The Financing of Housing in Finland With Special Reference to the Application of the Index Clause

Pentti J.K. Kouri*

I. INTRODUCTION[1]

Finland provides an interesting case study since it adopted indexation of financial assets in the 1950s, but abandoned it in 1968. The Finnish system for financing housing is distinguished by the lack of a separate mortgage market, the extensive government support of housing, the relatively large downpayment requirement, the short period of amortization of bank loans, the use of variable interest rate contracts, and in the years 1955 to 1968, the use of index clauses in loans and deposits. These features of the housing sector reflect the structure of financial markets in general. The bond and equity markets are unimportant, partly because of tax treatment; and there is no short-term money market. The banking system is the dominant intermediary and interest rates are institutionally rigid. Credit rationing is the main instrument of monetary control.

Despite the difficulties of financing the purchase of a dwelling, the share of owner-occupied dwellings is quite high in Finland by European standards — some 60 percent. The ownership of a dwelling is a very attractive investment because of tax treatment, inflation and lack of alternative assets.

From this perspective indexation of financial assets may have helped to channel savings to more efficient uses through the financial institutions. A judgment on this question is difficult, however, because at the same time the substantial tax benefits given to residential construction in the 1950s and early 1960s were gradually eliminated in the 1960s.

*Assistant Professor of Economics, Stanford University.

[1]No references are given in the text. A bibliography is provided at the end. The information on housing is largely obtained from a report of the National Housing Board prepared by M. Lujanen and S. Seppavaara. The author wishes to thank D. Lessard and Modigliani for helpful suggestions. They are not, however, responsible for any errors that remain.

II. PRICE-LEVEL INDEXATION IN FINLAND

A. *The Introduction of Indexation*

Indexation of financial contracts was first introduced in 1945 when the government granted index-linked bonds to the evacuees from the ceded territories.[2] There was really no alternative to indexation to solve the problem of the evacuees since the government was in no position to compensate in kind or in cash, and since rapid inflation was widely expected after the war. After the indemnity loan the application of the index clause began to spread to other sectors in the financial markets. The National Pension Fund, private insurance companies and municipalities began to issue index-tied loans. The government issued another index-tied loan in 1953 to those entitled to a redemption of the 1945 indemnity loan. In 1954 the government issued the first index-tied loan to the public. In the following year the banks began to accept index-tied deposits.

Indexation of wage contracts was introduced already during the war, and the practice continued throughout the post-war period of galloping inflation and re-emerged in 1957-1958 and in 1964-1968. Agricultural prices also were indexed during much of this period.

B. *Mechanics and Extent of Indexation in Financial Markets*

The banks introduced price-level indexed deposits for the first time in May 1955. The main reason for the introduction of the index account was that the banks felt that the persistence of inflation was affecting their deposit growth adversely, particularly because of the competition from index-linked government bonds, first issued for public subscription in 1953. The banks also felt that it was their duty to protect the interests of the savers — the only group that was not organized in a pressure group. At that time both wages and farm incomes were index-linked so that the burden of inflation tended to fall heavily on those who had accumulated financial assets.

The index deposits were tied 100 percent to the cost of living index. The minimum deposit was 300 marks and the period of deposit 12 months. The rate of interest was at first 4.25 compared to 6.0 percent on ordinary six-month deposits. Furthermore, unlike other deposits, indexed accounts were not tax exempt. In 1956 commercial banks did not accept indexed deposits, nor did any banks in the Helsinki region. Since 1956 was a year of high inflation, these banks lost customers to the savings and cooperative banks. In 1957, a tax-free but only 50 percent index-linked account was introduced with otherwise similar conditions.[3] From January

[2]The nominal value of the so-called indemnity loan was 180 million marks, and it was to be redeemed over ten years. The capital value was tied 100 percent to the wholesale price of Finnish goods. Over the life of the loan the government paid 612 million in index compensation.

[3]With 50 percent indexation the capital value of the asset is adjusted by only one-half of the percentage change in the price level.

1959 to May 1963 new index-tied deposits were accepted only in the 50 percent accounts. The interest rate on these accounts was 0.5 percent below the 5.0 percent rate on the ordinary six-month account. In these years the public showed little interest in these accounts. The 100 percent account was reintroduced in June 1963 but it was only from May 1964 when the 100 percent account was made tax exempt that a rapid growth in indexed deposits occurred. The 50 percent account was discontinued in June 1966. The interest rate on the 100 percent account was 2.5 percent in 1964 and 1965 and 3.0 percent in 1967-68, compared to 4.5 percent on ordinary accounts. The index clause was abolished in April 1968 in connection with the Stabilization Agreement.

The index compensation took the form of an adjustment in the capital value of the deposit. In practice the adjustment was made on basis of the (full) percentage rise in the cost of living index from the month previous to the deposit to the month previous to withdrawal. The amount of the deposit was not to be reduced if the cost of living index were to fall.

Bank loans were not directly index-tied, although some other financial institutions did grant such loans. The share of all loans of the financial institutions indirectly tied to the index fluctuated between 30 and 50 percent. The share of directly index-tied loans, mainly from other financial institutions, was around 25 percent.

The main principle of indirect indexation was that the cost of index premiums paid to depositors was borne equally by all borrowers. The savings banks and cooperative banks all indexed charges through their central banks and divided the burden equally between individual banks and borrowers. The proportion of index deposits was in general higher in savings and cooperative banks and hence their index charges were also higher.

This way of indexing loans reduced the effect of inflation on the loan rate quite considerably and except for periods of rapid inflation, the charge was only 0.5 to 1.0 percent per annum even though inflation reached 11 percent in some years.

In 1954-55 most *government bond issues* had either a 50 percent or 100 percent index claim. From 1956 most new issues carried an index clause, but only for 50 percent of the price change. The proportion of index-tied loans in the total outstanding stock rose from 12 percent in 1954 to 76 percent at the end of 1967. The details of the form of indexation varied considerably. The cost of living index and the wholesale price index were both used. On some loans only the interest was index-tied. The index-tied bonds were tax exempt, with the exception of some issues in 1961, 1962, and 1967. *Local authority bonds* were issued only on a small scale and were generally 50 percent index-tied and mostly bought by banks.

Most *bonds sold by financial institutions* from 1953 were 50 percent index-tied. Several indices were used, including the sterling rate and the export price index. Most of these bonds were taxable and were purchased by other financial institutions. *Non financial firms* were authorized to issue index-tied bonds in 1957. In the 50s and the 60s most issues were index-tied. Of the outstanding stock at the end of 1967, 23 percent was index-tied. The stock of private bonds is very small compared to the supply of government bonds, less than 10 percent in 1967.

National *pensions* have been tied 100 percent to the cost of living index since 1957. All employment pensions within the employment pension insurance system introduced in 1962 were 100 percent tied to the general wage level. Table 1 shows the growth of both indexed and non-indexed bonds and savings deposits from 1952-1967.

C. *The Abolition of Index Clauses*

After a period of steady growth in output and employment since 1959 — only briefly interrupted in 1962-63 — the Finnish economy moved to a position of disequilibrium in the balance of payments accompanied by slow growth and increasing unemployment. To rectify this situation, the markka was devalued by 24 percent in October 1967. The devaluation was accompanied by a comprehensive stabilization program based on an agreement signed by the biggest labor market organizations and the Central Union of Agricultural Producers in March 1968, and an Economic Special Powers Act passed by the parliament in April 1968. The stabilization program comprised complete control of prices, an incomes policy limiting wage increases to growth in productivity, and abolition of all index clauses with the exception of outstanding index-tied government bonds, insurance policies and pensions.

It was generally agreed at the time that with indexation, the devaluation would only increase prices in proportion and would contribute little to the desired change in relative prices. In the years preceding the devaluation, the rate of inflation in Finland exceeded the average inflation rate in the main trading partners. With the exchange rate fixed, the prices of internationally traded goods — exports, imports and import-competing goods — increased only moderately. Wage rates and other wage costs increased much in excess of productivity growth. In the sheltered sectors, increased costs were passed on in the form of higher prices, while in the open sectors price increases were limited by external competition. In consequence, there was a shift in demand towards imported goods and a decline in the profitability of industries in the open sector. This was reflected in the increasing current account deficit. The devaluation - cum - incomes policy succeeded in reversing this trend. The rate of price and wage inflation was moderate in 1968 and 1969, the current account went to a surplus and the growth rate picked up towards the end of 1968.

It is not clear how much indexation contributed to the problems described above. Only three index adjustments were made in the period 1959 to 1968 — two 3 percent adjustments in 1964 and a 3 percent adjustment in the beginning of 1968, after the devaluation. The three-year agreement for 1966-68 provided for another adjustment in wage rates in December 1968 to compensate for a rise in the cost of living index in excess of 4

Table 1

THE USE OF INDEX CLAUSES IN THE FINANCIAL MARKET 1952-1967

Year	Cost of Living Index Change %	Index-Linked Bonds:[1] Issued during the year % of total	Index-Linked Bonds:[1] Outstanding the end of year % of total	Index-Linked Savings Deposits: Year End % of total	Index-Tied Loans Outstanding at the End of Year: Indirectly Index-Tied Loans % of total	Index-Tied Loans Outstanding at the End of Year: Loans with an Index Clause % of total
1952	4.0	13.3	0.1			
1953	1.8	16.5	8.5			
1954	- 0.5	67.6	21.5			
1955	- 3.0	73.4	28.2	0.1		
1956	11.4	84.3	31.5	7.0		
1957	11.4	82.8	38.7	24.3		
1958	6.5	52.9	44.6	21.6	54.7	25.1
1959	1.6	29.5	42.2	6.2	29.2	25.2
1960	3.3	80.1	50.5	2.8	29.4	23.4
1961	1.9	50.9	54.1	0.6	37.5	22.4
1962	4.4	73.6	62.3	1.0	35.5	25.2
1963	4.8	24.1	52.4	3.9	43.1	23.9
1964	10.4	46.9	51.0	15.8	52.5	24.8
1965	4.9	61.5	56.1	18.2	44.8	25.7
1966	3.9	60.7	66.1	21.2	53.5	25.5
1967	5.3	78.3	74.3	34.6		

[1]Excluding government indemnity bonds.

Source: K. Puumanen, "The Index Clause in Finnish Markets: The Finnish System in Retrospect. *Kansallis-Osake-Pankki Economic Review* (1973) No. 3:110; Bank of Finland, Institute of Economic Research, "The Index Clause in the Finnish Money and Capital Markets," Series D:2, Mimeographed Studies, January 1969, p. 16.

percent. This increase did not take place because of the stabilization agreement. The two 3 percent adjustments in 1964 were to a large extent prompted by a tax reform which increased the prices of consumer goods and lowered those of investment goods. It is likely that even without indexation there would have been a pressure to compensate for the rise in the cost of living index.

Another reason for the abolition of indexation in 1968 was that the index premiums increased substantially before and right after the devaluation, both because of higher inflation and a rise in the proportion of indexed deposits. In the beginning of 1968, the index charge added 2 percent to the loan rate charged by commercial banks, and as much as 4 percent to the loan rate charged by cooperative banks. It was felt that these increases were inappropriate at a time when investment activity had come to a standstill. It is not clear why lower interest rates could not have been achieved if they were desired, by reducing the nominal rate rather than by abandoning the index clause. Continuation of index claims in the financial markets would have been difficult, however, without indexation of wages, because the risk of price level changes would have fallen completely on the borrowers, and because it would have been regarded as unjust by the wage earners who gave up the right for index compensation in 1968.

III. INSTITUTIONAL STRUCTURE FOR THE FINANCING OF HOUSING

A. *An Overview of the Housing Situation*

Some 60 percent of all dwellings in Finland are owner-occupied. Of some 50,000 dwellings completed in 1970 two-thirds were in multi-story buildings and one-third were single-family houses or rowhouses. The dwelling density has declined steadily in the post-war years and reached 1.1 persons per room in 1970. Despite the improving housing standard, 25 percent of the population is still housed in units with two or more persons per room. The housing stock is relatively young, some 65 percent having been built since 1945.

The secular growth in the demand for housing services is related to the increase in per capita incomes; to the significant regional and sectoral movement of population from agriculture in the northern and eastern parts of the country to the industrial and service sector in the southern part of the country; and to the fact that the large age groups born after the war began to enter the labor market and form families in the early 1970s.

B. *Housing Investment in Relation to Total Saving and Investment*

The share of gross savings in GDP has increased secularly in the postwar years from some 25 percent in the early 1950s to more than 30 percent in the 1970s. In the 1960s the household sector accounted for some 40 percent of the total saving, the corporate sector for slightly less than 30 percent and the public sector for slightly over 30 percent. The share of the latter two has been increasing in recent years at the expense of the household sector because of a shift in the share of disposable income increases away from the households. The saving propensity of households has, however, increased moderately, as one might expect from the demographic data given above. Part of this increase from the early 1960s has taken the form of increases in social security funds (included in household saving). According to estimates the household sector invested on average 80 percent of its savings during the 1960s, mainly in housing, and as much as 90 percent during the residential boom of the early 1970s. The public sector's surplus was around 20 percent during this period. These two sectors were not, however, able to finance the deficit of the corporate sector. With the exception of two years after the devaluation the current account has been in deficit every year from 1960. The deficit has been financed by long-term foreign borrowing, a major part of which has been channeled through domestic financial institutions.

Cyclical instability of investment has been a major problem in Finland in the postwar years, but the housing sector has not been noticeably more unstable than other components of fixed investment. One reason why housing investment is not affected differently is that housing loans are granted by the same institutions as all other loans.[4]

C. *The Structure of Financial Markets*

No data exist on the flows of funds between and within sectors but most of the flows undoubtedly go through the financial institutions. Financial markets in Finland are dominated by the banking system consisting of two big and five smaller commercial banks, savings banks, cooperative banks, the Post Office Bank and some smaller financial institutions. There are no specialized institutions for financing housing. The bond and security markets are poorly developed and there is no short-term money market. The government dominates the bond market. Until the late 1960s, bonds issued by private firms were taxable, while government bonds and bank deposits were not. Although this differential treatment no longer exists, all private bond issues have to be approved by the government. There is hardly any secondary trading in bonds, which are typically held until maturity. The equity market is almost equally narrow partly because tax treatment discourages equity financing. The ownership of stocks is concentrated and the annual turnover very small.

[4]All components of investment have been prone to sharp cyclical fluctuations partly caused by lagged response to sharp cyclical movements in export earnings. Finland is a very open economy and hence the typical boom starts with a rapid growth in exports, improvement in the balance of payments, and an increase in the monetary base. The multiplier effects, together with the expansionary monetary impulse, transmit the boom to other sectors in the economy. As investment and purchases of consumer durables pick up, the current account begins to deteriorate. The increasing deficit has tended to coincide with a slowdown in exports. Both of these factors contribute to the slowdown of the boom. Monetary and fiscal policies traditionally have not been very successful in offsetting the destabilizing effects of export fluctuations.

A further characteristic of the financial markets is the institutional rigidity of interest rates and the prevalence of credit rationing as the main instrument of monetary policy. The discount rate of the Bank of Finland was fixed at 7 percent from 1960 to 1971. The interest rate on six-month deposits was fixed at 4.5 percent from 1959 to 1968. The average lending rate of banks has also been historically stable except for changes resulting from the index change described above.

D. *The Financing of Housing*

The three main sources of financing of housing are the banking system, the government and the households themselves. After the war the government subsidized as much as 70 percent of new housing construction mainly because of the problem of resettling the evacuees from the ceded areas. The share, however, declined steadily to only 25 percent in 1963. In the late 1960s it again increased substantially and in 1970 44 percent of new dwellings produced were partly subsidized by the government. In total some 16 percent of all loans granted for housing were from the government in 1970. The banks' share of the total was 42 percent and the share of self-financing 31 percent. A detailed description of the sources of housing loans is given in Table 2.

IV. GOVERNMENT SUPPORT OF HOUSING

A. *Main Form of Support and Intervention*

Presently the main form of state support to housing is the granting of low interest loans to specific buildings or on a personal basis. At present 50 percent of housing production is supported by low interest government loans.[5] These loans are administered by the National Board of Housing which is under the Ministry of the Interior. The second form of government support is the granting of housing allowances for needy families with children and for the elderly. In the 1950s and early 1960s the main form of support to housing took the form of extensive tax privileges, in particular exemption of rent and capital value from taxation. They were eliminated by the laws of 1962 and 1966 and in 1973 all tax privileges were abolished. Rent control was enforced in the postwar years but has not been in force since then except for the period of price freeze after the 1967 devaluation. The government engages in housing production only to the extent that housing is needed for state employees.

Local authorities support housing in the form of loans and build rental units themselves. The municipal authorities also participate in the overall planning of housing policy with the National Housing Board.

The Bank of Finland participates in housing policy by its recommendations to the banks concerning the priority to be given to various forms

[5]State housing loans comprised some 70 percent of all government lending in 1970, roughly 4.3 percent of total expenditure.

Table 2

FINLAND, LOANS GRANTED FOR HOUSING PRODUCTION IN 1970

	Millions of Marks	Percent
Commercial banks	515.7	17.2
Savings banks	395.3	13.2
Cooperative banks	206.4	6.9
Postal Bank	130.8	4.4
Mortgage credit institutions	34.4	1.1
National Pension Institute	3.8	0.1
Insurance companies	133.4	4.4
Pension foundations	8.5	0.3
Pension funds	35.9	1.2
Municipalities	60.9	2.0
Churches (individual congregations)	11.3	0.4
State budgetary funds	466.1	15.5
Industry and business enterprises, construction industry	66.9	2.2
Self-financing by individuals	930.6	31.1
	3,000.0	100.0

Source: Lujanen and Seppovaara, *Asuntotuotannon Rahoitus,* Asuntohallitus, Tutkimus-ja suunnitteluosasto, Sarja A:7, page 16, table 3.

of loans. These recommendations are not, however, binding. The Central Bank has also granted special credits to the banks to be used for housing production loans.

B. *Low Interest Loans and Allowances*

The government gives loans for owner-occupied dwellings or for the construction of rental dwellings. The former consist of the so-called basic loan and additional loan. The basic loan can be given to a housing corporation for the construction of a house or to an individual for the construction of a one-family dwelling or the purchase of shares in housing not otherwise supported by a government loan. A government loan may amount to a maximum of 30 percent of the building costs (which have to be approved by the National Housing Board). The interest rate is 3 percent and the amortization period is 25 years for the loans to housing corporations and 15-25 years for loans to individuals.

The additional loan is granted to low-income families who wish to purchase a dwelling in a house already supported by a government loan.

The loan is limited to a maximum of 30 percent of building cost. It is interest-free for the first eight years and amortization begins in the ninth year. The length of the loan, a maximum of 25 years, varies with the income, property, and family circumstances of the individual.

Those who cannot afford to buy a dwelling with this government support can either rent an apartment or a government-subsidized house or purchase a dwelling in a state-subsidized housing cooperative. For such cooperatives — few of which are in existence — the loan conditions are less stringent than for ordinary loans.

Rental dwellings supported by government loans are constructed by local authorities, insurance companies and corporations, and they are mainly built for low income families. The proportion of government subsidized rental dwellings constructed in recent years has been very large.

Given the attractive terms of government loans it is clear that they have to be rationed. Eligibility depends on the income, property, and housing need of the applicant. All applicants need to be approved by the Housing Board. It is also obvious that the price and occupancy of state-subsidized dwellings have to be controlled. Since 1970 it has been possible for occupants of subsidized dwellings to sell their dwelling at the market price after the state loan has been fully repaid. This change became necessary to facilitate mobility of labor and movement of families to larger units. A person who sells his dwelling is no longer entitled to a government loan.

In addition to loans the government gives housing allowances to needy families with children and to the elderly. The purpose of these allowances is to reduce the share of rent in monthly income. The maximum allowance is 70 percent of the rent. In addition the recipients of government loans receive supplementary loans from the banks with much longer amortization periods than in the case of private housing loans.

C. *Tax Treatment*

The main form of government support to housing in the 1950s and early 1960s was the granting of all kinds of tax concessions. In the laws of 1948, 1953, 1958 and 1962 dwellings and shares in housing corporations were exempted from state and municipal taxes for the years 1948-1972. The tax exemption was limited to new owner-occupied dwellings in 1962. The favorable tax treatment of existing dwellings was phased out by 1966, and of all dwellings by 1973. The imputed income from the occupancy of owned dwellings was subject to income taxation until June 1973. Thereafter it has been exempt for dwellings whose tax value does not exceed 100,000 marks — 3 percent of the exceeding value is subject to income tax. Since 1972 profit from the sale of a dwelling has been tax exempt provided the owner has occupied it at least for a year and buys a new dwelling within a year.

These concessions do not apply to second dwellings or summer cottages. The interest on loans used to buy single-family dwellings is exempted from state and municipal taxes (before 1973 the exemption from municipal taxes was limited to owner-occupied dwellings). However, this exemption is now limited to the deduction of interest from income taxes — 15,000 marks for housing loans and 5,000 marks for other loans.

No studies exist which would measure the total impact of these tax concessions. The evidence for the 1950s and early 1960s suggests that substantial benefits occurred to those who could afford to invest in housing — in particular at times of high inflation. Given the fact that similar tax exemptions were not granted to other forms of investment the policy tended to favor private housing at the expense of other investments. When the tax benefits were reduced, there was a noticeable increase in the growth of savings deposits, in particular after index-tied deposits were made tax exempt in May 1964.

V. SELF-FINANCING OF HOUSING

The main problem in the financing of housing is the large downpayment requirement and the short amortization period, particularly for those who do not receive state loans. In order to purchase a dwelling, an individual has to save for a number of years before he is eligible for a bank loan. According to a survey conducted in 1970, the average age of a house buyer is 42.9 years in the case of buyers who receive no government support and 36.3 years in the case of those who receive government support.[6] The survey also reveals that the average age of a housebuyer varies inversely with income. Furthermore it appears that the share of self financing also decreases with income. This may reflect the fact that the banks are more willing to lend to individuals with high incomes. Part of the explanation may also be that the short amortization period forces lower-income families to reduce bank borrowing in order to be able to handle the repayment in a short time period.

The main remaining tax incentive now is the right to deduct interest payment from income tax, while the imputed rent is not counted as income. There is no question that this implies a substantial transfer payment, especially to those who are in high income brackets because of progressive income tax. The main allocative effect of this tax policy is to increase the share of owner-occupied dwellings.

VI. HOUSING LOANS FROM FINANCIAL INSTITUTIONS

As is evident by now there is no mortgage market in Finland. Housing loans are granted by banks much in the same way as other loans. The share of housing loans of total bank lending is around 25 percent being much higher in the case of savings banks, 43 percent in 1970.[7] There is no

[6] Lujanen and Vanhanen, *op. cit.*, pages 36-47.

[7] This was relevant during the period of indexation since the savings banks also had a larger proportion of indexed deposits, which probably meant that a disproportionately larg share of index premiums was charged from housing loans.

standard mortgage contract. The loans to individuals or corporations that receive government support are of relatively long-term maturity, more than 80 percent over 20 years in 1970. However, loans to individuals or corporations that do not receive such support are of much shorter maturity, more than 50 percent of them less than ten years. The practices regarding amortization vary but often the annuity method is applied. There is no evidence whether the banks allowed smaller repayments at the time of index changes.

The downpayment for private loans is very high; it can be as high as 80 percent. In general, banks grant a so-called reciprocal loan for one-half of the amount saved by the borrower. In these cases the self-financing requirement is some 40 percent of the cost of the dwelling and the period of amortization from five to ten years.

The interest rate on mortgages is tied to the general level of interest rates and it tends to be in the first or second lowest category. The loan rates are determined, within a margin, by the discount rate of the Bank of Finland. As was already pointed out, the discount rate has been changed rather infrequently. The loan contracts are variable-rate contracts. Whenever the discount rate is changed, all loan rates change with it. The interest rate level has generally been below the market clearing level. There appears to be no differentiation of loan rates according to risk and maturity of the housing loan. The available supply of loanable funds has been rationed to competing claimants with preference for investments in the export and import sectors and especially in recent years for housing. To some extent, of course, the banks can change the effective loan rate by changing the self-financing requirement or by adjusting the amortization period. No evidence exists on the extent of these practices, however.

VII. SUMMARY AND CONCLUSIONS

Finland's experience with and eventual abolition of indexation in financial markets neither proves nor disproves the merits claimed for indexation. Its implementation left much to be desired, and its abandonment can be traced directly to a much broader set of issues facing small open economies.

The response of investors certainly revealed a preference for indexed assets. It is difficult to conclude much more on the beneficial effects. Nothing can be said about the effect on the rate of saving without a careful analysis of the effects of a multitude of other factors — such as demographic changes, development of the social security system and changes in the distribution of income. There is clear evidence that the share of indexed assets in the total of financial assets was responsive to changes in the rate of inflation. Although the share of bank deposits to GDP has increased steadily in the post-war years, it would not seem that the years 1955 to 1968 were exceptional. After 1968 most funds in indexed accounts were placed in new high interest accounts, which have grown rapidly ever since.

However, the basic problems of the financial system were not corrected by indexation except to the extent that some element of flexibility in the interest rate was obtained. Tax treatment continued to discourage efficient allocation of investment between sectors and credit rationing continued to be important in allocating credit to established customers.

With reference to housing, the main arguments for indexing mortgage contracts are that the typical fixed-interest, level-payment mortgages cause a disproportionate share of amortization and interest payments to fall in the beginning years when the borrower is least able to afford large payments on housing, and that indexation of deposits will help steady the flow of funds to the financial institutions financing mortgages and also reduce the risk to the intermediary caused by changes in the short-term rate of interest due to changes in inflationary expectations.

In the case of Finland, neither of these arguments applies. First of all, all mortgage contracts have a variable interest rate. Secondly, the indexation of mortgage loans was indirect and its incidence quite random. Not only did it depend on the rate of inflation in the economy, but it also depended on the portfolio preferences of depositors. The only potential benefit to the borrower was that the system may have increased the availability of loans to the home buyers, but even that is not clear. There is no evidence that the downpayment requirement declined, or that the amortization period was lengthened. The extent of government support if anything increased during this period.

The use of variable rates is understandable when there are substantial variations in the rate of inflation and no indexation. One may argue that the borrowers can more easily hedge against changes in the rate of inflation because the change in nominal income is quite closely correlated with the rate of inflation. Why the use of indexation did not result in the use of fixed interest loans of longer maturity is somewhat of a puzzle. One reason could be the fact that a short amortization period, like the downpayment requirement, increases the effective cost of loans and is therefore a substitute for a market clearing interest rate.

REFERENCES

von Fieandt, R. "The Index Clause in Bank Deposits and Long-Term Loans." *Monthly Bulletin,* Bank of Finland (1957) No. 31: pp. 18-21.

Finch, D. "Purchasing Power Guarantees for Deferred Payments." *IMF Staff Papers* (1956) No. 1.

Bank of Finland. "Index Tied Deposits." *Monthly Bulletin,* April 1969.

Bank of Finland. "Abolition of Index-Linkages in the Financial Market." *Monthly Bulletin,* May 1968.

Bank of Finland. *The Index Clause System in Finnish Money and Capital Markets.* Bank of Finland Institute for Economic Research, 1969. Mimeographed.

Hanni, Eila. "Inflation in Post-War Finland." *Economic Studies* XXXII: Helsinki, 1972.

Hein, John. "A Note on the Use of Index Clauses Abroad." *Journal of Finance,* December 1960: 542-46.

Junnila, T. "Finland Introduces the Index Clause in Deposit and Credit Business." *Kansallis-Osake-Pankki Economic Review* (1955) No. 4: pp. 173-79.

______________. "The Growing Application of the Index Clause in Deposit and Credit Business in Finland." *Kansallis-Osake-Pankki Economic Review* (1957) No. 1: pp. 3-12.

______________. "In the Maze of Linkages." *Kansallis-Osake-Pankki Economic Review* (1958) No. 1: pp. 3-5.

______________. "Tightening Credit Market." *Kansallis-Osake-Pankki Economic Review* (1957) No. 3: pp. 103-107.

______________. "End of the Index Clause in the Money Market." *Kansallis-Osake-Pankki Economic Review,* 1968.

Levamaki, L., "The Index Clause in Finnish Banking." *Monthly Bulletin,* Bank of Finland, Vol. 30, No. 3, 4, 1956.

Linnano, J., "The Index Clause Systems of the Money and Capital Market." *Kansallis-Osake-Pankki Economic Review,* 1958, No. 2.

Lujanen, M. and Vanhanen, T. *Asuntotuotannon Rahoitus.* Asuntohallitus, Tutkimus-ja suunnitteluosasta, Sarja A.F.

Lujanen, M. and Scppovaara, J. "Financing of Housing in Finland." National Housing Board, Finland, August, 1971. Mimeographed.

Puumanen, Kari. "The Index Clause in Financial Markets: The Finnish System." *Kansallis-Osake-Pankki Economic Review* (1973) No. 3: pp. 109-16.

______________. "Some Aspects of the Finnish Experience in Index Tied Deposits." *Monthly Bulletin,* Bank of Finland (1967) No. 1: pp. 18-22.

Virkkunen, Matti. "Deposit Accounts with an Index Clause." *Kansallis-Osake-Pankki Economic Review.* (1955) No. 2.