

AN ANALYSIS OF SAVING, INTEREST RATES  
AND INCOME IN KOREA 1953-1972

by

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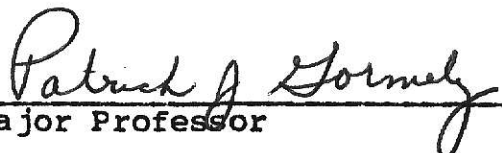
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## CHAPTER I

### INTRODUCTION

On September 30, 1965 the Monetary Board of the Republic of Korea announced that the nominal interest rate on the 18-month time deposits was being raised to 30 percent from the previous level of 15 percent in annual simple rate, and that the regular commercial loan rate being raised to 26 percent from the previous level of 14 percent. The impact of this sharp increase of interest rates on bank deposits and loans was immediate and spectacular. The constant-price value of time and savings deposits rose by 50 percent in the next three month, by 110 percent in 1966, and by 80 and 100 percent in each of the next two years. At the end of 1971 the real value of time and savings deposits was nearly sixteen times the 1965 level. Stated differently, they rose from 3 percent of 1965 GNP in September 1965 to 20 percent at the end of 1968, and to 27 percent at the end of 1971. On the other hand, this inflow of saving to the banks made possible an expansion of constant-price bank loans by 34 percent in 1966, 45 percent in 1967, 61 percent in 1968, and 64 percent in 1969. These growth rates, compared with those of minus 16 percent and minus 17 percent for deposits and loans respectively in 1964, look even more dramatic and spectacular than at first



glance.<sup>1</sup> Therefore, it is quite certain that these sharp increases in private saving and its sustained higher levels in the succeeding years must have directly resulted from the September, 1965 interest rate reform.

However, the widely accepted view in the economic profession is that saving is primarily determined by income only, and that "it cannot even be said in advance whether an increase in the interest rate will increase or decrease saving."<sup>2</sup> Consequently, most countries have been inclined to take a relatively low interest rate policy in order to stimulate investment demand, without much worrying about the supply of saving. Most developing countries have also been following this policy in the hope of achieving rapid growth rate to catch up with the more developed countries.

But Korea's experience in the 1965 interest rate reform presents a remarkable exception to this general trend and offers strong evidence that the prevailing Keynesian view may not be adequate for all economies, especially for some developing countries at a certain stage of development. And if Korea's successful interest rate reform can further be proved to have some generalized applicability, it would certainly be a valuable lesson for other developing countries with similar conditions.

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<sup>1</sup>See Gilbert T. Brown, Korean Pricing Policies and Economic Development in the 1960s (Baltimore and London: The Johns Hopkins University Press, 1973), p. 179-184.

<sup>2</sup>Ibid., p. 182.

This report, therefore, examines the effects of interest rates on saving in Korea. Original data from 1953 to 1972 will be used to investigate the relationship between saving, interest rate, and income. The basic method of analysis is adopted from Gilbert Brown's book "Korean Pricing Policies and Economic Development in the 1960s",<sup>1</sup> which will be further explained in chapters 3 and 4.

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<sup>1</sup>Ibid., p. 193-199.

## CHAPTER II

### GENERAL BACKGROUND PRIOR TO THE REFORM

Prior to the 1965 interest rate reform, Korea was a typical post-war economy. Chronic inflation, flourishing private markets, substantial demand for imports, extremely large-scale foreign aid, very weak desire to save, and excessively high demand for investment were all prevalent phenomena for years since the end of World War II in 1945. In order to understand the basic economic forces which brought about the 1965 interest rate reform, we need to have a general idea of the Korean economy during that period. This can be described as follows:

Historical aspects.--At the end of World War II Korea was separately occupied by the armies of the United States and the Soviet Union. In 1948 it was formally divided into two independent entities--South Korea and North Korea. Both suffered greatly from the separation, as North Korea was primarily an industrial area and South Korea produced most of the food and agricultural products. Hence South Korea was deprived of nearly all the heavy industries, power plants, fertilizer plants, and most of the mineral wealth, including 79 percent of coal production, 97 percent of iron ore, and all of the phosphate rock and magnesite. And even worse than the separation, the Korean

War broke out in 1950. This war lasted for three years and set off a period of great destruction that once more disrupted the whole economy of South Korea. The physical damage has been estimated as equal to South Korea's GNP in 1953, or more than ten times the annual rate of fixed capital investment of that year. About 40 percent of this loss was in housing, with more than 600,000 units destroyed or suffering major damage. Private industry suffered about 20 percent of the physical damage. Together with damage to the government enterprises such as transportation and utilities, this amounted to an extremely heavy loss of industrial capacity and output. There was also a drastic decline in cattle population which was not recovered for ten years, and a rapid inflation from 1950 to 1956 that greatly weakened confidence in the government and the future.<sup>1</sup>

Government policies and Foreign aid.--Definitely, the primary task of the post-Korean war period was to rebuild the badly damaged economy and provide for immediate consumption needs. Most of the needed funds came from foreign assistance. In fact, extremely large-scale economic aid was granted by the United States government and the United Nations, as well as some private agencies from 1951 to 1958. Then it dropped gradually in the 1960s. During 1952-1958, foreign aid(averaging \$270 million per year) provided 75 percent of Korea's

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<sup>1</sup>Ibid., p. 29-35.

imports, or amounted to about 15 percent of GNP of each year. As a result, government policies and various economic measures were all included in one single-minded strategy--to maximize foreign aid, presumably for the purpose of rebuilding the economy rapidly.<sup>1</sup>

.... the Korean government followed a set of policies that clearly kept the internal and external financial gaps wide open to facilitate financial and real resource transfers from abroad and to help justify the need for more aid. These policies consisted of an overvalued exchange rate, relatively low tariffs on imports, no efforts to encourage exports, a deficit budget financed by borrowing from the central bank when taxes and aid generated revenues were insufficient, central bank financing of commercial bank credit to the private sector, and low interest rates that assured excess demand for credit. Such policies inevitably produced an internal financial gap between government revenues and expenditures, and between financial savings and lending. They also insured an external financial gap between import demand and foreign exchange availabilities.<sup>2</sup>

Some aspects of these policies are shown in Table 1.

Few people realized and worried about the potential harmful effects of this strategy. But when foreign aid began to drop sharply in 1959, the whole economy suddenly ran into

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<sup>1</sup>David C. Cole and Princeton N. Lyman, Korean Development (Cambridge, Massachusetts: Harvard University Press, 1971), p. 266 and p. 168-172. Also see Brown, p. 35.

<sup>2</sup>Cole and Lyman, Korean Development, p. 170.

TABLE 1  
AID-MAXIMIZING POLICIES

Year	Average Import Exchange Rate <sup>a</sup> (won <sup>b</sup> per dollar)	Estimated Realistic Exchange Rate <sup>c</sup> (won per dollar)	Ratio, Import to Realistic Rate	Government Deficits (billion won, current price)	Real Interest Rates (annual, percent)
1953	13.3	33.5	0.40	1.29	-26.8
1954	19.5	43.6	0.45	2.11	-22.3
1955	30.8	71.2	0.43	3.33	-53.3
1956	50.6	89.6	0.56	5.35	-18.6
1957	50.9	103.9	0.49	7.15	-8.4
1958	54.5	101.8	0.54	7.75	11.5
1959	66.5	103.9	0.64	7.51	8.6
1960	83.8	113.2	0.74	6.84	0.5
1961	127.7	131.2	0.97	7.36	-3.0
1962	130.0	148.5	0.88	8.10	1.1
1963	138.2	190.8	0.72	4.65	-13.7
1964	225.6	251.6	0.90	-0.09	-17.1
1965	265.4	265.4	1.00	-10.24	10.6

Source: Exchange rates cited from Brown, p. 134. Government deficits from Bank of Korea, National Income Statistics Yearbook, 1973. Interest rates from Economic Planning Board, Korea Statistical Yearbook, 1964 and 1968.

<sup>a</sup>Average rate paid on total merchandise imports, including freight and insurance. See Brown, p. 134-135.

<sup>b</sup>"won" is the currency unit of Korea.

<sup>c</sup>Calculated on the assumption that the 1965 exchange rate of 265.4 won per dollar was a realistic rate, i.e., an estimated equilibrium rate. Values for other years are calculated by multiplying the 265.4 won rate by the ratio of Korea's GNP deflator to the U.S. wholesale price index. See Brown, p. 134-135.

a period of stagnation (from 1959 to 1961, partially also due to the political unrest in these years). And when the government fought back vigorously in 1962 the economy suddenly fell into a hyperinflation. In sixteen months the consumer price index rose by 58 percent and the wholesale price index by 66 percent.<sup>1</sup> These events fully exposed the extreme weakness of this economy which had excessively relied upon foreign aid and deficit financing. Recognition of these consequences became widespread eventually, as was pointed out in the First Five Year Plan(1962-1966):

The lack of overall planning, the abnormal system of interest rates, the corruption and injustice which thrived on the low exchange rates and the haphazard and inefficient management of state-operated enterprises have caused the waste of even what meager capital was available. As a result, industrial output was disappointingly small in relation to investment.<sup>2</sup>

The Plan called for cutbacks of government deficit spending and a more extensive use of banking institutions by the general public for channeling a maximum amount of private saving into bank deposits. Yet the Plan was still somewhat neglected at first, as the government leaders were impatient to carry out major reforms in a slow but systematic way. It was not until the substantial inflation of 1962 seemed to have run out of control that the government finally was convinced of the vital

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<sup>1</sup>Brown, p. 51.

<sup>2</sup>Republic of Korea, Economic Planning Board, Summary of the First Five Year Plan, (Seoul, 1962), p. 27. See Brown, p. 47.

importance of a realistic plan.<sup>1</sup> A series of major reforms were then carried out in this time. Thus, it was after 1964 that South Korea genuinely started to pursue rapid growth under the guidance of economic planning.

Chronic inflation.--Since the end of World War II, aggregate demand has constantly exceeded domestic output in Korea. The country has therefore in this period had continuing inflationary pressures. During the 20 years before 1965, the inflation rate averaged more than 20 percent annually. Since 1965 it has been stabilized around 13 percent. And because of this long experience of inflation, most Koreans have come to expect some continuing inflation. Annual price increases of 10 percent are in fact judged to represent relative stability, and have become the guideline of recent stabilization policy.<sup>2</sup> Thus, compared with most other economies, Korea has experienced more inflation.

Financial institutions and Private market.--In addition to the Bank of Korea acting as the central bank, the Korean banking system consists of five major commercial banks which have 215 branches serving the major urban centers, plus several intermediary-type banks specializing either in relending government fiscal funds or in attracting small-saver deposits. Besides minority ownership by the government, presidents of these five

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<sup>1</sup>Brown, p. 46-52.

<sup>2</sup>Cole and Lyman, p. 127-128.



commercial banks are also appointed by the Ministry of Finance. Major policies such as interest rate ceilings are determined by the Monetary Board, and then the Korean Banking Association sets the actual rates.<sup>1</sup> And because of the government's policy to promote investment demand, interest rate ceilings were constantly set at such low levels that real interest rates frequently turned out to be negative when the inflation rate was high. Private saving, consequently, had remained at low levels with commercial banks acting and serving as little more than institutions for allocating government subsidies to a small group of businessmen who had good relations with the banks and the government.

At the same time the private market, or the unofficial institutions, which was traditionally quite widespread in Korea, was flourishing and obviously taking over more of the roles of the official institutions. They were not subject to the interest rate ceilings and could afford to pay interest rates well above the prevailing rates of inflation. As the demand for finance from the business sector increased because of the high growth rate and high returns on investment in 1963 and 1964, and as the expansion of credit through the banking system was curtailed in an effort to halt the inflation, the real interest rates on both deposits and loans in the private market advanced. They became the main source of readily available funds and most businesses depended on them to some degree.<sup>2</sup>

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<sup>1</sup>Brown, p. 48-49 and p. 182, footnote 2; Cole and Lyman, p. 179, footnote b.

<sup>2</sup>Cole and Lyman, p. 178-179.

Thus the Korean economy in 1965 was trapped between an excess demand for investment funds, accompanied by high inflation on the one hand, and a severe lack of private saving and the stagnation of the banking system on the other. The urgent need to solve the problem finally led to the dramatic interest rate reform on September 30, 1965.

### CHAPTER III

#### THE INTEREST RATE REFORM AND ITS IMPACT

##### The Interest Rate Reform

Faced with a severe lack of domestic saving and a new round of high inflation, and at the same being pressed by the United States government as well as the International Monetary Fund, the Korean government finally determined to attack the problem straightforwardly. Several studies assessed the deficiencies of the past and suggested the appropriate directions for future policy. The general agreement was that the combination of inflation and low ceilings on the interest rates was a strong disincentive to the accumulation of savings deposits in the banking system, and this trend combined with the excess demand for investment funds built up a vicious circle causing increasing inflationary pressures. Undoubtedly, higher bank interest rates were needed to attract larger amounts of private saving into the financial institutions to break the vicious circle of inflation. But the extent of this needed increase in interest rates was not arrived at in any very scientific manner. It was based upon rough comparisons with prevailing rates in the private market, which at that time ranged from 4 to 7 percent per month.<sup>1</sup>

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<sup>1</sup>Cole and Lyman, p. 178-180.

Finally, after reviewing studies of the monetary institutions by Korean economist Lee Chang-Nyol and American consultants Gurley, Patrick and Shaw, the Korean government announced the interest rate reform on September 30, 1965 and pushed through an approximate doubling of major interest rates in commercial banks(see Table 2). In fact, the Monetary Board decreed the interest rate ceilings. Actual rate levels were then agreed upon by Korean Banking Association.<sup>1</sup>

As shown in Table 2, some aspects of this reform stand out as of special interest. First, the rate on 18-month time deposit of 30 percent(simple annual rate of 2.5 percent per month) was 4 percentage points higher than the regular bank loan rate, and also greater than all the others except the overdue loans rate. This somewhat abnormal structure indicated the government's strong determination to mobilize the urgently needed financial resources. The commercial banks were in turn appropriately compensated for the potential loss by receiving interest payments on their reserve deposits in the central bank, and through other subsidy measures by the government.<sup>2</sup> The implementation of this policy, of course, was made possible by the government's minority ownership in commercial banks and the appointment of the presidents of these banks by the Minister of Finance. As a matter of fact, this structure was not altered until October, 1968.

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<sup>1</sup>Ibid., p. 179.

<sup>2</sup>A. G. Chandavarkar, "Some Aspects of Interest Rate Policies in Less Developed Countries", IMF Staff Papers, (Mar. 1971), p. 89-92.

TABLE 2  
CHANGE IN INTEREST RATES  
(September 30, 1965)

	percent per annum	
Bank Deposits	Old Rate	New Rate
Time Deposits		
3 months	9.0	18.0 <sup>a</sup>
6 months	12.0	24.0 <sup>a</sup>
Over 1 year	15.0	26.4 <sup>a</sup>
Over 18 months	----	30.0 <sup>a</sup>
Notice Deposits	3.65	5.0
Savings Deposits	3.60	7.2
Installment Savings Deposits	10.0	30.0
Passbook Deposits	1.8	1.8
Extra Deposits	1.0	1.0
Bank Loans	Old Rate	New Rate
Discount on Bills	14.0	24.0
Loans for Exports and Supply of Goods to US Forces	6.5	6.5
Loans for Purchase of Aid Goods	14.0	26.0
Loans for Military Supply Goods Production	14.0	26.0
Rice Lien Loans	11.0	11.0
Loans on Other Bills	16.0	26.0
Overdraft	18.5	28.0
Loans Overdue	20.0	36.5
Call Loans	12.0	22.0

Source: Bank of Korea, Economic Statistics Yearbook, 1967. Cited from Cole and Lyman, p. 179.

<sup>a</sup>These rates indicate the actual rates agreed upon by the Korean Banking Association. The maximum rate decided upon by the Monetary Board was 2.5 percent per month for all time deposits. See Cole and Lyman, p. 179.

Second, a number of loans such as those for exports, long-term capital expenditures, and rice liens were continued at relatively low rates and subjected to continuing loan ceilings and other rationing devices, indicating the government's extensive emphasis on these sectors. On regular bank loans, however, the long-standing and pervasive system of ceilings was withdrawn. This meant a shift to indirect credit control, which had not been applied in Korea since independence.<sup>1</sup>

#### Impact on Saving and Public Reactions

The most interesting aspect of this reform was perhaps the great contrast between what was predicted and what has actually occurred. At the time of its announcement, not only were businessmen totally suspicious of the claimed effects, even those economists personally involved in its design did not expect such a spectacular outcome as was briefly noted in the introduction of this paper, either.

The September 1965 interest rate changes caused an outcry in Korean business circles and predictions that, contrary to the government's statement, the substantially higher level of commercial bank interest rates would lead to bankruptcy, reduced growth, inflation, and other dire results.<sup>2</sup>

Even the most optimistic supporter of interest rate reform hardly expected increases in saving as large as those that followed the rise in real interest rates in 1965.<sup>3</sup>

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<sup>1</sup>Cole and Lyman, p. 180.

<sup>2</sup>Brown, p. 179.

<sup>3</sup>Ibid., p. 188.

It seems fair to say, however, that no one involved in the so-called interest rate reform anticipated anything like the response that did occur.<sup>1</sup>

It is interesting indeed to note that the preceding two quotations from different sources express almost the same meaning. And it is quite clear that both professional economists and ordinary businessmen were highly doubtful of the presumed effectiveness of a policy which deviated so much from, or even conflicted with, the prevalent economic theories.

In fact, however, Korea has actually experienced more rapid growth after the interest rate reform than before, and the predicted inflation and bankruptcy have not been borne out. The faith of government policy-makers that higher interest rates would add to the availability of bank credit and to domestic saving seems to have been fully vindicated.

Looking first at time and savings deposits, the effect of the interest rate change was immediate and dramatic, as was observed by Brown as well as Cole and Lyman:

As deflated by the wholesale price index, the value of time and savings deposits rose by 50 percent during the final three months of 1965. For the next three years, through 1968, these deposits grew at a compound annual growth rate of approximated 100 percent. Though this growth rate slowed markedly thereafter, the real value of time and savings deposits at the end of 1971 was nearly sixteen times their 1965 level. Relatively, time and savings deposits rose from 3 percent of 1965 GNP in September 1965 to 20 percent at the end of 1968, and to 27 percent at the end of 1971.<sup>2</sup>

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<sup>1</sup>Cole and Lyman, p. 180.

<sup>2</sup>Brown, p. 182.

.... real time and savings deposits(deflated by the whole-sale price index) had not increased at all during the three years before the reform, but rose by 372 percent over the succeeding two years.<sup>1</sup>

In addition, there was also a marked shift in the public's preference toward time and savings deposits rather than money (demand deposits plus currency) at the higher interest rates:

These deposits rose from half the money supply at the time of the interest rate reform(44 percent in September 1965) to more than double the money supply(236 percent) at the end of 1971. During the period 1956-1964, time and savings deposits grew by 52 percent of the increase in money supply. From the end of 1965 through 1969, however, the public increased its time and savings deposits by 314 percent of the increase in its holdings of money. Stated differently, during the first period the public took one-third(34 percent) of its total increase in liquid assets(money plus time and savings deposits) as time and savings deposits, but during the latter period this share rose to three-fourths(76 percent).<sup>2</sup>

Moreover, the rate of inflation was sharply reduced from 32 percent in 1964 to 8 percent in 1965, and then stabilized between 11 to 15 percent. Investment grew at a 32 percent annual rate during 1965-1969, the real GNP growth rate averaged 12 percent.<sup>3</sup>

All these evidences cited above, thus, are clearly ample to show that the 1965 interest rate reform not only had a profound effect on domestic saving, but also helped stabilize and

<sup>1</sup>Cole and Lyman, p. 180.      <sup>2</sup>Brown, p. 183.

<sup>3</sup>Bank of Korea, National Income Statistics Yearbook, 1973.



stimulate the whole economy.

### Long-Term Relationship between Interest Rate and Saving

Less dramatic but perhaps much more important and significant is the potential long-term relationship between saving and interest rate levels suggested by this reform. Various measures of saving have been regressed by Kwang-Suk Kim on real interest rate and income.<sup>1</sup> Kim's results all suggest that income and interest rate are both important determinants of the growth in saving. However, because of the high degree of association between real interest rates and income in Korea, it is impossible to separate statistically their respective effects on saving. In general, income would be expected to be a relatively more important factor in the determination of saving than interest rates. But if it is proved that interest rates are indeed significantly related to saving in Korea, it will still be a quite valuable assertion for development theories. At least for some developing countries with economic conditions similar to those in Korea, an analogous interest rate policy may be very useful.

Since the variations of interest rates in Korea were relatively great, as compared with most other countries, we believe that by using the Korean economic data we will have a better chance to obtain a meaningful conclusion concerning the relationship between saving and interest rates.

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<sup>1</sup>Kwang-Suk Kim, "An Appraisal of the High Interest Rate Strategy of Korea", 1967. Note cited from Cole and Lyman, Korean Development, p. 298.

A regression model will be used in next chapter to investigate the long-term relationship between saving, interest rates and income in korea.

## CHAPTER IV

### REGRESSION ANALYSIS

The hypothesis tested in this chapter is whether saving is a consistent function of income and interest rates. Since the primary purpose is to find out the potential influence of interest rates on saving at various income levels, the best way to approach this problem is to take saving as a ratio to income rather than an absolute amount. In this way we can disregard the part of proportional change in saving out of changed income. What is left then are the potential effects of income and interest rates on the saving ratio respectively. In terms of theoretical economics, the saving ratio is called the average propensity to save (APS).

According to Keynesian consumption theory, assuming a positive autonomous consumption and a constant marginal propensity to consume, the average propensity to consume is declining and the average propensity to save increasing with increased income. Thus for a given set of observed data, if income alone cannot account for the variations in saving rates, and only by further including interest rates can the remaining deviations be made up, this result would be a strong evidence to justify the presumed influence of interest rates on saving.

Besides, in order to closely examine the relationship between saving, income, and interest rates, private disposable income is clearly better than GNP or national income to represent the income variable. The private saving rate (ratio of private saving to private disposable income) is certainly also more appropriate than domestic saving rate or gross saving rate as a variable, because the latter two contain government saving which has been normally little related to interest rates in Korea.

The simple model chosen to test the above hypothesis is similar to the one used by Brown. But the analysis here contains data from 1953 to 1972, which is longer than the period (1957-1970) covered in Brown's analysis. The model consists of the private saving rate as a multi-linear function of private disposable income and the real interest rate, and is expressed by the equation:

$$S = a_0 + a_1 i + a_2 Y$$

where  $S$  = the ratio of private saving to private disposable income, also called the private saving rate.

$i$  = the real interest rate measured as the nominal interest rate for one-year time deposits minus the rate of inflation calculated by GNP price index with the 1970 price equal to 100.

$Y$  = private disposable income, defined as the sum of private consumption expenditure and private saving.

$a_0$ ,  $a_1$  and  $a_2$  are respective regression coefficients for the constant item and the two independent variables.

One more thing to be noted is that the quantity of private saving is adjusted for the changes in agricultural inventories. The reason is that Korea's single annual rice harvest, which accounts for about 40 percent of the total agricultural production and more than 10 percent of GNP, occurs in late October and early November. And in constructing the GNP accounts it is assumed that 5/6 of each year's harvests is carried over as inventory at the end of each year. Thus bumper harvests and poor harvests which result largely from weather conditions often create major swings in private saving estimates. Therefore, in calculating the quantity of private saving, the changes in agricultural inventory are excluded. In other words, the increased amount of agricultural inventory is subtracted from, and the decreased amount is added to the amount of private saving.

Table 3 shows the values of private saving rate, nominal interest rates, rates of inflation, real interest rates and income for the period from 1953 to 1972.

Equation (1) shows the regression of the private saving rate on the real interest rate and income.

TABLE 3  
REGRESSION ANALYSIS DATA  
(in 1970 constant-price)

Year	Private Saving rate	% Nominal Interest Rates	% Rates Of Inflation	% Real Interest Rates	billion won Private Disposable Income
1953	0.033	4.80	31.6	-26.8	723.16
1954	0.085	9.34	31.6	-22.3	814.00
1955	0.069	12.0	65.3	-53.3	868.47
1956	0.047	12.0	30.6	-18.6	910.50
1957	0.054	12.0	20.4	-8.4	897.08
1958	0.070	12.0	0.5	11.5	946.50
1959	0.077	11.2	2.6	8.6	988.19
1960	0.054	10.0	9.5	0.5	993.85
1961	0.058	12.1	15.1	-3.0	1030.48
1962	0.058	15.0	13.9	1.1	1083.18
1963	0.054	15.0	28.7	-13.7	1136.83
1964	0.045	15.0	32.1	-17.1	1260.14
1965	0.078	18.8	8.2	10.6	1358.48
1966	0.110	30.0	14.3	15.7	1478.66
1967	0.120	30.0	14.0	16.0	1608.99
1968	0.117	27.6	11.8	15.8	1743.01
1969	0.126	23.8	13.2	10.6	1936.84
1970	0.118	22.8	15.3	7.5	2099.23
1971	0.089	21.6	11.5	10.1	2307.06
1972	0.120	15.0	14.5	0.5	2518.34

Source: Bank of Korea, National Income Statistics Yearbook, 1973. Economic Planning Board, Korea Statistical Yearbook, 1964, 1968, and 1972. Economic Planning Board, Monthly Statistics of Korea.

$$\begin{array}{rcl}
 (1) & S = 0.03173 + 0.0003863 i + 0.00003623 Y & \\
 & (2.248) \quad (1.340) \quad (3.710) & \\
 & \quad (-0.0128) \quad (0.6116) & \\
 & R^2 = 0.64; \quad F = 15.08 &
 \end{array}$$

In equation (1), the numbers of the first row in parentheses are the t-values for the three coefficients, and those of the second row are the partial elasticities of the saving rate with respect to the corresponding independent variables.

The F-value indicates the significance level of the regression equation, which is here significant at less than one percent level. The relatively low value of  $R^2(0.64)$  indicates that the regression equation explains only 64 percent of the total deviations. The interest rate coefficient is only significant at 20 percent level while the income coefficient is significant at less than one percent level. This may imply that income is more general and consistent in the determination of the saving rate than interest rates. Furthermore, the income elasticity of saving equals 0.61 (which means that a one percent change in income will produce 0.61 of one percent change in the saving rate) whereas the interest rate elasticity of saving is totally negligible at 0.01. This again confirms the general influence of income on the saving rate.

However, if the real interest rate is separated into the nominal interest rate minus the rate of inflation, the results for the nominal interest rate as well as for the  $R^2$  are much better than in equation (1).

$$\begin{aligned}
 (2) \quad S &= 0.0141 + 0.00217 n - 0.000061 p + 0.0000226 Y \\
 &\quad (1.008) \quad (2.955) \quad (0.219) \quad (2.264) \\
 &\quad \quad (0.4553) \quad (0.0149) \quad (0.3812) \\
 R^2 &= 0.75; \quad F = 15.63
 \end{aligned}$$

where  $n$  is the nominal interest rate,  $p$  the rate of inflation. The  $F$ -value does not change but  $R^2$  is raised to 0.75. The nominal interest rate coefficient is now significant at one percent level, while the income coefficient is reduced to 3 percent level. The inflation rate coefficient, however, becomes totally insignificant. This result implies that savers respond more directly to changes in the nominal interest rate than to the inflation rate. It also explains why equation (1) has such a low  $R^2$ . The changes in elasticity are even more meaningful. The elasticity of saving rate with respect to nominal interest rate (0.4553) even exceeds the corresponding value against income (0.3812). Though this is not sufficient evidence to claim the nominal interest rate as equally important as income in affecting the saving rate, it does suggest at least that the nominal interest rates are quite significantly related to the saving rate.

If the rate of inflation is dropped from the equation, the result is almost the same as equation (2):

$$\begin{aligned}
 (3) \quad S &= 0.0121 + 0.002185 n + 0.00002297 Y \\
 &\quad (1.18) \quad (3.09) \quad (2.409) \\
 &\quad \quad (0.4593) \quad (0.388) \\
 R^2 &= 0.748; \quad F = 24.81
 \end{aligned}$$

This equation indicates clearly that both the nominal interest rate and income are primary determinants of the saving rate.



But since the nominal interest rate and income are undesirably related ( $r = 0.69$ ), it is actually not possible to measure their relative importance precisely. If the saving rate is regressed separately on income and the real interest rate, the  $R^2$  value for the equation on income is much higher than that on the real interest rate.

$$(4) \quad S = 0.0211 + 0.00004344 Y$$

$$\quad \quad (1.768) \quad (5.212)$$

$$\quad \quad R^2 = 0.601; \quad F = 27.164$$

$$(5) \quad S = 0.08164 + 0.0009745 i$$

$$\quad \quad (14.61) \quad (3.098)$$

$$\quad \quad R^2 = 0.348; \quad F = 9.596$$

As shown in the above equations, the regression model and its various transformations account for only about 70 percent of the variations in the private saving rate of Korea during 1953-1972. But examination of the observed data immediately reveals the reason for the limited explanatory performance. As shown in Table 3 for the first four years (1953-1956), the rates of inflation were extremely high (an average of 40 percent annually) and this resulted in a minus 30 percent real interest rate on average. Yet the saving rates during this period showed much wider swings than later years. One reasonable explanation is that in time of continuous high inflation with substantially large negative real interest rates, the relatively small variations in the nominal interest rates would have very little influence on the saving rate. In other

words, the saving rates in this condition would show a completely random connection with respect to the interest rate changes. The second plausible explanation is that from the immediate post-Korean war period to the later period of much more stable conditions, there may have occurred a significantly large shift in the saving function out of income. Hence a regression model combining the two different periods into a single equation will certainly be less satisfactory.

One more factor to be noted is the reliability of the economic data of this post-war period. For years prior to 1960, domestic saving in Korea was defined as the difference between gross domestic capital formation and the inflow of foreign saving, and private consumption was also derived as a residual of GNP minus government expenditure and gross capital formation.<sup>1</sup> Therefore statistical discrepancy did not exist in national accounts for these years. Besides, since almost everything was in disorder in the first few post-war years, the collection of economic data was considered relatively unimportant as compared with other more urgent needs. Thus the correctness of data for this period was also in great doubt.

As explained above, therefore, we can expect a much improved result by dropping the first four years (1953-1956) from the regression analysis.

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<sup>1</sup>Brown, p. 290, Appendix C.

$$\begin{aligned}
 (6) \quad S &= 0.02991 + 0.001496 i + 0.00003277 Y \\
 &\quad (2.964) \quad (4.340) \quad (4.774) \\
 &\quad (0.07638) \quad (0.5686) \\
 R^2 &= 0.83746; \quad F = 33.491
 \end{aligned}$$

The  $R^2$  value now rises substantially to 0.84 from the previous 0.64 for the longer period. The F-value is also further increased and is significant at much less than one percent level. Both the interest rate and income coefficients are now significant at less than 0.1 of one percent level, with the constant coefficient at about one percent level. The interest rate elasticity of the saving rate also increases a great deal to 0.076 from its previous value 0.012, though is still much lower than the income elasticity of 0.5686. However, the estimated elasticity values provided here are merely a single set of values corresponding to the mean values of interest rates and income levels. As a matter of fact, both elasticities keep changing with changing levels of interest rate and income. At the peak real interest rate of 16 percent recorded in 1967 the elasticity of the saving rate with respect to the real interest rate is 20 percent, while that of income in that year is 44 percent. This particular effect is perhaps the most significant feature of this interest rate reform, because it clearly indicates that the interest rate has a much greater influence on saving at higher interest rate levels. The sharply increased volume of time and savings deposits right after the reform was in fact the strong evidence of this feature. To a certain extent it also justifies the necessity of offering such a large scale

increase in the nominal interest rate in order to mobilize the private saving.

By substituting nominal interest rates and rates of inflation for the real interest rates in equation (6), the  $R^2$  value further increases to 0.88 with the F-value decreased a little:

$$(7) \quad S = 0.01784 + 0.002402 n - 0.001085 p + 0.00002567 Y$$

$$\begin{array}{cccc} (1.64) & (4.40) & (2.92) & (3.61) \\ & (0.5245) & (0.1815) & (0.4453) \end{array}$$

$$R^2 = 0.879; \quad F = 28.944$$

The income coefficient decreases a little, but the coefficients of all three variables remain significant at close to one percent level. One noteworthy fact is revealed by the difference between the coefficient of the nominal interest rate and that of the inflation rate. The former (0.0024) is more than two times as great as the latter (0.0011), suggesting that the nominal interest rates have about two times greater influence on the saving rate than do the rates of inflation. The same difference is also revealed by the elasticity values of these two variables. Moreover, the elasticity of the saving rate with respect to the nominal interest rate (0.5245) is higher than that of income (0.4453). This time with the  $R^2$  value substantially increased to a more satisfactory level, we may have greater confidence in the judgement that the nominal interest rate was probably as important as the income level in the determination of the saving rate in Korea during 1957-1972.

However, if we examine the residual table in the computer output for the analysis of equation (7), we find that the year 1971 is markedly different from all other years (see Table 4).

TABLE 4  
TABLE OF RESIDUALS  
(EQUATION 7, 1957-1972)

Year	Residual	Scatter Diagram of Residuals
1957	0.00645	I .
1958	-0.00041	I
1959	0.00972	I .
1960	-0.00306	. I
1961	0.00103	I .
1962	-0.00859	. I
1963	0.00209	I .
1964	-0.00639	. I
1965	-0.01096	. I
1966	-0.00233	. I
1967	0.00400	I .
1968	0.00094	I .
1969	0.01561	I .
1970	0.00812	I .
1971	-0.02745	I 71.
1972	0.01122	I .

Source: Computer output, using data from Table 3.

Note: Residual= Observed Saving Rate - Estimated Saving Rate.

As clearly shown in Table 4, the residual of the saving rate in 1971 was about five times as great as the average residual for other years ( $0.0274/0.0054$ ). Checking with the national income accounts, 1971 was again the only year that shows a negative statistical discrepancy (i.e., an over-estimation of national saving). Moreover, the constant-price private saving

adjusted for agricultural inventories (204 billion won) dropped 17 percent from the 1970 level (247 billion won), which was also the first time of decreased saving since the 1965 interest rate reform. Somewhat connected with this was the sharp increase of foreign saving (net borrowings and transfers from the rest of the world) in 1971. Constant price foreign saving rose from 249 billion won (1970 price) to 317 billion won in 1971, which was a 27 percent increase, and then dropped sharply by 47 percent in 1972.<sup>1</sup> This evidence suggests that there were some factors other than interest rate and income which substantially influenced the private saving rate of that year. Whatever its explanation, in order to closely examine the relationship between saving, income, and interest rate, we may further exclude the last two years (1971 and 1972) from the relevant period for our regression analysis. Further discussion in this regard will be given in next chapter.

The basic equation of the model (S, i, Y) and its transformation (S, n, p, Y) for this shorter period thus become:

$$(8) \quad S = 0.01177 + 0.001357 i + 0.00004814 Y$$

$$\begin{array}{ccc} (1.432) & (6.082) & (7.70) \\ & (0.06636) & (0.7889) \end{array}$$

$$R^2 = 0.94301; \quad F = 91.001$$

$$(9) \quad S = 0.01067 + 0.001978 n - 0.001194 p + 0.00003894 Y$$

$$\begin{array}{cccc} (1.355) & (4.132) & (4.956) & (4.389) \\ & (0.4434) & (0.2092) & (0.6346) \end{array}$$

$$R^2 = 0.95289; \quad F = 67.423$$

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<sup>1</sup>Bank of Korea, National Income Statistics Yearbook, 1973.

Naturally, we are certain to expect some improvement in the outcome for this shorter period. The  $R^2$  value for both equations rises to about 95 percent with the F-value also substantially increased. All independent variable coefficients are significant at less than 0.1 of one percent level. But coefficients in equation (8) have much higher t-values (6.082; 7.70) than those in equation (9) (4.132; 4.956; 4.389), indicating a greater reliability of the former than the latter. This result together with the fewer variables used in equation (8) is the reason why it is taken as the basic form of the model.

Other characteristics remain generally the same as before, such as the higher income elasticity of the saving rate (0.63) than that of the nominal interest rate (0.44); greater coefficient of the nominal interest rate (0.001978) than that of the inflation rate (0.001194); relatively low elasticity of the saving rate with respect to the real interest rate (0.066), but substantially increased (0.181) at the peak real interest rate recorded in 1967, and thus reflecting a much greater influence of the interest rate on the saving rate at higher interest rate levels. Again, because of the relatively close association between the real interest rate and income ( $r = 0.476$ ), there is no way to determine precisely their respective importance in the determination of the saving rate. However, simple regressions of the saving rate on the real interest rate and income respectively do indicate that

income has a more consistent influence on the saving rate, as shown by the higher  $R^2$  value for the income equation:

$$\begin{aligned}
 (10) \quad S &= -0.006941 + 0.0000666 Y \\
 &\quad (0.4553) \quad (6.021) \\
 &\quad \quad \quad (1.085) \\
 R^2 &= 0.75133; \quad F = 36.256
 \end{aligned}$$

$$\begin{aligned}
 (11) \quad S &= 0.07271 + 0.002174 i \\
 &\quad (13.50) \quad (4.577) \\
 &\quad \quad \quad (0.1063) \\
 R^2 &= 0.63581; \quad F = 20.949
 \end{aligned}$$



## CHAPTER V

## THEORETICAL EXPLANATION

The primary question now is whether the relationship between the saving rate and the interest rate as evidenced in the previous regression is statistically reliable and soundly based in terms of economic theories.

Statistical discussion.--In the first place we have to admit the limited applicability of statistics in economic research in general, and the limited reliability of regression analysis in particular.

It is hazardous to predict from a regression analysis with very small degrees of freedom. The regression analysis should be taken only as a useful method of rearranging past experience in order to shed some light on the theoretical issues involved.<sup>1</sup>

As is well known in statistical studies, a small sample size greatly reduces the reliability of statistical analysis. Thus in general practice a sample size of at least 30 observations is considered to be somewhat necessary for a reliable estimation. Otherwise repeated sampling is needed to make up for the low credibility. Obviously, neither one is possible in the

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<sup>1</sup>Il-Lim Young, "Inflation and Capital Formation, Postwar Korea", Economia Internazionale, May 1971, p. 279.

present study. What we have at most is merely one single set of data of only 20 years (1953-1972). And the danger is further increased when we take shorter periods for analysis. In a word, the statistical result derived from the previous regression analysis should be considered as illuminating, rather than conclusive. Therefore explanation in terms of economic theories need to bear a heavier weight in our analysis.

Theoretical explanation and discussion.--Today, most economists admit that interest rate must have some influence on saving, but the net effect of a changed interest rate on saving is far from being determinate. The reason is that there are different effects of changed interest rate which may work on saving in opposite directions. For example, the income effect of an increased interest rate may increase current consumption and reduce current saving because of greater future income due to the higher interest rate. But on the other hand, the substitution effect may also increase current saving because the saver wants to substitute more future consumption for current consumption. Thus the net effect of a changed interest rate on saving for a particular saver could be in either direction, depending on his income level, market situation, and other subjective factors like taste and habit. Thus for a whole economy, the net effect of a changed interest rate on aggregate saving will

conceivably be rather small, and in either direction.<sup>1</sup> And if the changes in income level are also taken into consideration, it becomes more difficult to know whether an increase in interest rate will eventually increase or decrease aggregate saving.

However, in spite of these problems, the regression analysis in the preceding chapter presented a strong evidence that in Korea, at least during 1957-1970, interest rate did have a direct and positive effect on the private saving rate. Even though the relative share of influence of the interest rate on the saving rate could not be precisely separated from that of income, the evidence was still strong enough to show a consistent relationship between these three variables. Thus in view of the prevalent economic theories, the Korean interest rate reform did provide an exceptional case.

The second result suggested by the regression analysis, on the other hand, was the probably limited duration of that particular relationship between the saving rate, the interest rate, and income. In other words, it may only hold true in the short run or under specific conditions. In longer periods the positive effect of the interest rate on the saving rate in Korea may be declining.

In order to properly explain the Korean interest rate reform in terms of economic principles, we have to find out the crucial difference between Korea and other more developed

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<sup>1</sup>Edward Shapiro, Macroeconomic Analysis, (New York: Harcourt Brace Jovanovich, Inc., 1974), p. 141-143.

economies that may have affected economic operations in Korea. For years before 1970, the most crucial difference between Korea and advanced countries was the great gap between the rate of return on investment and the official interest rate.<sup>1</sup> Like many other developing countries the official interest rates were directly controlled by the government and set at very low levels. (As a result of this and the chronic inflation, only 4 of the 12 years before 1965 had positive real interest rates. See Table 3) The presumed intention, of course, was to stimulate investment.

On the other hand, since capital had always been the most scarce factor of production in Korea since independence, the rate of return on capital had constantly been extremely high during most of the time before 1970. Its average level can perhaps best be indicated by the interest rates for loans in the unofficial private market which were not subjected to interest rate ceilings. These rates ranged normally between 25 and 35 percent in real terms annually. And the fact that most leading enterprises in Korea constantly borrowed substantial funds from this market indicates that it played a major role in Korean business activities and the interest rate levels thereof represented a reliable indicator of the average rate of return on capital formation.<sup>2</sup> And because of the rate of

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<sup>1</sup>Brown, p. 199-206.

<sup>2</sup>Private market monthly rate ranged between 4-5 percent, see Chandavarkar, p. 90 and Brown, p. 203. Inflation rate averaged about 25 percent, derived from Table 3.

return on investment at such a high level, the investment demand had consequently been extremely strong most of the time. Moreover, the continuous large-scale government deficits accompanied by various government measures to encourage investment all further increased the already tremendous demand for investment funds.

However, because of various impediments to saving such as low income, high inflation, negative real interest rates, and absence of government efforts to mobilize domestic saving, the supply of saving had constantly remained at very low levels. As a matter of fact, the constant-price private saving adjusted for agricultural inventories did not increase at all during the ten years from 1954 to 1964.<sup>1</sup>

Therefore, the inevitable consequence was an investment demand which always far exceeded the supply of available financial resources. And this wide gap in turn resulted in a sustaining disequilibrium condition in which the interest rate levels in the private market were extraordinarily higher than those in the banking system. In both markets the available funds were much smaller than were needed to provide for the actual demand and thus were subjected to rationing devices for the allocation of these funds. Bribery and corruption were naturally induced. Most businessmen and investors had to hire intermediaries to obtain investment funds with whatever means was practicable. Hence despite the ever growing investment demand, the actual

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<sup>1</sup>Bank of Korea, National Income Statistics Yearbook, 1973.

investment expenditures were in fact limited by the availability of financial resources or the supply of saving. For years prior to 1958, foreign aid had been a major source of investment funds and had somewhat alleviated the problem of insufficient funds. But it started to decline in that year and was sharply cut back after 1964.<sup>1</sup> Needless to say, the situation of insufficient funds suddenly became much more severe than before. To make the situation even worse, the new round of high inflation in 1963-1964 further suffocated domestic saving. The 32 percent inflation rate produced a minus 17 percent real deposit interest rate and resulted in a 4.5 percent private saving rate (adjusted for changes in agricultural inventories) which was the lowest one since the end of Korean war in 1953.<sup>2</sup> In the meantime, people fled from financial assets in order to accumulate real goods, which together with the reduced interest costs and falling real wage rates created even higher expected profits and in turn further increased the investment demand. As the inflation continued, the financial gap grew much wider so that the near doubling of the nominal interest rates and the much greater reduction in the subsequent inflation rate did not fully close the gap.<sup>3</sup>

In most developed economies, however, there is no such

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<sup>1</sup>Cole and Lyman, p. 266.

<sup>2</sup>See Table.

<sup>3</sup>Brown, p. 199.

wide gap between the cost of borrowing savings and the expected rate of return on new investment. Thus the cost of borrowing is much closer to the marginal rate of return on capital. Stated in a different way, the free-market operates automatically to maintain an equilibrium status between the supply and demand for financial resources.

Thus, in view of the difference in financial gaps between Korea and developed economies, the immediate question is: What will actually happen to investment, or more precisely, the actual investment expenditures, when the interest rate is sharply increased, as occurred in the 1965 interest rate reform in Korea?

In developed economies, with other conditions kept unchanged, it would of course discourage investment demand and lead to an equivalent reduction in investment spending. (In other words, the actual investment is normally equivalent to the corresponding investment demand at a given level of equilibrium interest rate.) The direct result of this decrease in investment spending must be a falling aggregate demand and thus falling income levels and saving. A low interest rate would normally lead to an opposite result based upon the same mechanism. It was this trend of thinking that made the Korean government favored a low-interest rate policy until 1965. And for the same reason, when the interest rate reform was finally announced in September, 1965, not only business circles were shocked, but also those economists personally involved in this reform were not



very optimistic about the outcome. The general feeling was that despite the stimulating effects of higher interest rate on saving in a short period, it might depress investment in the long run. The temporary increase in saving might not last long before it started to decline again due to reduced investment spending and income levels.<sup>1</sup>

As a matter of fact, however, the actual outcome turned out to be exactly the opposite. Despite the sharply increased real interest rates due to the near doubling of the nominal interest rates and a substantial reduction of the inflation rate, real investment spending grew at a 32 percent annual rate between 1965 and 1969.<sup>2</sup> The increase in private saving was even more spectacular, before the private saving rate stabilized later at a relatively high level, as was noted in chapter 3.

Thus the crucial point was--what would in fact happen to the "actual investment", rather than to the "desired investment", when interest rates were sharply increased. In Korea, because of the wide financial gap, actual investment was constantly limited by the supply of available funds, despite the much greater investment demand. Therefore, when the greatly increased interest rates induced a sharp increase in the supply of financial resources, the investment spending also grew by an equal amount. And since investment expenditures grew as fast as

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<sup>1</sup>Brown, p. 179.

<sup>2</sup>Bank of Korea, National Income Statistics Yearbook, 1973.



the supplied saving became available, the initial decrease of consumption expenditure that necessarily accompanied the increased saving did not result in a decline in income levels. Rather, the increased investment led to a rising income through increased capital formation and rising productivity in the economy. The rising income further increased the absolute level of saving and possibly the rate of saving out of income, at the same time that the absolute level of consumption was also rising. The process thus could keep going on as long as the financial gap did not disappear.<sup>1</sup> The mechanism involved in this process can be shown clearly in the diagram below (Figure 1):

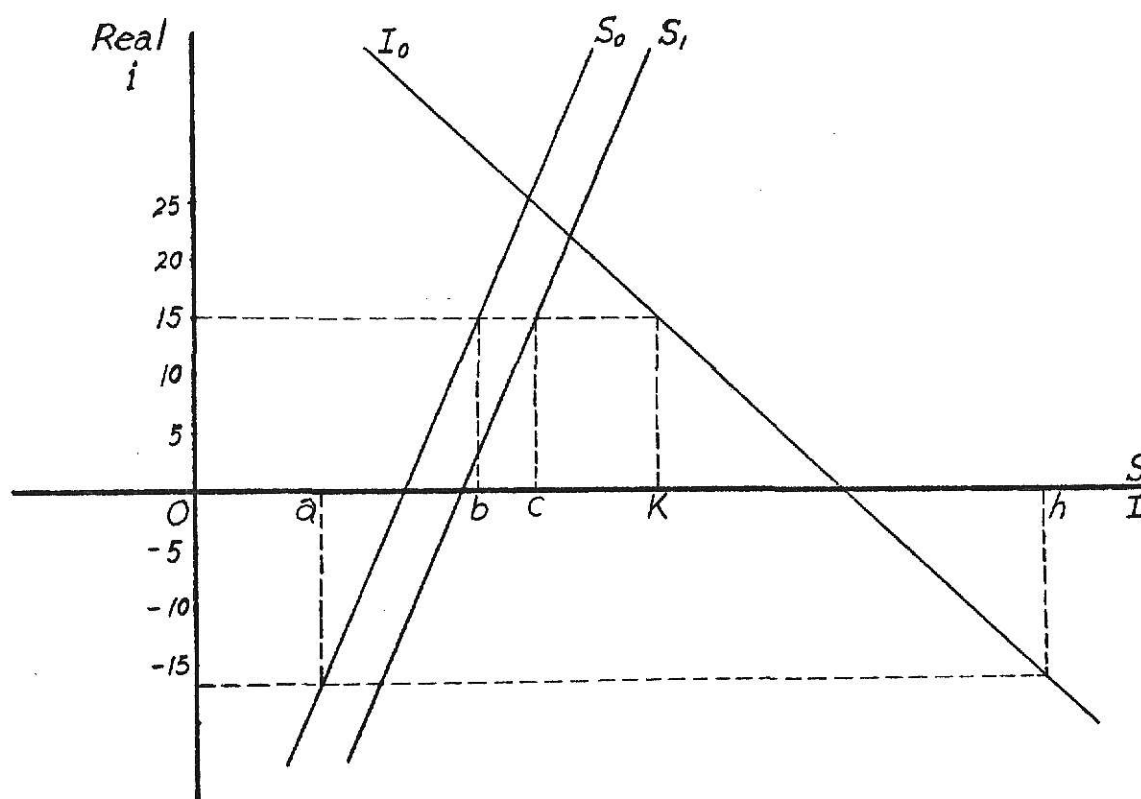


Figure 1

<sup>1</sup>Brown, p. 199-200.

Assuming that a real interest rate of, say, 25 percent in the private market is the equilibrium level, the investment demand at a much lower official rate of -17 percent is equal to oh. But of the total investment demand only a small portion oa can be actually realized as investment expenditures because of the limited amount of saving supplied at that rate. However, when the official rate is raised to 15 percent, the actual investment rises to ob as permitted by the increased saving, even though the investment demand is reduced to ok. In addition, the increased income resulted from rising investment would further shift the saving schedule  $S_0$  rightward to  $S_1$ , which in turn would produce more saving bc. The eventual realized investment is thus equal to oc, which is much greater than the initial amount oa. Therefore, the level of realized investment or saving is positively related to the interest rate and income. Assuming a linear saving schedule ( $S = f(i)$  at given income level) and a linear saving function ( $S = f(Y)$  during certain time period), total saving would be a function of the summation of these two separate functions. This relationship is just the same one tested earlier by the basic regression model of this study.

But the higher elasticity of the saving rate with respect to the interest rate at higher interest rate levels as indicated in the previous regression analysis suggests that the saving schedule in our analysis could be somewhat curvilinear rather than just a simple linear function. This means that the saving curve is more elastic at higher interest rate levels and

quite inelastic at substantially negative levels. It also suggests that there must be a certain amount of saving at zero or negative real interest rates. Both suggestions are in fact quite reasonable. And since we still assume a simple linear saving schedule for the sake of simplicity, it is desirable to set a lower limit for the model and exclude those beginning years (1953-1956) which had extremely large negative real interest rates.

On the other hand, there is also an upper limit to the model, which can be approximately indicated by the private market equilibrium interest rate level. Our model, which shows a positive relation between interest rate and investment, relies on a wide gap between the supply of saving and the demand for investment when the official interest rate is below the equilibrium level. As the official interest rate rises toward the equilibrium interest rate, realized investment also increases. When the official interest rate equals the market equilibrium level, the financial gap disappears, and realized investment is at a maximum. Any further change in the official interest rate, either a decrease or an increase, will reduce the volume of realized investment, as is clearly shown in Figure 1. The optimum official interest rate must then stick to the market equilibrium level. Stated in a different way, the simple positive relationship between interest rate and actually supplied saving (with changes in income also taken into consideration) is no longer valid when the market equilibrium rate has been

reached. In fact, this nature of our model has been suggested in the previous regression analysis by the declining significance level of the model when the two years 1971 and 1972 were included in the relevant period.

It appears that the official interest rate in the banking system reached the market equilibrium level in about 1970. Before then it had been somewhat lower than the equilibrium level. The underlying major factors causing this change include the followings. First, investment spending grew at a 32 percent annual rate between 1965 and 1969. This continuous large-scale increase in investment inevitably resulted in a sharp increase of the total capital stock and a significant decrease in the marginal efficiency of capital, which in turn led to a substantial leftward shift of the investment demand schedule. Second, the sharply increased inflow of foreign credit since 1965 also somewhat reduced the demand for domestic financial resources, causing the investment demand schedule to shift further leftward. Third, the saving schedule had shifted rightward considerably because of rapidly rising income levels. These trends would obviously lead to a rapidly falling market equilibrium rate while the official rate was relatively stabilized. Thus with both the interest rate gap and the financial gap being closed in this manner, the applicability of our model is also declining, as was pointed out in the preceding paragraph.

The closing up of the financial gap can also be detected by checking the changes in bank interest rates since 1965 (see Table 5).

TABLE 5  
BANK INTEREST RATES  
(1965-1972)

year	Deposit Rates		Loan Rates	
	Nominal	Real	Nominal	Real
1965	18.8	10.6	17.0	8.8
1966	30.0	15.7	26.0	11.7
1967	30.0	16.0	26.0	12.0
1968	27.6	15.8	25.2	13.4
1969	23.8	10.6	24.0	10.8
1970	22.8	7.5	24.0	8.7
1971	21.6	10.1	22.0	10.5
1972	15.0	0.5	19.0	5.5

Source: Economic Planning Board, Monthly Statistics of Korea.

Note: These rates are annual average rates for time and savings deposits and regular commercial loans.

As shown in Table 5, both deposit and loan rates remained unchanged until 1968, indicating the existence of a still significant financial gap. Then both started to decline gradually, which means the market equilibrium rate was falling and getting closer to the bank rates. Between 1969-1971 bank interest rates dropped only one half percentage point in real terms. And then the Korean economy ran into a stagnation in 1972 when real investment sharply declined by 12.7 percent, which was the first decline since 1958. These facts may indicate that the financial gap was rapidly closing due to increased saving and declining investment demand. And we do firmly believe that it was partly because the monetary authorities did

not adjust the official interest rates in time to catch up with the market trend that led to the stagnation. This assertion can be somewhat verified by the sharp decrease of bank interest rates from 20.4 percent to 16.8 percent in January 1972 and then further to 12.0 percent in August 1972.

Therefore, we could somehow take the year 1970 as a critical time separating two periods. Before 1970 Korea was still a typical underdeveloped economy, in which the ex-ante desire to save was rather weak and capital stock was the most scarce factor of production. In order to achieve rapid growth the emphasis was to mobilize as much saving as possible to provide for investment spending. And after that time the trend was reversed. In order to sustain rapid growth it was more important and difficult to stimulate investment than saving. Like most developed economies where the intended saving is relatively strong, the need was to increase intended investment relative to intended saving. In other words, a high saving rate might be sustained through a low interest rate policy rather than a high one.

In conclusion, the Korean economy between 1957 and 1970 can be taken as a homogeneous period which can be properly explained by our model, that is, there was a relatively stable positive relationship between the private saving rate and the interest rates in the banking system. Stated differently, interest rate was more closely related to saving than to investment.

After 1970 Korea entered a different period in which the interest rate was more closely related to investment than

to saving, which cannot be appropriately explained by our model. Korea began to face the same problem most developed countries have to solve--how to create investment demand strong enough to maintain a rapid growth rate. And because of the relatively low rate of return on investment, interest rate costs became more crucial and decisive than in the earlier period.

On the other hand, the years prior to 1957 were also a different period in the sense that the normal variations in interest rates were relatively small and negligible in comparison with the chronic and substantial rate of inflation.

Needless to say, we have to watch out for the danger of dividing a development process into clear-cut periods. An economy never transforms overnight, nor within a single year. Period separation is only for the benefit of revealing the result of an analysis, and it has to be determined primarily by empirical studies rather than by a universal theoretical standard.

Another point that needs to be made is that although the interest rate and income are important factors they are certainly not the only factors that affect saving in a significant way. In the period 1957-1970, many other factors also affected the private saving rate:

1. Inflows of foreign aid and foreign credit--Both have supplied a significant part of the investment funds for Korean enterprises and thus affected the demand for domestic financial resources,



the variations of which thus directly influenced the level of the financial gap which was crucial to the relationship between saving and interest rates. The sharp increase in foreign borrowing was probably the major reason that caused a sharp decrease in private saving of that year.

2. Tax administration--Improved tax administration must have increased private saving to a certain degree. It also encouraged productive saving and investment.

3. Increased efficiency of financial institutions--Higher interest rates made financial assets more attractive and induced a significant diversion of funds from the accumulation of real goods to financial institutions. This not only increased the official saving rate but also increased the efficiency of these institutions, which in turn induced more saving from the public. Besides, the efficient allocation of investment funds certainly led to more productive savings and investments, which then created more income and additional saving.

4. Expected inflation rate--Expected inflation rate directly affected the investment demand which in turn influenced the financial gap crucial to the relation between saving and interest. It also affected the private saving rate directly to a certain extent.



## CHAPTER VI

### CONCLUSIONS

The successful experience of Korea in its interest rate reform presents strong evidence that an active high interest rate policy is a powerful and practical economic instrument for a developing country. Though the applicability and duration of this policy may be somewhat limited, there is no doubt that many developing countries do have economic conditions similar to those in Korea in the 1960s. For these countries Korea's experience can be extremely valuable in the solution of similar problems. But unfortunately, most developing countries seem to have taken a Keynesian point of view and thus have constantly relied upon a low interest rate policy as one of the major policies for development. Few countries have recognized the inapplicability of a policy which was prescribed for a different kind of economy:

Keynesian analysis, originally an explanation and prescription for problems of unemployment and excess capacity in developed countries, where the desire to save sometimes exceeds the desire to invest, has caused economists too often to prescribe the medicine for developed countries in the 1930s to the very different diseases of developing countries in the 1950s and 1960s. Rather than excess saving and lack of demand, most developing countries suffer the opposite illness of excess demand and shortage of saving

relative to the desire to invest, with related symptoms of fiscal deficits, inflation, overvalued currencies, and severe import restrictions.<sup>1</sup>

Discussions of interest rate policy in less developed countries have been largely concerned with the role of interest rate as loan rates, rather than as deposit rates.<sup>2</sup>

Positive interest rate policies have been conspicuously lacking in less developed countries, apart from a few notable exceptions, such as (Republic of) China and Korea.<sup>3</sup>

Thus, it is quite clear that in some cases the classical theory which asserts a positive relationship between saving and interest rate will be more adequate for developing countries than the Keynesian theory. However, as indicated in the preceding chapter, both theories may be adequate for the same economy, but in different periods. The classical view refers to a comparatively static relationship in a disequilibrium status, and the Keynesian concerns the dynamic interactions of major economic factors in regard to the changing equilibrium status. Thus, our conclusion is that the two theories in this specific regard are in fact complementary rather than contradictory to each other. The respective applicability of the two theories depends upon the actual equilibrium vs. disequilibrium status of a particular economy during a specific period. Thus, a high interest rate policy may not be applicable for all developing countries, but rather only for those that are still in a disequilibrium

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<sup>1</sup>Brown, p. 273.

<sup>2</sup>A. G. Chandavarkar, "Some Aspects of Interest Rate policies in Less Developed Countries", IMF Staff Papers, Mar. 1971, p. 49-50.

<sup>3</sup>Ibid., p. 49-50.

status, such as Korea prior to 1970.

Needless to say, however, a single study of a single policy is definitely insufficient to reach a general conclusion applicable to different economies. In fact, more case studies have to be done before any general assertion can be made in a reliable manner. Also, development has to be understood as the interaction of a set of economic policies, and not just the impact of a single policy. In this regard we need more detailed yet comprehensive studies of the interacting relationships between various economic policies.

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AN ANALYSIS OF SAVING, INTEREST RATES,  
AND INCOME IN KOREA 1953-1972

by

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AN ABSTRACT OF A MASTER'S REPORT

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### ABSTRACT

The main objective of this report is to investigate the relationship between saving, the interest rate, and income in Korea in the period 1953-1972.

Like many other less developed countries, Korea followed until 1965 a relatively low interest rate policy in order to stimulate investment and achieve rapid growth rates. This policy and the chronic inflation which was deeply rooted in the economy, in fact, frequently resulted in substantial negative real interest rates in the banking system. The expected rapid growth did not come about. On the contrary, the economy became more and more vulnerable to the inflationary pressure. The domestic saving rate was decreasing and the financial institutions were also stagnating.

In September 1965 the Korean government determined to reverse the low interest rate policy and carried out a reform which nearly doubled the bank interest rates in one lump.

This rather unconventional reform immediately roused great suspicions as to its intended effects on mobilizing saving and curbing the inflation. But the actual result turned out to be even better than the most optimistic expectations. The inflation was reduced considerably. The increase in private

saving was both immediate and spectacular, and it lasted for a few years before the saving rate stabilized at a rather high level. Investment and income levels also grew rapidly.

To check the potentially positive effects of interest rates on saving, a linear regression model was used to estimate the relationship between saving, the interest rate, and income for the period 1953-1972. The initial outcome was only moderately significant. But after excluding the first four years (1953-1956) of extremely high inflation and the last two years (1971-1972) which stood out rather differently from other years, the relationship became statistically significant.

Therefore, the conclusion reached in this report is that a statistically significant relationship between saving, the interest rate, and income in Korea did exist during the period 1957-1970, but the relationship became less significant after 1971, as well as before 1956. In the author's judgment, this relationship was caused by the special economic conditions in Korea during the period 1957-1970. And this conclusion is believed to be also applicable to other developing countries having similar conditions. But in order to reach a truly reliable general conclusion more case studies are undoubtedly needed.