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Monetary Correction and Interest Rates

by

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Over the years much has been written about the idea of linking the nominal value of contractual obligations to a price index so as to offset the effects of the instability of the purchasing power of money. But, until well into the twentieth century, little was done to put such a suggestion into effect. There was general agreement that it was much better to maintain the real purchasing power of money by means of policies which would avoid inflation and deflation than to offset the effects of instability in the nominal purchasing power by means of monetary correction. More important, in many countries, if not in most countries, the majority of the people had faith in the Government's ability to adopt and carry out policies conducive to the maintenance of relative price stability, if not in the short run, then in the long run. Indeed, Governments, by and large, had shown themselves worthy of this faith throughout most of the nineteenth century, at least in most of Europe and in North America.

Conditions changed drastically with the onset of the First World War. The wartime and postwar inflation was not reversed and the loss of purchasing power of money caused severe and widespread suffering, as well as political and social upheaval. This gave impetus to the use of escalator clauses in some countries. But with the great depression of the nineteen thirties, the pressure to adopt arrangements of this type diminished.

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Interest was revived as the result of the upsurge of inflation during the Second World War and the ensuing years. Indeed, the inflation which followed that war proved to be very intractable. This led to the spread of arrangements to maintain the purchasing power of contractual obligations. Escalator clauses in wage contracts became especially widespread and bonds with some form of purchasing power guarantee began to be issued in some countries, notably Finland, France, and Israel. In other countries, social insurance was made subject to monetary correction. In a few, the system was applied to savings deposits, to bank loans, to rents and leases, and to the tax system.

As the use of monetary correction spread, some economists became increasingly interested in the question of applying it across the board. Writings of the last few years deal almost exclusively with this problem.[1/] In the course of the discussion of this broad topic, references are made to the specific problems which are likely to arise when financial instruments are not subject to monetary correction, and to the effects of applying monetary correction to financial instruments. But often these matters are not considered systematically.

This paper will focus on the financial aspects of the monetary correction controversy. It will analyze, first, the effects of inflation in an economy in which financial instruments are not subject to monetary correction, second, the effects of applying monetary correction to financial instruments, and third, the more important practical problems encountered in implementing such an arrangement.

1/ See Herbert Giersch, Milton Friedman, William Fellner, Edward M. Bernstein, and Alexandre Kafka, Essays on Inflation and Indexation, American Enterprise Institute for Policy Research, Washington, D.C., 1974. A detailed bibliography appears on pp. 4-5, and another on pp. 58-61.

Inflation and Interest Rates

It is well known that unanticipated inflation results in an inefficient allocation of resources and that it changes the distribution of income. Because some prices and some elements of production costs rise faster than others, the profit pattern becomes distorted as between different sectors of production, and illusory profits attract excessive investment in some sectors and insufficient investment in others. Money incomes adjust unevenly and with varying lags, and some do not adjust at all because they are fixed under long-term contractual arrangements. Meanwhile, with a progressive income tax, more and more taxpayers find themselves in increasingly higher tax brackets, even though the rise in their income is mainly a reflection of the inflation. The increase in tax yields which this implies is not authorized by any formal procedure (such as a vote of the legislative body), but it nevertheless redistributes income toward the public sector.

Money and capital markets are particularly subject to distortions because interest rates are frequently not allowed to fluctuate freely, and even when they are, they often tend to move with some lag and to adjust incompletely to the inflation.

Many countries regulate interest rates, some in considerable detail. This usually reflects a belief that low interest rates are good for the country, perhaps because this promotes investment, or perhaps because it keeps down the burden of servicing the public debt, or

perhaps because of a fear that a rise in interest rates would help push up production costs and as such intensify inflation, or perhaps because higher interest rates would cause losses to holders of lower rate obligations who might have to sell them before maturity, or perhaps because higher interest rates would mean higher incomes for the rich at the expense of the poor, and especially for banks and other money lenders who are often looked upon with suspicion, or perhaps because of a combination of these reasons.

Whatever the reason, regulation usually consists in prescribing a maximum interest rate for specified types of contracts, and the tendency is to leave these maximum rates unchanged for relatively long periods of time. As inflation intensifies, these controlled rates become increasingly unattractive to savers, and at the same time increasingly attractive to borrowers. As the flow of savings toward the institutions and financial instruments subject to these controls tends to dwindle, the unsatisfied demand for loans at those rates grows, and the result is, invariably, to stimulate the flow of savings toward institutions and instruments not subject to controls, if any exist, or to bring about their creation, if they do not exist, whether this be lawful or not. This is what is commonly called disintermediation. If the new mechanisms which are created lack legal status or circumvent a law or regulation, an additional element of risk is involved in placing funds through such illegal channels, and this must be reflected in a higher nominal interest rate than would prevail in a completely free market.

Distortions in the pattern of allocation of resources result from this situation, since some borrowers succeed in getting funds at the controlled rates,[1] while others must turn to the uncontrolled sectors of the market to meet their needs.

Even in the absence of official regulation of interest rates, not all rates move with the same responsiveness or adjust completely to inflation. Short term rates are likely to be generally more flexible than long term rates. Regardless of maturity characteristics, lending institutions are sometimes reluctant to raise their rates because of fears that this may cause complaints which might bring about the imposition of regulations, or perhaps because of a desire to build up goodwill among customers who might take their business elsewhere.

Indeed, the absence of official regulation of interest rates is almost never total. In most countries,[2] one instrument, demand deposits at banks, is prohibited from earning any interest. In an inflationary environment, this fact alone introduces distortions in the structure of interest rates, even if there is no other interest rate control. This is because, when inflation intensifies, banks need not raise their lending rates as much as they would have to if they paid interest on all deposits. The spread between their lending rates and the rates they pay on their interest bearing liabilities can become

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1/ The advantage obtained by those who borrow at the controlled rates may be diminished or eliminated altogether if they must make side payments in order to benefit from these rates.

2/ Canada is an exception.

narrower without impairing profits simply because the spread between the lending rates and the zero rate applicable to demand deposits is widening. This factor works with different results depending on the structure of the liabilities of particular financial institutions, and is especially effective in holding down the lending rates of institutions in which demand deposits represent a large proportion of total liabilities, or in enabling such institutions to pay higher rates on their interest bearing obligations, (if these are not controlled also).

In contrast, institutions which cannot accept demand deposits must maintain the spread between their borrowing and lending rates and either charge more than commercial banks on their loans or pay less on their interest bearing obligations. The resulting distortion of interest rates as between different types of institutions may be relatively small so long as inflation rates remain moderate. But it becomes increasingly significant as the rate of inflation reaches more extreme levels.[1/]

It is, of course, possible to compensate for the differential impact of the prohibition against paying interest on demand deposits by applying different reserve requirements to different types of institutions or against different types of liabilities. But it is not practical to revise these reserve requirements frequently enough to eliminate totally the distortions in question when the rate of inflation changes often.

1/ The high profitability of commercial banking under strong inflation is a well known fact. Countries experiencing strong inflation have, as a result, witnessed a proliferation of banking offices the consequence of which has been to saddle banks with excessively rigid operating costs. These costs often interfere with downward movements in interest rates when inflation abates.

To the extent to which interest rate patterns are distorted by inflation, so are investment and consumption patterns and so are income patterns. As inflation intensifies and the rise in interest rates lags behind (more so for some rates than for others), it becomes increasingly profitable to get into debt, since obligations of fixed nominal amounts are becoming less and less burdensome to repay in real terms. Businesses which are heavily dependent on borrowing and have access to financial institutions at rates which may be negative in real terms are subsidized and produce for their owners a larger income than they would earn otherwise. Workers and others dependent on them for their livelihood may also benefit as employment in these businesses and purchases by them are stimulated. Equity investment in these activities is made to look especially attractive. Elsewhere in the economy, the interest subsidy may be smaller, or non-existent, and equity investment in these sectors is made to look less profitable. On the other hand, people whose income consists mainly of interest earned on their savings suffer losses as the fixed nominal amounts they receive and the eventual refund of their principal represent ever smaller amounts in real terms as inflation intensifies.

The Effects of Monetary Correction

It is to minimize or perhaps even eliminate distortions such as these that a number of countries have adopted a mechanism of monetary correction for financial instruments and that others are studying the possibility.

The principle is simple enough: the nominal interest payments are adjusted upward by a percentage equal to the rate of inflation and so is the principal amount of the obligation.[1/] The percentage of adjustment--the monetary correction factor--can be set in advance or it can be ascertained at the time payments are due under the obligation in question in accordance with a formula agreed upon ahead of time.

If it is pre-determined, and this is the case of many financial instruments in Brazil, the distortions will not be totally eliminated unless the actual rate of inflation turns out to equal exactly the rate used for monetary correction. The difficulty of predicting accurately, well ahead of time, the future rate of inflation makes this very unlikely and also suggests that substantial distortions may persist under such a system. Of course, this type of monetary correction will take place to some extent without the explicit use of a readjustment factor if interest rates are free of controls.

If the monetary correction factor is the actual rate of inflation as it emerges when the payments fall due, there may still be the practical difficulty of ascertaining what that rate is when the up-to-date statistical information needed for this purpose is not yet available. Indeed, given the lag in compiling this type of information, the ex-post monetary correction factor is bound to be based on a somewhat different time period than the period which the payment to be corrected covers, unless one incorporates in the correction formula a projection of what the up-to-date figures will show when they do become available.

1/ An alternative is to add the inflation rate to the nominal interest rate. In this case, the principal of the obligation is not readjusted.

The use of a monetary correction factor determined ex-post is unlikely to eliminate completely the distortions which would occur in its absence. But it will at least lessen them. Under such a system, investment and consumption decisions should again depend on the underlying factors which would govern such decisions in the absence of inflation. If all interest-bearing instruments are covered by it, the flow of savings into the various sectors of the money and capital markets should again reflect the relative preferences of the savers and borrowers and the relative risk and return elements inherent in each sector. Finally, savers' incomes and wealth would be largely protected against the discriminatory impact of intensifying inflation.

Indeed, it may be argued that, under an ex-post monetary correction system, the real rates of interest are likely to fluctuate less than they would in the complete absence of controls over interest rates. This is because, in the absence of controls, the inflation factor which would become incorporated in the interest rate structure, being determined ex-ante (so to speak), would contain an element of risk reflecting uncertainty about the rate of inflation. This risk element might be positive or negative, depending on public expectations about the trend of inflation. In contrast, an ex-post monetary correction index would not be subject to this type of uncertainty and therefore no comparable risk element would have to be added or subtracted. However, this effect is offset by the fact that indexation introduces uncertainty about future monetary obligations.

Another advantage of introducing financial instruments with a monetary correction feature would be that, with high and variable rates of inflation, they would tend to have a longer maturity than the non-indexed instruments. This is because the uncertainty as to the rate of inflation would induce the market participants using non-indexed instruments to shorten the maturities of their contracts as a means of obtaining a relatively higher degree of certainty for the capital involved and the return on it. The use of monetary correction would protect the participants from the effects of unanticipated changes in the inflation rate. This advantage would be particularly great if expectations about price level changes vary a great deal among market participants and tend to be rather inaccurate.

But, now, what would be the effect on existing (non-indexed) financial instruments of the introduction of indexed instruments? This is an important question because the opponents of indexation for financial contracts often argue that the appearance of indexed instruments would place other forms of fixed interest investment at a disadvantage and jeopardize their continued existence. According to these opponents, there would certainly occur a sharp decline in the value of outstanding non-indexed instruments, and this would be very unfair to those whose prior savings were already tied up in non-indexed instruments. In a developing country, where outstanding financial instruments taken all together do not represent more than a relatively small amount, this argument would have comparatively little weight. But in a country with

a highly developed financial market and very large amounts of prior savings tied up in outstanding financial instruments, the argument, if true, would have considerable influence in preventing the adoption of monetary correction for financial instruments.

In fact, there does not seem to be any a priori reason why the value of outstanding non-indexed instruments should be adversely affected by the mere appearance of indexed instruments. What is true is that past inflation (and past changes in the real rate of interest) may well have depressed the market price of securities issued earlier, but this would not be attributable to the introduction of indexed securities. Indeed, a new indexed security would presumably be given a nominal interest rate well below the current yield of non-indexed securities, and would be issued at a price such that the resulting yield, consisting of the nominal interest rate plus the expected rate of inflation, would be approximately equal to the current yield on non-indexed securities.[1/] The effect on prices of existing non-indexed securities would not be any different from what it would be if the new securities did not carry a monetary correction clause. That is, any new issue tends to depress the values of outstanding securities as the market approaches saturation, but this will be true regardless of whether the new issue is indexed or not. Of course, the novelty of an indexed security might make it more appealing than it really deserves and tend, for this reason, to depress, at least for a time, the values of outstanding non-indexed securities. But this should cease to be a factor as the novelty wears off.

1/ In reality, it would be somewhat lower because an indexed security offers a greater degree of certainty as to the real rate of return.

In fact, the choice for savers is not simply one between indexed and unindexed securities. Rather it involves a wide range of alternative ways in which to hold savings, including many which offer effective protection against inflation -- for example land and real property, precious metals, and jewelry. Inflation induces investment in these assets and away from non-indexed securities, this forces up rates on newly issued non-indexed securities, and depresses the value of those previously issued at a lower interest rate. The introduction of another instrument -- an indexed security -- which is also a hedge against inflation should have only a marginal effect on the prices of non-indexed securities. Indeed, the latter may be held up by demand on the part of those who want to speculate on movements of the general price level.

What may be implied by those who fear the impact of the issuance of indexed securities on outstanding non-indexed securities is the notion that the current yield on the latter does not fully reflect the expected rate of inflation, and that the appearance of the former might make this clear to the market, causing it suddenly to place a lower valuation on pre-existing non-indexed securities. This, of course, is possible, but it does not seem very likely, because it implies that the newly issued indexed security has been offered at a price and with a nominal interest rate which produces too high a yield under existing market conditions. If the new issue of indexed securities is priced realistically and carries a realistic nominal rate, this situation should not occur.

What would happen to the market values of both types of securities after the issuance of indexed securities, should inflationary expectations change? Assuming no change in the real rate of interest, the market value of the indexed security would not vary at all, while that of non-indexed securities would fluctuate inversely with the change in inflationary expectations. As Jai-Hoon Yang has pointed out:[1/]

> "Assuming risk aversion, the relative attractiveness of the two bonds would crucially depend on the perceived relative variability of real interest rates and anticipated inflation rates. If the market judged that the expected rates of inflation were more volatile than real interest rates,...the indexed bond would be relatively more attractive. Thus, it would command higher prices and lower effective yields; that is, a borrower may borrow at lower yield with the indexed bond than with the non-indexed bonds."

This suggests that the contrary would be true if the market judged the expected inflation rates to be less volatile than real interest rates. Jai-Hoon Yang believes that the condition of relatively greater attractiveness for indexed securities corresponds to the real world, and he refers to available evidence from Israel which he characterizes as suggestive in this respect. On the other hand, the experience of Brazil may suggest the reverse, as the introduction of indexed government bonds there does not appear to have prevented the continued issuance of non-indexed paper. In Finland and France also, indexed and non-indexed financial assets coexisted.

1/ Jai-Hoon Yang, the Case For and Against Indexation: An Attempt at Perspective, Federal Reserve Bank of St. Louis Review, Vol. 56, No. 10 (October 1974). The quotation is from p. 9.

A more serious problem may arise if interest rate controls are in existence on the liabilities of financial institutions, and an indexed security is introduced or a particular category of institution is authorized to use indexation on its assets and liabilities, with particularly attractive terms. In such a situation, there would be a rush by those who have placed their savings at the controlled interest rates to switch their funds to the new indexed form. This would cause great difficulties for the institutions subject to the interest rate controls. This is the reason why, in the United States, the savings and loan associations have opposed the issuance of "de facto" purchasing power bonds, such as those which some commercial banks and business corporations launched in 1974, and the issuance of index-linked government bonds.

What this suggests is that the use of indexed financial instruments may not be compatible with the continued application of interest rate controls, and that the latter may have to be removed if the introduction of indexed securities is not to cause serious disruptions.[1/] This conclusion appears to be supported by the experience of Colombia, where indexation was applied to one sector of the financial market--housing finance--but controls on interest rates continued to apply in other sectors. There is evidence that this led to an excessive flow of savings into housing and to a shortage in other sectors.[2/]

1/ Alternatively, if interest rate controls are retained, it may be necessary to regulate the terms and conditions of the new indexed securities to prevent them from providing an inordinately large inducement to switch funds into them.

2/ See Albert Goltz and Desmond Lachman, "Monetary Correction and Colombia's Savings and Loan System," Finance and Development (an IMF/IBRD publication), Vol. 11, No. 3, September 1974, pp. 24-26.

Another important issue raised by the use of a monetary correction factor for financial instruments is that of whether it will help or hinder the efforts of the authorities to bring an inflationary situation under control. The opponents of indexation often argue that, by protecting another group of people against the effects of inflation, indexation will make this group indifferent as to whether or not inflation is ended, and will deprive the authorities of a possible source of political support for an anti-inflationary program. In this sense, indexation is viewed as a surrender to the inevitability of inflation and the opponents suggest that its adoption may even strengthen inflationary expectations, further complicating the task of restoring stability.

On the other hand, indexation may also make the ending of inflation less painful than it otherwise would be and as such may facilitate the adoption of policies conducive to the restoration of stability. To the extent to which debtors stand to benefit from inflation, they may be expected to favor its continuance. Indexation of financial instruments will make this group more willing to accept stabilization, and weaken their opposition to the adoption of an anti-inflationary program.

The experience of Brazil in this respect is interesting. Monetary correction of financial assets has been used extensively in Brazil in the last ten or eleven years, yet the authorities were able to carry out a very successful stabilization program. Inflation was not totally eliminated, but the rate of inflation was cut from 80 per cent in 1964 to about 15 per cent in 1973. Indexation did not raise inflationary expectations in Brazil. It was not regarded as a surrender to

inflation. But it helped to smooth the way for the authorities to attack inflation at its cause--the fiscal deficit--and enabled them to do this over a period of time, during which the distortions from the continuance of inflation were largely neutralized.

Of course, the Brazilian experience may not be universally applicable. The political conditions under which the Brazilian system of monetary correction and the anti-inflationary policies were carried out may not be found in many countries. Where they do not exist, and where inflation has not reached the heights which it reached in Brazil in the early nineteen sixties, the introduction of monetary correction may have different consequences in this regard.

But it should not be forgotten that the principal reason for adopting the monetary correction principle is to avoid the distortions in resource allocation and the inequities in income distribution which inflation brings about, not to stop inflation. These benefits are real and are worth achieving, even if there is a possibility--and it is only a possibility, not anything like a certainty--that indexation might weaken public support for an anti-inflationary program. Indeed, as already mentioned, there may well be a weakening of opposition to such a program.

Can Monetary Correction of Financial Instruments Work?

The first problem which arises when this question is raised is that of choosing an appropriate formula to carry out the monetary correction. Some interesting issues are involved in solving this problem, but they would take us too far afield and we will not discuss them here.

These issues perhaps should be referred to a future meeting of this group, with the thought that they might be assigned to the commission on statistics and methodology, rather than to this commission.

The second practical problem which arises, when the question is raised as to whether monetary correction of financial instruments can work, is that of the reactions of the affected sectors. Under conditions of high rates of inflation and controls on interest rates, there is no doubt that those who may receive an additional compensation under the system can be expected to be pleased, but what of those who may pay more under the system--the debtors? They may well complain, of course. But they were being subsidized and indexation simply removes at least part of the subsidy. They have no inherent right to receive such a subsidy since it was never openly decided through a legislative process. On the other hand, they may be politically powerful and this may require that special care be taken to prepare for the change.

In practical terms, those debtors who have gotten addicted to inflation, may well be expected to show little interest in a voluntary system of monetary correction, unless credit becomes hard to get at the controlled interest rates. This is the reason why, in Brazil, bank loans did **not** become indexed through private initiative. Instead, they became subject to a modified monetary correction--one which is applied in advance and is, in effect, added to the nominal interest rate at the time the loan contract is negotiated, much as some other bank fees and commissions are often added.

In the few cases where debtors have voluntarily agreed that monetary correction would be applied after the fact on the basis of an index, they have raised strong protests later on, when they have found out how heavy the additional burden on them turned out to be. I refer here particularly to the savings and loan system adopted in Chile about 10 years ago to finance residential mortgage lending, and to a similar system used in Brazil more recently, as well as some similar instances in California. In these cases, political pressures brought to bear by the debtors resulted in official intervention to modify the system and alleviate the burden which it placed on them.

When it comes to the indexation of Government securities, the problems of the debtor--in this case the Government--take on a new light. Indexing of these securities will increase the cost of debt service in nominal terms, at least in those cases in which interest rates on Government securities were being held at artificially low levels, and therefore widen the fiscal gap which is often the principal engine of the inflation. On the other hand, if it makes it possible for the Government to sell securities to the general public, the inflationary impact of financing the wider deficit may be less than the impact of financing a smaller one entirely through the banking system--or indeed through the central bank.

The Government, of course, is not necessarily like a private entity when it comes to having an interest in protecting the benefits which it derives from inflation. These benefits are important and very real, but they generally result from the Government having adopted the

path of least resistance in accommodating competing claims on its resources. In such a situation, there may well be room to accommodate one more group of claimants--the holders, or potential holders, of Government securities.

The third practical problem which arises, when the question is raised as to whether monetary correction of financial instruments can work, is that of the impact on the balance of payments. Under a system of fixed exchange rates, the issuance of indexed securities in a country experiencing high rates of inflation is likely to intensify the tendency for such a country to suffer destabilizing movements of short-term capital, as the profit opportunities which the situation offers for foreigners will be magnified. Depending on the use to which the imported capital is put, there will probably also be a net welfare loss to the inflating country if the foreigners receive fully indexed earnings and a fully indexed principal and repatriate them at the same exchange rate as that at which they brought their funds into the inflating country.

To avoid these results, it may be necessary to prohibit foreigners from acquiring indexed assets. Of course, these results would not come about under a system of freely flexible exchange rates, or one under which there are frequent but small devaluations. Perhaps the issuance of indexed securities can be undertaken with greater ease or with fewer undesirable side effects if the price of foreign currency is also indexed.

A fourth practical problem is whether, from the standpoint of fairness to other sectors of society, and from that of the efficiency of resource allocation, it is tolerable to apply monetary correction only to financial instruments. Fairness may require that monetary correction be applied also to wages and salaries, to pensions of retired persons, to rents and leases, and finally to the tax system. However, this possibility takes us well beyond the scope of this paper and will not be discussed here.

Conclusion

By now, it should be clear that the use of monetary correction for financial instruments has many complex implications. Perhaps it would be much better to let interest rates fluctuate freely--rise as high as market forces will take them, given the rate of inflation. Of course, freely fluctuating interest rates would not eliminate the risk inherent in forming price expectations. But there is no doubt that, if interest rates did rise high enough, there would be less need to consider arrangements like monetary correction to simulate this behavior.

Indeed, it is mainly because of the difficulties of achieving the desired flexibility of interest rates--difficulties which were discussed at the beginning of this paper--that the use of monetary correction has been proposed and has been adopted in some countries. If these difficulties could be overcome, the problem would not arise.

Unfortunately, many of these difficulties are related to political considerations. Occasionally, the political will exists to act in spite of them. In such cases, the results have generally been very

favorable. Indeed, high real interest rates have a strong anti-inflationary potential. That is to say that, when nominal interest rates are allowed to rise as high as market forces will take them--and when the monetary authorities refrain from counteracting these forces by stepping up the rate of growth of money supply beyond the levels already attained--not only can some of the distortions of inflation be alleviated, but in addition inflation itself is likely to be slowed down by the resulting increase in real interest rates. In this respect, much has been written about the successful experience of several Asian countries which were suffering high rates of inflation--Korea, Taiwan, and Indonesia.[1/]

Where the political will to overcome the obstacles to a rise in interest rates does not exist, monetary correction of financial instruments may offer a partial alternative. This is better than nothing, for, as one writer has put it, "it seems preferable for society to protect itself against at least some of the evils of inflation than not to protect itself at all."[2/]

1/ See, for example, Robert F. Emery,"the Use of Interest Rate Policies as a Stimulus to Economic Growth", Staff Economic Studies, Board of Governors of the Federal Reserve System, No. 65, September 1971. A version in Spanish was published in the Monthly Bulletin of the Center for Latin American Monetary Studies (CEMLA), June 1972, pp. 293-310.

2/ Ephraim Kleiman, Linkage and Indexation-Israel's Twenty Years' Experience, unpublished paper (1974), p. 15.