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What Advanced Countries Can Learn from the Experience with Indexation: Some Concluding Observations

As I listened to Affonso Pastore's opening address at this conference, I had the feeling that we had been gathered together from the four corners of the earth to hear the Gospel of Indexation according to São Paulo. That being the case, I feel I should remind you that historically the gospel of São Paulo originated in sermons given in Jerusalem. Similarly, as Ephraim Kleiman explained in his paper, indexation has been a familiar phenomenon in Israel for over three decades, going back as it does to the period of World War II. Accordingly, what I would like to do in these concluding remarks is to take advantage of the experience with indexation of both countries—what I have learned at this conference about Brazil, together with what I know about my own country—to see what lessons the advanced economies can learn. And I only regret that because of lack of knowledge I cannot base my discussion on the Finnish experience as well.

My point of departure for this discussion is the observation that indexation has not been adopted by developed countries like the United States and those of Western Europe, but by Finland, Israel, and Brazil—countries well along the path to development but not modern developed economies in the fullest sense of the term. So the question naturally arises just what

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is there in the nature of the developed economy that has created this revealed lack of preference for indexation?

One simple possibility is that the demand for indexation is an increasing function of the rate of inflation, and that it is only in recent years that the developed economies have reached the two-digit level of inflation which apparently activates this demand. Another more fundamental explanation for this revealed preference is the fact that by their very nature developed economies have developed markets, especially free labor markets and highly developed capital markets, which achieve much of the inflation adjustment that indexation is designed to produce.

Correspondingly, when we come to draw lessons for the developed economies, the relevant comparison is not between a country with indexation and one with a controlled economy in which nominal quantities (prices, money wages, exchange rate, and interest) are held constant in the face of inflation, but, rather, a comparison with an economy in which these nominal quantities are adjusted to the inflationary pressures by the free workings of the market. For the basic fact of inflationary life is that individuals do not suffer from money illusion, at least not for any protracted period of time. Thus, it is a commonplace of both theory and practice that even in the absence of indexation, any prolonged inflationary process in a relatively free market economy generates continuously rising prices and wages in all sectors of the economy, ever-rising exchange rates (if the inflation is faster than in other countries), and a nominal interest rate that is higher the higher the expected rate of inflation.

In this commonplace observation there are two key terms: "free market economy" and "expected rate." And the distinctive nature of indexation is related to these terms.

In particular, the nominal rate of interest as determined in a free market economy will reflect future rates of inflation correctly only to the extent that these rates are correctly anticipated. That this frequently does not occur in practice is evidenced by the fact that the ex-post real interest rate in inflationary economies is frequently negative. Hence one of the primary purposes of indexation is to eliminate the necessity for correctly anticipating the rate of inflation by making contractual arrangements which, by means of the indexing clause, stipulate real rates of interest instead of nominal ones. This aspect of indexation has attracted much attention in recent years among monetary theorists, who have analyzed the microeconomic problem involved in terms of a model of a risk-averting individual choosing an optimum portfolio of assets, one of which has a rate of return whose real value is certain but whose indexed nominal value is not.[1]

More generally, indexation in the strict sense of the term implies that no matter what the actual rate of inflation turns out to be, the parties to an indexed agreement can be certain about the real terms of exchange during the term of the contract. From this viewpoint it has become clear to me from the discussion of the past few days that the degree of indexation in Brazil is really a lesser one than I had originally thought. I shall return to this point later.

Besides the role that indexation can play in solving this problem of unanticipated inflation, it can also enter the picture because there is no economy in which *all* prices are determined by a freely functioning market. At one extreme, the absence of such a market can take the form of an economy operating under an extensive system of price, wage, and foreign exchange controls. But even in an economy in which such controls do not formally exist there are always some administered prices, particularly of goods and services sold by or under the supervision of the government (for example, exchange rates, public utility rates, and the like). There are also other nominal money quantities determined by governments, such as income tax brackets.

In all these cases, a prolonged inflationary process will ultimately bring about an increase in the nominal quantities in question. Thus, in the face of a continued inflation, even controlled prices and exchange rates will ultimately be raised, and the same will be true of such nominal quantities as income tax brackets and the like. Such upward adjustments, however, will usually be made only with a lag—either because of the cumbersomeness of the bureaucratic procedure, or possibly the need to take even more cumbersome legislative action. And the lagging of such controlled prices behind the general inflationary process will lead to distortions of the price structure and all that follows from that.

The purpose of indexation in such cases is then to lessen or even eliminate the lag in adjusting official prices. As such, its role is that of preventing the distortions—and changes in distribution of real income—that are generated by the lags that would otherwise exist. But this is not indexation in the strict sense of removing uncertainty about future real quantities. Correspondingly, the use of indexation in such cases does not (as distinct from its use in loan contracts) introduce any basically new element into microeconomic theory. It does, however, raise a question with respect to the macroeconomic theory of inflation. For the use of indexation in these contexts may speed up the inflationary process, particularly in the case where demand- and cost-inflation are interacting. It should, however, be emphasized that the crucial question here is the difference (if any) between the rate at which inflation will proceed with (say) automatically indexed wages, and the rate at which it would proceed in a situation in which wage contracts are renegotiated (say) every year. For I must once again emphasize that it is naive to assume that, in the absence of indexation, money wages would not rise in an inflationary process.

In theory, it is, of course, possible that indexation could increase the rate of inflation enough to destabilize the process. But Cagan's study of hyperinflation (1956) shows how rarely inflationary processes have become unstable even in the most extreme cases. In any event, such an unstable process has not been generated by the use of indexation either in Israel or in Brazil.

Let me now turn to the more specific lessons that the advanced countries can learn from the experience of indexation in these two countries. For convenience, I shall organize the discussion under the following main headings: (1) Fiscal arrangements, and (2) Contractual arrangements. The latter is subdivided into (a) short-term—(i) loans, (ii) wage rate, and (iii) exchange rate; and (b) long-term—(i) loans and (ii) pensions and annuities.

Insofar as fiscal arrangements are concerned, there are two main applications of indexation in Brazil: first, in the calculation of profits for tax purposes; second, in the adjustment of income-tax or capital-gains tax brackets. Though there are an increasing number of examples in developed economies of the second of these applications (e.g., in Canada), I am not aware of such instances with respect to the first. This is not to imply that there is a lack of recognition in advanced countries of the significance of inflation for calculating profits in the true economic sense of the term: i.e., as net of depreciation at current replacement cost. Indeed, even a cursory inspection of the various accounting journals over the past decades yields a multitude of articles on this subject. Furthermore, by supplementing their standard depreciation allowances with special allowances (under one name or another) for the increased actual cost of replacing their equipment, many firms in these developed economies in effect make use of indexation in the determination of their respective dividend policies.

Correspondingly, the fact that the tax laws of these countries do not permit an upward adjustment of depreciation to reflect inflationary increases in replacement costs is not due to error or ignorance, but to an implicit decision to tax inflationary profits as ordinary profits or, alternatively, ordinary capital gains. And the fact that these are not "true economic profits" is not really relevant. For as my old teacher Henry Simons used to say—in impatiently dismissing as irrelevant for tax policy the long and involved arguments about whether, from the viewpoint of economic theory, capital gains are "really" income—a government is free to tax whatever it wants to tax.[2]

In the present context I would add that inflation, as is so frequently emphasized, is a tax on one kind of asset—namely, money holdings. Why, then, should other forms of assets necessarily be exempt? But this is essentially what is involved in the Brazilian exemption of inflationary increases in (say) real estate values from the capital gains tax.

In brief, the question of whether or not to index the tax structure is not a question of right or wrong economic analysis. It is, instead, a question of tax policy. Correspondingly, the answer to this question should be based primarily on considerations of equity. Now, an inflationary process generates net losses for some individuals and net gains for others. Surely, then, there is no justification for arguing that as a matter of principle those individuals who enjoy such gains should be the very ones to be exempt from paying taxes upon them. But this is what is involved in the indexation of the Brazilian tax system.

To this equity consideration can be added the efficiency consideration which Joseph Pechman has emphasized in the course of this conference: namely, that the failure to index the tax structure (as in the United States) reinforces the automatic stabilizing effect of the government budget.

Let me turn now to the use of indexation in private contractual arrangements. Insofar as short-term loans are concerned, indexation is not used either in Israel or in Brazil, the reason probably being that there is likely to be less discrepancy between what we anticipate and what actually happens the shorter the period for which we must form our anticipations. Furthermore, the loss generated by such a discrepancy need be borne only for the relatively short period of such a loan. Correspondingly, in both economies the short-term rate of interest is simply determined by the market, and to a large extent reflects the anticipated inflation. Thus, in Israel (which in 1973 and 1974 experienced annual rates of inflation of 20 percent and 40 percent, respectively), the interest rate on bank loans is 25–35 percent, while in Brazil, with its even higher rates of inflation, the short-term loan rate has been correspondingly higher.

In this context I would like to emphasize that the use in Brazil of the term "pre-fixed indexing" of the short-term interest rate is a misnomer. For all that is actually involved in such "indexing" is a raising of the nominal interest rate to a fixed, higher level which remains unaffected by the actual rate of inflation that occurs during the period of the loan. It is not indexing in the true sense of eliminating uncertainty with respect to the real rate of interest that is actually paid; and I suspect that the use of the term "indexing" in this context is simply a semantic device to get around usury laws which do not regard payments on account of "indexation" as payments of interest proper.

Before turning to the indexation of long-term loans (and this is really the distinctive application of indexation), I would like to say a few words about the indexation of wage agreements. In accordance with what I have said above, let me first of all emphasize that even if this term is not used in developed economies (and on occasion it is), the money wage agreements that are determined there by free collective bargaining between labor unions and employers do take account of anticipated inflation. From observing their behavior, it is difficult to believe that either party to such agreements suffers from money illusion. Thus, the developed economies stand in no need of lessons from the less-developed, "indexed" ones about the desirability of adjusting money wages to inflationary developments.

Let me go on to say that, in any event, there is some uncertainty about the nature of the lesson to be learned in this respect from the Brazilian experience. For my assessment of "pre-fixed indexation" of the Brazilian short-term interest rate above applies to its system of wage indexation as well: it is not true indexation. This is particularly true of the period 1965–1968, during which the so-called indexation formula actually fixed a certain money wage that remained constant during the ensuing year, regardless of the rate of inflation which actually prevailed. And though the formula was revised in 1968 to correct the money wage of the following year for the underestimate of the inflation rate during the preceding one, the formula continued to specify a future money wage that remained constant no matter what the actual rate of inflation was.

Perhaps the simplest way of bringing home my point here is to note the following. There has been much debate during this conference about whether or not real wages in Brazil declined during some of the years following the introduction of the wage indexation formula—yet, had this formula provided indexation in the true sense of the term, then by definition real wages could not have declined. So I cannot escape the inference (confirmed by the contributions of, for example, Fishlow [1974, pp. 266–268] and Baer and Beckerman [1974, pp. 38 and 44] to this conference) that what has been called "wage indexation" in Brazil is actually a device by which the government carried out a wage policy that, for some years at least, involved a reduction in the real wage rate.

My observation that the Brazilian wage indexation formula has not been one of true indexation can also be brought out by a comparison with the formula in Israel. There it has been an explicit or implicit provision of wage agreements that if the rate of inflation exceeds a certain figure, the cost-of-living allowance will be increased accordingly, even during the course of the existing labor contract. In this way indexation accomplishes its true purpose of adjusting money wages for unanticipated rates of inflation. I must, however, admit that in recent years such adjustments have not been automatic, but both their scope and timing have been the subject of intensive negotiations carried out with the direct participation of the government. At the same time, the fact that real wages in Israel have continuously risen makes this reservation less significant than it would otherwise be.[3]

We have also had discussions at this conference about Brazil's application of indexation to the exchange rate—though we have learned that this application is not at all automatic, and involves a good deal of discretionary judgment on the part of the authorities. In any event, the rapid adjustment of the exchange rate is a lesson that might well be learned by any country (such as my own) which imposes a system of exchange controls on an economy suffering from inflation. In particular, the situation in Israel is one in which, despite the inflation, the exchange rate has been adjusted by official devaluations only every few years. Correspondingly, in the intervening periods distortions have been generated that have been eliminated only in part by the far more frequent administrative changes in the effective exchange rate. Thus, many economists in Israel feel that we should take a lesson from Brazil's experience with its "crawling peg."[4]

As far as the developed economies are concerned, these have learned an even better lesson in recent years: to deal with the problem of differential rates of inflation by going over to a system of flexible exchange rates. So once again these economies have made use of the free market—as against the device of indexation—to deal with the adjustment problems created by inflation.

Let me turn now to the indexation of long-term loans. Here there has been true indexation in both Brazil and Israel, though it has not been as extensive as one might think. In both countries the government itself has continued to borrow from the private sector by issuing indexed bonds. But in both countries there has been a significant retrogression during the past years in the degree of indexation which the government has used for its own loans to the private sector. Thus, in the mid-1960s the Israeli government in effect abandoned its policy of indexing loans from its Development Budget. In particular, it replaced such indexation with a fixed higher nominal rate of interest which included a "premium against inflation." And I have already explained why, the term notwithstanding, such loans are not really indexed. In view of the moderate and fairly stable rates of inflation that marked the 1960s in Israel, the abandonment of indexation did not create much of a problem at that time. But all this has changed in the last few years, as, despite the extremely high and variable rates of inflation, the government has refused to return to indexation and has raised the fixed nominal rate of interest on its loans only with the greatest reluctance. This failure to reinstate indexation has been severely criticized by many economists in Israel, but to no avail.[5]

It seems to me that something similar has been going on in Brazil, particularly since the recent reintensification of the rate of inflation. Thus, the paper by Baer and Beckerman (1974, pp. 43–44) explains the government loans to "basic industries" are not indexed. The same is true of loans to agriculture. Furthermore, even when loans are indexed by a "monetary correction," the full extent of the correction is not always demanded by the government. Thus, we have heard from the Minister of Finance earlier in this conference that the "monetary correction" on government mortgages was limited last year to 20 percent, despite the much higher "correction" called for by the actual rate of inflation. Furthermore, there are some government loans which, to begin with, have specified a "maximum monetary correction" well below any realistically anticipated rate of inflation;[6] correspondingly, just as in the case of "prefixed indexation" of short-term loans, these are, in effect, unindexed loans at a fixed nominal rate of interest.

In brief, I feel that we are still in need of a systematic and detailed study of the lending policy of the Brazilian government which would determine the percentage of its loans to which a "monetary correction" has actually been applied, as well as the extent of such "corrections" when applied. I suspect that such a study would show that only from a minority of its loans has the Brazilian government exacted the full "monetary correction" called for by the actual inflationary developments.

Another significant aspect of both the Israeli and Brazilian experiences is that private nonfinancial firms have been willing to borrow indexed from the government, but generally not from the public.[7] This may well express the simple fact that in view of the subsidy involved, firms can obtain credit on better terms from the government than from private lenders. In particular, it probably reflects the firms' feeling that the government (unlike private creditors) will not really insist on exacting the fully indexed payment of its loans should this place too onerous a burden on them. And from what I know of the Israeli experience, as well as from the impressions of the Brazilian experience I have just described, I suspect that the firms' somewhat cynical confidence on this score in both countries has been justified in practice!

It follows that one inference we *cannot* make from the Israeli and Brazilian experiences is that private firms will be willing to borrow indexed in a free capital market. In a sense, however, we do not need these experiences for this purpose: the fact is that despite the absence of legal or institutional restrictions on indexed borrowing in many of the developed countries (and in the United States in particular), private firms there have not undertaken such borrowing.[8] This leads one to suspect that there may be basic economic reasons for the reluctance of firms to undertake such indexed borrowing, and this has been the puzzle examined in the theoretical literature referred to above (see footnote 1). On the other hand, we cannot dismiss the possibility that firms in developed economies are still in the midst of a learning process (after all, continued two-digit inflation in such economies is a relatively recent phenomenon) and that they will accordingly begin to issue indexed bonds once they learn to accept such rates of inflation as part of the facts of economic life.

Of course, we can turn the foregoing question about and ask what it is about the nature of governments (and the governments of Israel and Brazil are cases in point) that makes them, unlike private firms, willing to issue indexed bonds. One possible answer may be that governments can undertake such indexed obligations because their income (i.e., their future tax receipts) is in effect also indexed (namely, to the nominal GNP). But then the question arises as to whether this is in practice so much different from the income of large private conglomerates, producing a multitude of diversified products.

So we may ultimately have to resort to the basic fact that a government can undertake such obligations because it has the power of printing money, and thus by definition cannot go bankrupt. But I feel that even this is not a complete answer. For private firms also court the danger of bankruptcy when they issue a fixed-interest bond; and intuitively it does not seem to me reasonable to assume that the dangers of bankruptcy must always be greater with an indexed bond.

In any event, let us assume that developed economies will continue to be faced with a situation in which no supply of indexed bonds will be forthcoming from private firms. The question then arises as to whether the governments should themselves supply such bonds. And my feeling—based primarily on the experience of Israel, but probably true also of Brazil—is that it should. For the existence in Israel of an easily available indexed asset has enabled such weak groups as pensioners and small savers to protect themselves from the severe inequities inflation has so frequently inflicted upon them. From this viewpoint the issue of indexed bonds by the government can be looked upon as the provision of a "public good" which for various reasons the private sector does not supply.

Another social benefit derived from the existence of indexed bonds is that it enables individuals to protect the real value of their savings by the acquisition of a financial asset instead of a physical one. For in inflationary economies in which only the latter alternative exists, real productive resources tend to be diverted to the excess production of physical assets (of which buildings are a prime example) in response to individuals' demand to acquire such assets as a hedge against inflation.

There is, however, one important point regarding which I must sound a note of caution. Brazil and Israel are examples of economies that have issued a large volume of indexed government bonds and at the same time lack developed capital markets—and the former may in part be the cause of the latter. Thus, in Israel one frequently hears the complaint that private firms cannot issue bonds that can compete with the government-indexed ones, though in part this undoubtedly also reflects the preferential tax treatment given income from government bonds. Now, a free capital market is one of the most crucial and delicate components of an efficient market system. Accordingly, I feel that if the governments of the developed economies should decide to issue indexed bonds, they should take great care to avoid impairing the efficiency of the capital market. Thus, if we accept the view that the governments of developed economies should issue indexed bonds as a public good to meet certain equity needs, they might issue such bonds at first in limited amounts earmarked for such needs (e.g., only for pension funds). This is a question which requires much further study.

It is with this theme of equity that I would like to conclude. I have already emphasized the obvious fact that the case for indexation is not a matter of right or wrong economic analysis. Nor is indexation a panacea for inflation, or even a means of basically affecting its operations. And I find it particularly naive to think that the fact that a government knows that its debt is indexed will lead it to mend its inflationary ways. Suffice it to point out that the respective rates of inflation in both Israel and Brazil have actually increased sharply in recent years! Thus, to my mind the case for indexation in any economy—fully developed as well as less developed—must rest primarily on equity considerations: on the grounds that indexation, and indexation of long-term obligations in particular, helps avoid the more extreme inequities that have so frequently been generated by inflationary processes.

NOTES

1. See Fischer (1975), Liviatan and Levhari (1975), and Levhari and Liviatan (1976).
2. The reader will also find it interesting to consult Simons's reasons for rejecting the suggestion that—for tax purposes—calculations of depreciation and capital gains should be adjusted for changes in the value of money (Simons, 1938, pp. 155–156).
3. For further details, see Brenner and Patinkin (1976).
4. Since this discussion took place, Israel did (in June 1975) adopt something like the "crawling peg," though without reference to any specific formula.
5. See again Brenner and Patinkin (1976).
6. I am indebted for this point to an unpublished memorandum by Werner Baer, dated April 1975. In a more recent letter to me commenting on this paper, Baer informs me that in the months since the São Paulo Conference took place, there has been a further erosion in the use of indexation. Thus all loans from the Development Bank in October 1975 had a maximum "monetary correction" of 20 percent, despite the much higher rate of inflation that prevailed.
7. It should, however, be noted that before government loans became easily available, there were a few instances of Israeli firms issuing bonds linked to the price of their own product. The significance of this choice may well lie in the fact that a firm's profits are more highly correlated with its own price than with a general price index. See Brenner and Patinkin (1976).
8. The fact that the oft-cited example of Irving Fisher's "stabilized bond" (issued in 1925 by Rand-Kardex Co., the forerunner of Remington-Rand) is the only example so cited simply reinforces this statement. Nor is it without significance that Irving Fisher was one of the founders and major stockholders of Rand-Kardex, and a most persistent and insistent man who never tired of belaboring a point! I might also note that Fisher's bond provided for indexation only in the event that the price increase exceeded 10%. (Fisher, 1934, pp. 112, 387–389; Reeve, 1943, p. 164).

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