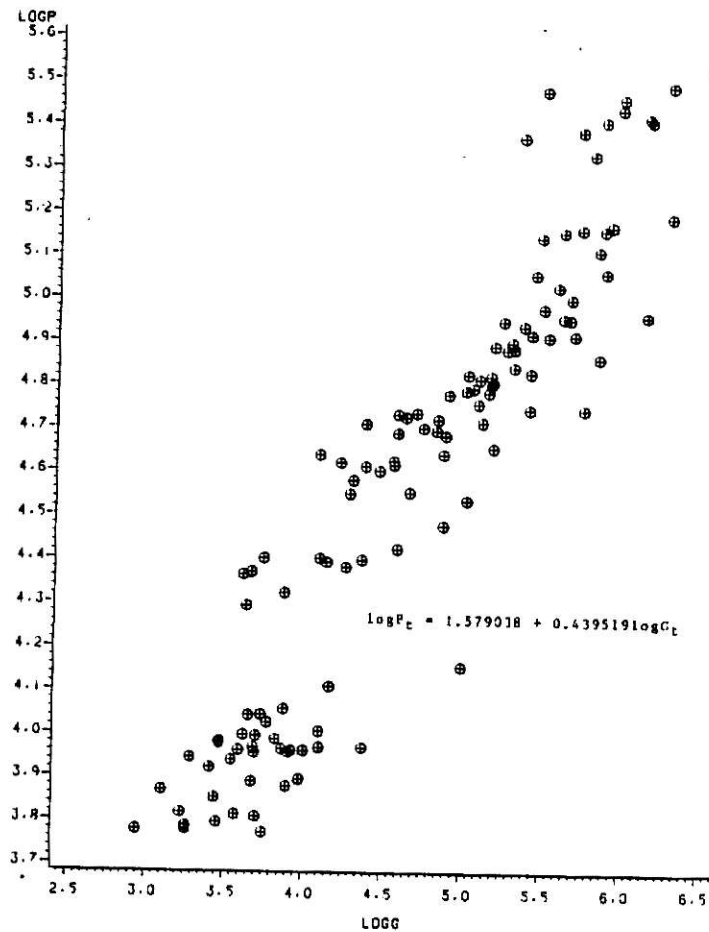


Figure 15. Scatter Diagram of logP and logG

Export(E)

$$(7) \quad \log P_t = 0.720441 + 0.292354 \log E_t$$

$$(0.039272) \quad (0.036902)$$

$$MSE = 0.008478 \quad F \text{ statistic} = 62.74$$

$$R^2 = 0.3491 \quad \hat{\rho} = 0.7787159$$

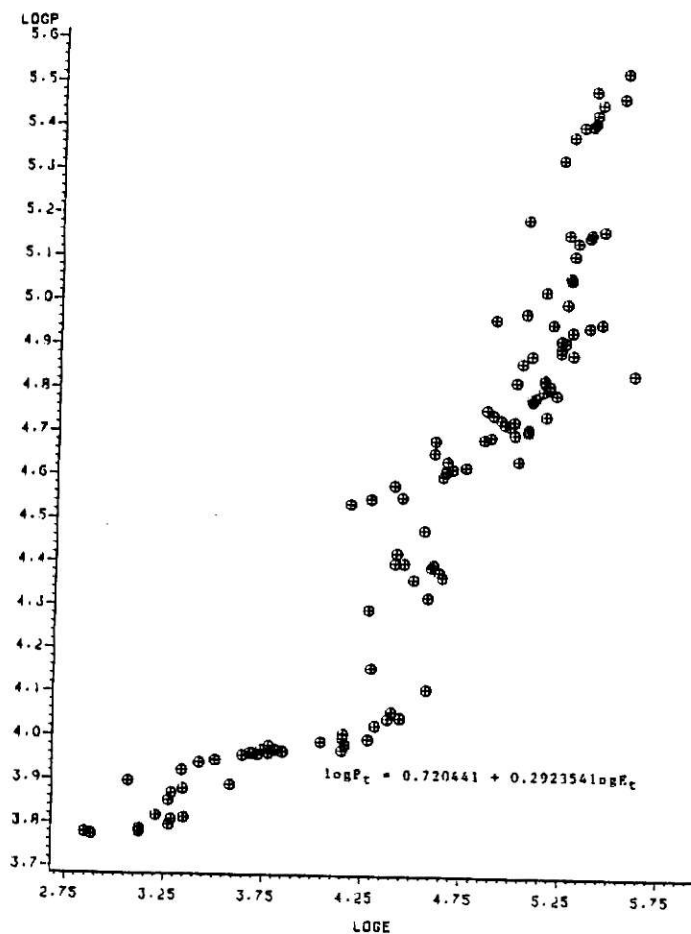


Figure 16. Scatter Diagram of logP and logE

Wage(W)

$$(8) \quad \log P_t = 0.618591 + 0.576401 \log W_t$$

$$(0.040956) \quad (0.024738)$$

$$MSE = 0.005243$$

$$F \text{ statistic} = 542.91$$

$$R^2 = 0.8227$$

$$\hat{\rho} = 0.6612246$$

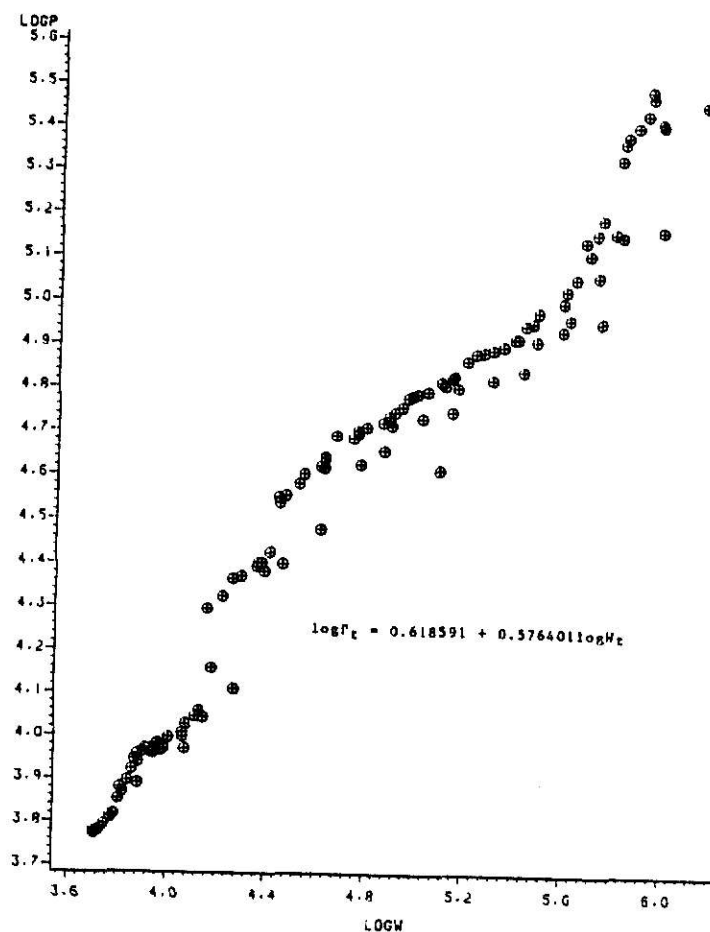


Figure 17. Scatter Diagram of logP and logW

Import Price(I)

$$(9) \quad \log P_t = 0.130365 + 0.388025 \log I_t$$

$$(0.015836) \quad (0.076049)$$

$$MSE = 0.000791 \quad F \text{ statistic} = 26.03$$

$$R^2 = 0.1820 \quad \hat{\rho} = 0.9571995$$

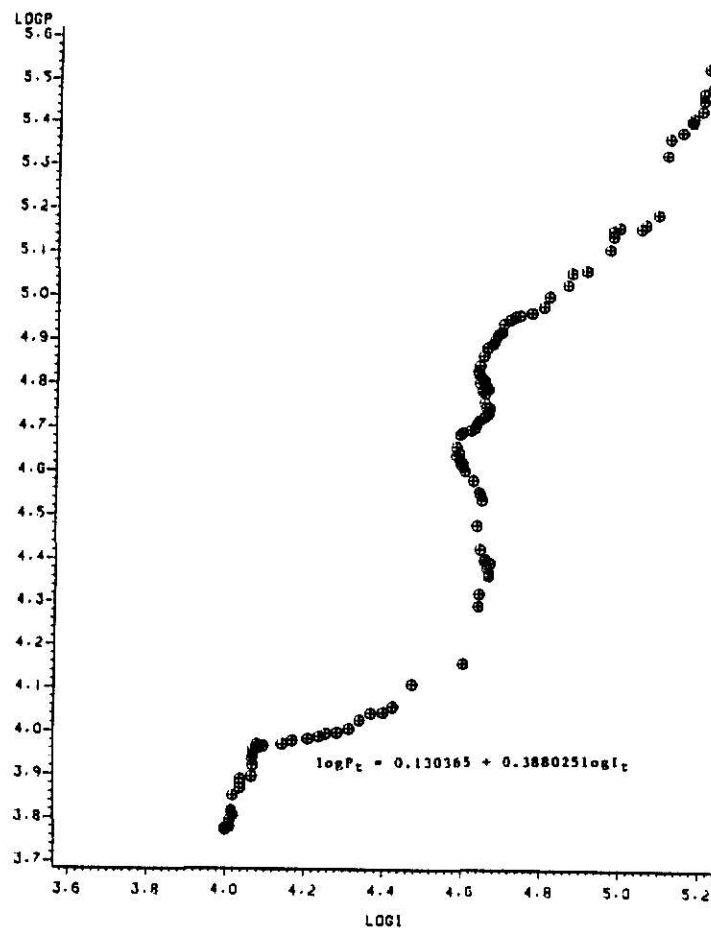


Figure 18. Scatter Diagram of logP and logI

Exchange Rate(F)

$$(10) \quad \log P_t = 0.077922 + 1.143825 \log F_t$$

$$(0.096390) \quad (0.153163)$$

$$MSE = 0.003643 \quad F \text{ statistic} = 55.77$$

$$R^2 = 0.3228 \quad \hat{\rho} = 0.8627974$$

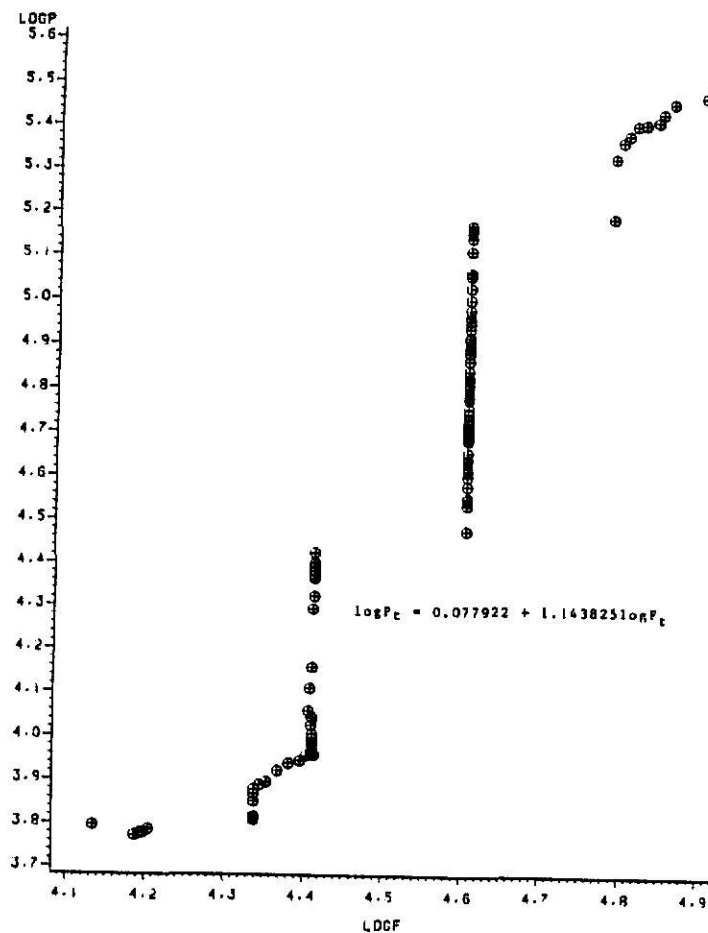


Figure 19. Scatter Diagram of logP and logF

Price Expectation(P^e)

$$(11) \quad \log p_t = -0.000970 + 1.003632 \log P_{t-1} \\ (0.016457) \quad (0.005585)$$

$$MSE = 0.000365 \quad F \text{ statistic} = 3228.8$$

$$R^2 = 0.9964 \quad \hat{\rho} = 0.3598961$$

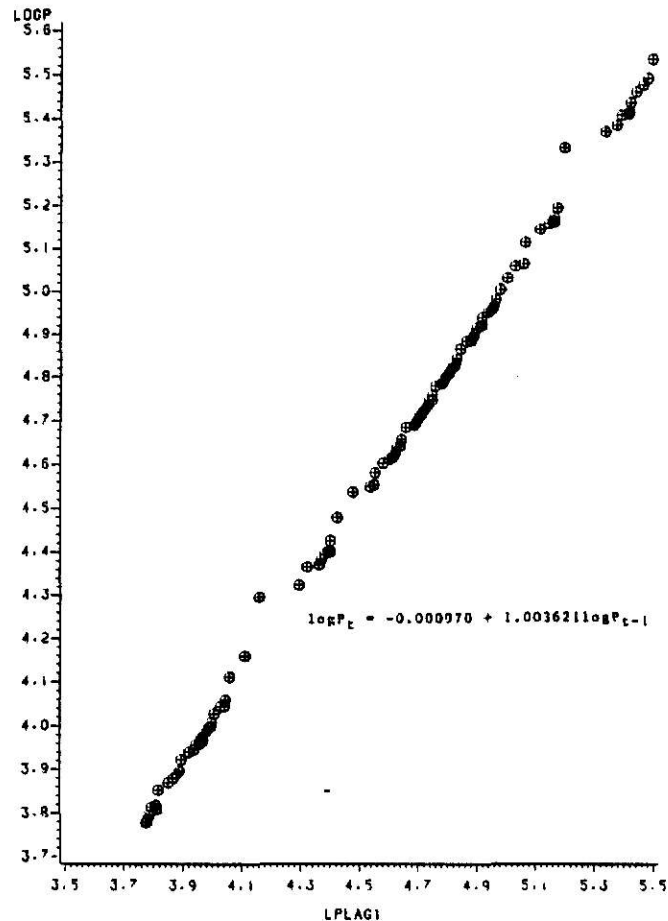


Figure 20. Scatter Diagram of $\log P$ and $\log P_{t-1}$

It may be impossible to adequately judge a theory or model on the basis of the magnitude of coefficient of determination. Nevertheless, it is of great interest to examine how much of the total variation in price level can be explained by each independent variable. Because R^2 of $\log P_{t-1}$, $\log W$, $\log G$ is high (0.9964, 0.8227, 0.7326), these variables seem to have strong explanatory power for the

variations of price level. Other variables also play a role as causes of inflation, but they seem to lack explanatory power for the variation of price level. Especially, R^2 of the money supply is very low. But, it does not seem warranted to say that the money supply has the least effect on the price level with only this simple regression result. We may get a more valid interpretation with multiple regression analysis.

Based on the results of the simple regression analysis, we may interpret that inflation is caused by multiple factors. That is, M, V, G, and E seem to act as causes of demand-pull inflation, while W, I, and F seem to act as causes of cost-push inflation. The change of the price level stemmed not only from the demand-pull but also from the cost-push causes. It may be said to be a mixed-inflation.

We know from theory that monetary expansions shift the aggregate demand schedule (DD), while increases in factor costs change the position of the aggregate supply curve (SS). If a new equilibrium is established at point E_1 , exhibited in Figure 22, the change in equilibrium price ($P_1 - P_0$) is equal to sum of distances AE_0 and BA . Distance AE_0 is the shift in factor costs, while distance

BA is approximated by the product of the slope of S_1 (a) and the real GNP growth $(Y_1 - Y_0)$ which originated from the increase in aggregate expenditures.

Obviously, changes in prices are dependent upon the interactions between cost-push and demand-pull.²

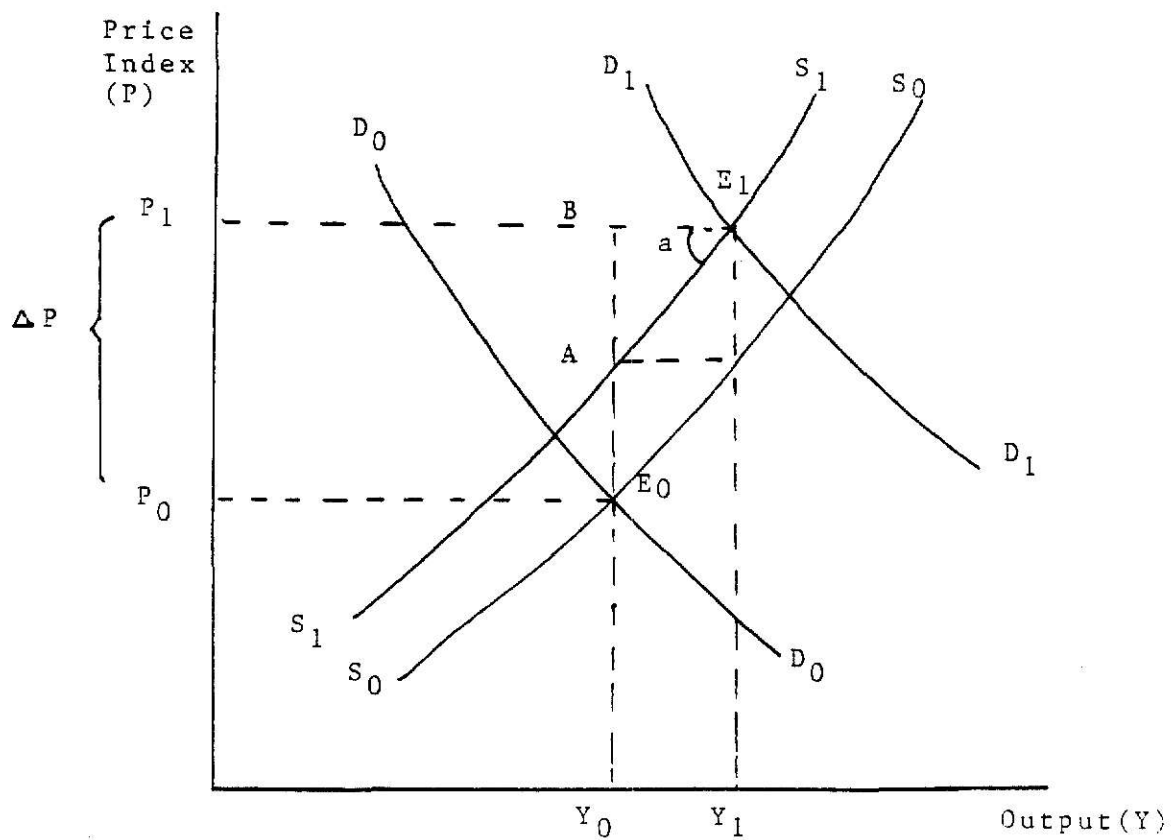


Figure 21. Determination of Price Change

MULTIPLE REGRESSION

So far, we analyzed the relationship between the price level and each of its individual causes. That is, we treated the regression of P on a single independent variable.

In this section, we will estimate the price equation by means of a multiple regression on the Xs (all the independent variables). The result of estimation is as follows, with standard errors in parentheses.

$$\begin{aligned}
 (12) \quad \log p_t = & -0.389386 + 0.035435 \log M_t + 0.018905 \log V_t \\
 & (0.106807) \quad (0.019629) \quad (0.018177) \\
 & -0.008411 \log G_t - 0.014397 \log E_t + 0.014358 \log W_t \\
 & (0.005787) \quad (0.007886) \quad (0.019236) \\
 & + 0.105922 \log I_t + 0.113082 \log F_t + 0.846800 \log P_{t-1} \\
 & (0.019048) \quad (0.037786) \quad (0.031896) \\
 \text{MSE} = & 0.000283 \qquad \qquad \qquad \text{F statistic} = 7524.27 \\
 R^2 = & 0.9982 \qquad \qquad \qquad \hat{\rho} = 0.2289928
 \end{aligned}$$

Above equation shows that 99.82 % of the variation of inflation can be explained by the selected variables. Also each variable, except G and E, is revealed to have a positive relation with inflation.

When we examine the significance of each independent variable, the result is not so satisfactory. That is, the

money supply, velocity, government expenditure, exports, and wage, which were revealed significant in the simple regression model are shown insignificant for this model.

In order to check which of the variables should be included in a regression model, estimation is carried out again by means of stepwise procedure. This procedure is useful when we have a collection of independent variables, and is helpful for exploratory analysis, because it can give us insight into the relationships between the independent variables and the dependent response variable. The result is as follows, with standard errors in parentheses.

$$\begin{aligned}
 (13) \quad \log P_t = & -0.305726 + 0.042142 \log M_t - 0.015078 \log E_t \\
 & (0.082178) \quad (0.014196) \quad (0.007574) \\
 & + 0.101122 \log I_t + 0.093977 \log F_t + 0.866388 \log P_{t-1} \\
 & (0.018568) \quad (0.036724) \quad (0.029669)
 \end{aligned}$$

$$MSE = 0.000286$$

$$F \text{ statistic} = 11901.07$$

$$R^2 = 0.99812$$

$$\hat{\rho} = 0.2289928$$

If we try to explain inflation with this result, that will not be greatly different from interpretation with simple regression equations. That is to say, inflation in Korea is caused by multiple factors. There seems to no dominant single cause for inflation.

We may suspect that significance of a variable in a model can be affected by another variable. So we can cast doubt on the fact that dependent variable (P) appears as independent variable with lagged value in regression model. For this, price variable is estimated without P_{t-1} by stepwise backward elimination procedure. The result is as follows, with standard error in parentheses.

$$(14) \quad \log P_t = -0.029634 + 0.415271 \log M_t + 0.060220 \log V_t \\ (0.017175) \quad (0.031535) \quad (0.029464) \\ - 0.023266 \log G_t + 0.346204 \log I_t + 0.403023 \log F_t \\ (0.007836) \quad (0.056590) \quad (0.076592)$$

$$MSE = 0.000755 \quad F \text{ statistic} = 614.38$$

$$R^2 = 0.9645 \quad \hat{\rho} = 0.7192362$$

All variables in the model are significant at the 0.05 level. Also, in terms of this result, we can say that inflation is caused by multiple factors. Especially significant are M_t , I_t , and F_t .

This result implies that external factor costs play a significant role and the impact of external inflation on internal inflation is substantial in Korea.

Korea, which is particularly natural resource and capital-scarce, is heavily dependent upon foreign commodity and factor markets, and thus is extremely susceptible to external shocks.³

NOTES

¹Three works have been reference sources for this chapter.

J. Johnston, Econometric Methods(New York: McGraw - Hill, 1972).

Ronald E. Walpole, Introduction to Statistics(New York: Macmillan, 1982).

SAS Institute Inc., SAS User's Guide: 1979 Edition(Cary, N.C.: SAS Institute, 1979).

²Jae Wan Chung, "Inflation in A Newly Industrializing Country : The Case of Korea," World Development, July, 1982, pp. 531-539.

³Ibid., p. 531.

Chapter 5

CONCLUSION

We have examined the nature and causes of inflation in Korea with the data which are expressed in terms of index numbers. This study is by no means a predictive analysis of causes affecting inflation. It is an analytical description rather than predictive one.

Although this analysis has suffered from considerable data problems and its findings should be qualified accordingly, the results seem to concur with much of the literature stressing the structural nature of inflation in Korea.

Within the analysis of this paper, it seems that there is no single dominant cause of this inflation. Inflation in Korea is produced by both cost-push and demand-pull factors.

Although it may seem to be conjectural, the conclusion is as follows :

- (1). The selected independent variables can explain 99.82 % of the variation of wholesale price index.
- (2). As is usually the case in an inflation model, the money supply is significant. Continuous and sustained monetary stimuli seem to be significantly responsible for inflation.

- (3). Velocity is shown to be significant in the multiple regression equation.
- (4). Import prices and foreign exchange rates show significant results. This reinforces our assumption that inflation in Korea has been particularly transmitted from resource-exporting countries.
- (5). Price expectations also seem to contribute to inflation.

In conclusion, inflation in Korea is caused by multiple factors, both internal and external. These factors are both monetary and nonmonetary in nature.

APPENDIX A. Basic Data (1971.1 - 1980.12)

	P	M	V	G	E	W	I	F
1	43.5	33.1	86.4	42.6	17.8	40.8	54.5	65.8
2	43.7	33.2	80.6	19.0	17.2	40.7	54.5	66.2
3	43.8	33.7	85.4	26.1	22.7	41.5	55.1	66.6
4	44.1	34.5	76.7	26.1	22.7	41.9	55.0	67.0
5	44.5	34.8	75.7	31.8	26.4	42.5	55.2	62.4
6	45.3	35.0	81.6	35.7	28.5	43.4	55.5	76.6
7	45.1	35.4	82.5	40.8	26.7	43.6	55.7	76.6
8	45.5	36.1	80.6	25.2	24.7	44.1	55.5	76.6
9	47.1	37.4	86.4	31.3	26.3	44.9	55.7	76.6
10	47.9	37.7	73.8	22.3	26.7	45.7	56.7	76.6
11	48.4	38.7	76.7	49.4	28.3	45.2	56.7	76.6
12	48.9	39.0	87.4	39.6	35.9	48.6	56.7	77.1
13	49.2	39.7	71.9	53.6	21.4	46.6	58.4	77.8
14	50.5	39.9	66.0	30.3	28.1	47.4	58.5	78.9
15	51.4	40.2	69.9	34.8	30.7	48.7	58.4	80.0
16	51.7	40.7	67.0	26.7	33.3	47.9	58.6	81.2
17	52.3	41.3	73.8	40.3	38.2	48.5	58.6	81.8
18	52.4	42.8	74.8	50.0	41.2	51.6	48.9	82.6
19	52.6	43.9	72.8	50.9	39.7	49.5	59.1	82.5
20	53.0	45.5	64.1	40.0	45.1	50.0	59.1	82.4
21	52.8	48.1	65.1	47.9	46.8	53.2	60.1	82.4
22	52.6	48.6	60.2	36.4	40.3	51.5	59.5	82.4

APPENDIX A (continued)

	P	M	V	G	E	W	I	F
23	52.6	50.9	67.0	55.1	43.6	51.9	59.0	82.4
24	53.0	52.1	69.9	60.9	63.2	58.6	59.1	82.4
25	53.0	55.3	64.1	79.8	41.9	53.9	63.1	82.4
26	53.5	56.2	57.3	32.1	43.6	52.1	64.7	82.4
27	53.7	57.0	68.0	32.1	64.1	52.5	67.3	82.4
28	54.0	58.4	63.1	46.0	56.7	53.8	69.2	82.4
29	54.4	66.2	71.9	40.7	72.1	54.9	70.4	82.4
30	54.5	60.3	80.6	37.5	63.3	58.1	72.5	82.4
31	55.0	62.1	75.7	60.7	63.5	58.0	74.7	82.4
32	56.1	63.0	79.6	43.5	74.6	58.9	76.7	82.3
33	57.0	65.1	73.8	38.7	79.6	63.3	78.9	82.4
34	57.1	67.3	78.6	41.9	84.6	61.2	81.4	82.3
35	57.9	69.5	81.6	48.4	81.0	62.1	83.4	82.0
36	61.0	71.4	87.4	64.5	96.4	71.4	87.5	82.1
37	64.0	73.2	74.8	148.5	72.7	65.2	99.5	82.3
38	73.3	74.0	73.8	37.8	71.5	63.8	103.3	82.3
39	75.5	74.6	83.5	48.1	96.4	67.8	103.5	82.4
40	78.7	74.0	83.5	36.9	89.4	70.6	105.9	82.4
41	79.2	74.6	87.4	38.9	103.3	73.1	105.9	82.4
42	80.1	76.3	82.5	70.9	101.7	80.2	105.4	82.4
43	81.0	77.5	86.4	62.7	97.6	77.7	106.2	82.4
44	81.7	79.4	83.5	60.1	85.1	79.3	105.0	82.4

APPENDIX A (continued)

	P	M	V	G	E	W	I	F
45	81.5	84.7	82.5	78.4	98.7	86.4	104.6	82.4
46	81.7	82.5	85.4	42.0	81.4	78.1	105.1	82.4
47	83.6	85.1	90.3	98.1	81.9	82.2	103.6	82.4
48	88.2	88.2	105.8	131.2	94.0	100.0	103.0	100.0
49	93.5	90.1	88.4	152.1	64.5	85.2	104.1	100.0
50	94.7	91.5	83.5	72.3	71.6	84.9	103.6	100.0
51	95.1	92.9	93.2	105.8	83.9	87.3	103.3	100.0
52	97.9	93.5	99.0	73.7	80.6	92.1	101.8	100.0
53	99.9	95.3	110.7	87.2	103.0	93.9	99.6	100.0
54	100.9	97.5	94.2	79.7	104.5	162.7	98.9	100.0
55	101.3	100.0	102.9	95.7	104.5	101.9	98.5	100.0
56	101.7	102.0	95.2	68.1	108.1	100.4	99.0	100.0
57	102.2	106.8	108.7	95.3	115.7	117.9	98.2	100.0
58	103.5	106.6	102.9	59.6	105.3	102.1	97.4	100.0
59	103.9	110.5	101.0	130.9	150.9	101.9	98.2	100.0
60	105.5	113.1	117.5	179.6	98.3	129.7	97.5	100.0
61	108.5	115.4	96.1	132.4	98.7	114.3	98.3	100.0
62	109.1	118.1	89.3	97.9	126.5	106.6	98.9	100.0
63	109.7	119.9	110.7	125.3	130.8	116.5	101.0	100.0
64	110.4	121.2	109.7	115.0	147.7	116.2	102.2	100.0
65	111.3	122.6	114.6	79.9	158.0	120.5	102.5	100.0
66	111.9	127.4	125.3	167.1	158.0	133.4	102.8	100.0

APPENDIX A (continued)

	P	M	V	G	E	W	I	F
67	112.6	129.4	118.5	125.6	144.2	128.8	103.6	100.0
68	113.1	132.5	122.3	102.8	140.1	132.4	104.5	100.0
69	113.8	135.2	115.5	97.8	147.1	151.0	105.5	100.0
70	114.2	131.6	114.6	110.0	137.6	131.8	105.6	100.0
71	115.3	142.1	125.3	225.1	172.6	134.9	105.8	100.0
72	115.4	150.0	135.9	318.7	132.1	170.3	105.0	100.0
73	116.7	153.1	105.8	162.4	128.0	139.1	104.5	100.0
74	119.2	157.1	104.9	134.6	160.9	142.4	104.6	100.0
75	119.8	159.2	116.5	173.6	160.1	144.9	104.0	100.0
76	120.3	161.3	108.7	150.3	163.5	147.5	105.4	100.0
77	121.0	164.9	122.3	157.2	181.5	154.1	105.0	100.0
78	122.0	171.3	142.7	176.5	169.6	174.2	103.2	100.0
79	122.6	178.1	114.6	178.0	175.2	165.3	104.5	100.0
80	123.5	184.2	123.3	163.8	175.2	163.1	103.8	100.0
81	124.4	194.0	118.5	176.1	148.1	201.0	103.0	100.0
82	124.8	198.2	111.7	151.9	170.6	170.6	103.0	100.0
83	125.3	201.7	127.2	225.7	170.6	171.6	102.7	100.0
84	127.0	211.0	152.4	203.2	268.9	227.7	103.2	100.0
85	129.9	219.5	123.3	347.5	152.3	181.1	104.2	100.0
86	132.2	229.6	128.2	194.1	159.8	187.6	105.5	100.0
87	132.6	226.0	151.5	203.5	196.8	193.7	105.3	100.0
88	133.4	229.2	145.6	179.8	185.0	201.0	106.5	100.0

APPENDIX A (continued)

	P	M	V	G	E	W	I	F
89	134.5	229.8	165.1	200.7	185.2	209.5	107.0	100.0
90	136.3	236.3	157.3	252.8	189.2	239.6	107.8	100.0
91	136.9	241.8	160.2	297.6	184.8	219.2	108.5	100.0
92	137.0	247.6	165.1	226.8	185.5	222.2	108.9	100.0
93	139.7	255.7	168.9	215.8	195.5	266.2	109.5	100.0
94	141.2	262.2	165.1	189.4	213.1	228.7	111.4	100.0
95	142.1	269.9	180.6	288.1	177.2	235.6	112.6	100.0
96	142.5	284.8	174.8	276.0	226.7	311.8	113.9	100.0
97	143.4	290.7	167.0	468.1	132.7	273.7	117.6	100.0
98	145.6	294.5	168.9	243.7	154.7	240.8	121.2	100.0
99	149.0	294.2	193.2	290.0	190.0	266.6	122.8	100.0
100	153.1	294.9	178.6	266.7	170.3	269.4	128.7	100.0
101	157.4	290.4	183.5	230.8	193.1	279.8	130.0	100.0
102	158.3	298.5	187.4	360.5	192.5	306.8	135.0	100.0
103	166.4	304.1	188.4	344.0	196.0	295.8	143.4	100.0
104	171.5	310.4	192.2	240.0	199.2	289.9	144.6	100.0
105	173.8	323.0	180.6	275.5	211.4	336.6	144.5	100.0
106	175.0	325.5	175.7	308.8	213.1	327.3	146.9	100.0
107	174.7	336.7	191.3	356.2	190.4	303.5	155.2	100.0
108	176.4	352.7	166.0	544.6	155.0	310.5	161.9	119.8
109	180.5	354.2	166.0	544.6	155.0	310.5	161.9	119.8
110	207.4	359.2	188.4	330.5	183.5	334.2	165.1	120.0

APPENDIX A (continued)

	P	M	V	G	E	W	I	F
111	215.5	269.1	189.3	211.8	383.3	338.0	166.2	121.1
112	218.9	368.5	198.1	306.4	192.8	342.2	171.4	122.0
113	224.1	375.2	202.0	353.9	202.6	356.2	175.7	123.2
114	224.8	383.0	204.9	473.0	212.1	393.9	175.1	124.6
115	226.3	384.1	232.0	464.6	214.4	392.3	176.3	126.6
116	230.5	391.8	209.7	391.6	216.4	369.0	180.2	127.3
117	236.2	410.9	207.8	394.5	222.2	467.8	180.9	129.1
118	239.9	410.2	199.0	242.0	247.9	376.7	180.8	134.6
119	243.5	424.4	211.7	536.7	215.2	375.2	185.1	136.1
120	254.3	450.2	239.8	699.6	251.8	512.1	183.2	136.3

Source: The Bank of Korea, various issues of Monthly Economic Statistics, Seoul, Korea.

APPENDIX B. A Description of Data

- (1). P represents wholesale price index. This index is designed to measure the average price level of all types of commodities transacted, in large lots, between domestic establishment.
- (2). M represents the total of currency in circulation and deposit money.
- (3). V represents turnover rate of demand deposits at commercial banks.
- (4). G represents government expenditures.
- (5). E represents exports. Exports are valued at F.O.B.
- (6). W represents wages. Wages are monthly earnings in manufacturing industries.
- (7). I represents import prices(C.I.F. prices). They are contract prices of importers.
- (8). F represents basic exchange rate concentrating to the Bank of Korea, selling rate to customers determined daily by foreign exchange banks.

BIBLIOGRAPHY

- Bo Södersten. International Economics. New York: Harper & Row, 1970.
- Chong Kiew Liew. "The Impact of Higher Energy Prices on Growth and Inflation in an Industrializing Economy : The Korean Experience," Journal of Policy Modeling, September, 1980, pp. 389-408.
- Friedman, Milton. Dollars and Deficits. Englewood Cliffs: Prentice-Hall, 1968.
- Gail E. Makinen. Money, The Price Level, And Interest Rates. Englewood Cliffs: Prentice-Hall, 1977.
- Gerald M. Meier. International Economics: The Theory of Policy. New York: Oxford University Press, 1980.
- Government of the Republic of Korea. The Fifth Five-Year Economics and Social Development Plan : 1982- 1986. Seoul, 1982.
- Jae Wan Chung. "Inflation in A Newly Industrialized Country : The Case of Korea," World Development, July, 1982, pp.531-539.
- J. Johnston. Econometric Methods. New York: McGraw-Hill, 1972.
- Korea Economic Planning Board. Major Statistics of Korean Economy. Seoul : E.P.B., 1982.
- Laurence H. Meyer. Macroeconomics: A Model Building Approach. Cincinnati: South-Western, 1980.
- Mack Ott. "Money, Credit and Velocity," Review, Federal Reserve Bank of St.Louis, May, 1982, pp.21-34.
- Martin Bronfenbrenner and Franklyn D. Holzman. "Survey of Inflation Theory," American Economic Review, September, 1963, pp.593-661.
- P. Samuelson and R. Solow. "Analytical Aspects of Anti-Inflation Policy," American Economic Review, May, 1960, pp.177-194.

- Richard H. Leftwich and Ansel M. Sharp. Economics of Social Issues. Plano, Texas: Business Publications, 1984.
- Robert J. Gordon. "Recent Development in the Theory of Inflation and Unemployment," Journal of Monetary Economics, April, 1976, pp.185-219.
- Robert Solow, "The Intelligent Citizen's Guide to Inflation," The Public Interest, Winter, 1975, pp.30-66.
- Ronald E. Walpole. Introduction to Statistics. New York: Macmillan, 1982.
- R. T. Selden. "Cost-Push versus Demand-Pull Inflation, 1955-57," Journal of Political Economy, February, 1959, pp.1-20.
- Rudiger Dornbusch and Stanley Fischer. Macroeconomics. New York: McGraw-Hill, 1978.
- SAS Institute Inc. SAS User's Guide: 1979 Edition. Cary, N.C: SAS Institute, 1979.
- Sherman J. Maisel. Macroeconomics. New York: W.W. Norton, 1983.
- Thomas L. B. Money, Banking, and Economic Activity. Englewood Cliffs: Prentice-Hall, 1982.
- Thomas M. Humphrey, "Some Recent Developments in Phillips Curve Analysis," Economic Review, Federal Reserve Bank of Richmond, January/February, 1978, pp.15-23.
- Thomas Stern., and others. The Korean Economic "Miracle" Yesterday, Today and Tomorrow. Washington : Korea Economic Institute of America, 1983.
- W. A. Bomberger and G. E. Makinen. "Some Further Tests of The Harberger Inflation Model Using Quarterly Data," Economic Development and Cultural Change, July, 1979, pp.629-644.
- Wilfred Ethier. Modern International Economics. New York: W.W.Norton, 1983.

Yiannis P. Venieris and Frederick D. Sebold.
Macroeconomic Models and Policy. New York: John
Wiley & Sons, 1977.

ANALYSIS OF THE CAUSES OF INFLATION:
THE CASE OF KOREA

by

KIM, SEOK JOONG

B. S., Chungbuk National University, 1982

AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the

requirement for the degree

MASTER OF ARTS

Department of Economics

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1984

ABSTRACT

Korea, a newly industrialized country with a recent history of rapid economic development, has been experiencing a serious conflict between economic growth and price stability. The rapid growth of Korean economy in the 1970's created bottlenecks in the economy and led to strong inflationary pressure. While suppressed by price controls in some sectors, inflation was becoming a serious social and economic problem.

The mere fact that so much theoretical and empirical attention is paid to inflation suggests that it is considered as an extremely important economic problem. The purpose of this paper is to investigate the nature and causes of inflation in Korea for the period during which the development plans were actively implemented.

The general theories of inflation are discussed in Chapter 2. They include demand-pull, cost-push, and mixed inflation.

In Chapter 3, the general nature of the inflation problem in Korea during 1971-1980 is introduced. Also, Chapter 3 explains the reason for choosing the potential factors which can be considered as causes of inflation.

In Chapter 4, the results of estimation are presented. The statistical analysis is carried out by means of simple and multiple regression. The stepwise regression procedure is used for estimation.

The conclusion of this paper is that inflation in Korea is caused by many factors, both internal and external. These factors are both monetary and nonmonetary in nature. Inflation in Korea is caused by cost-push factors accompanied by continuous and sustained money supply growth in excess of rates consistent with price level stability.