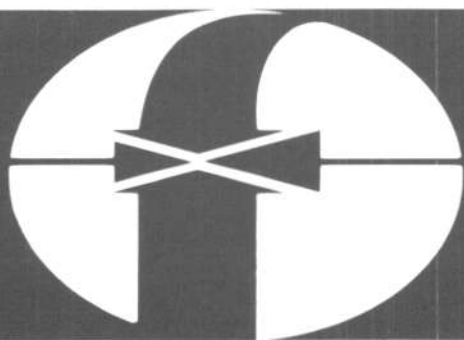


# **Savings and Development**



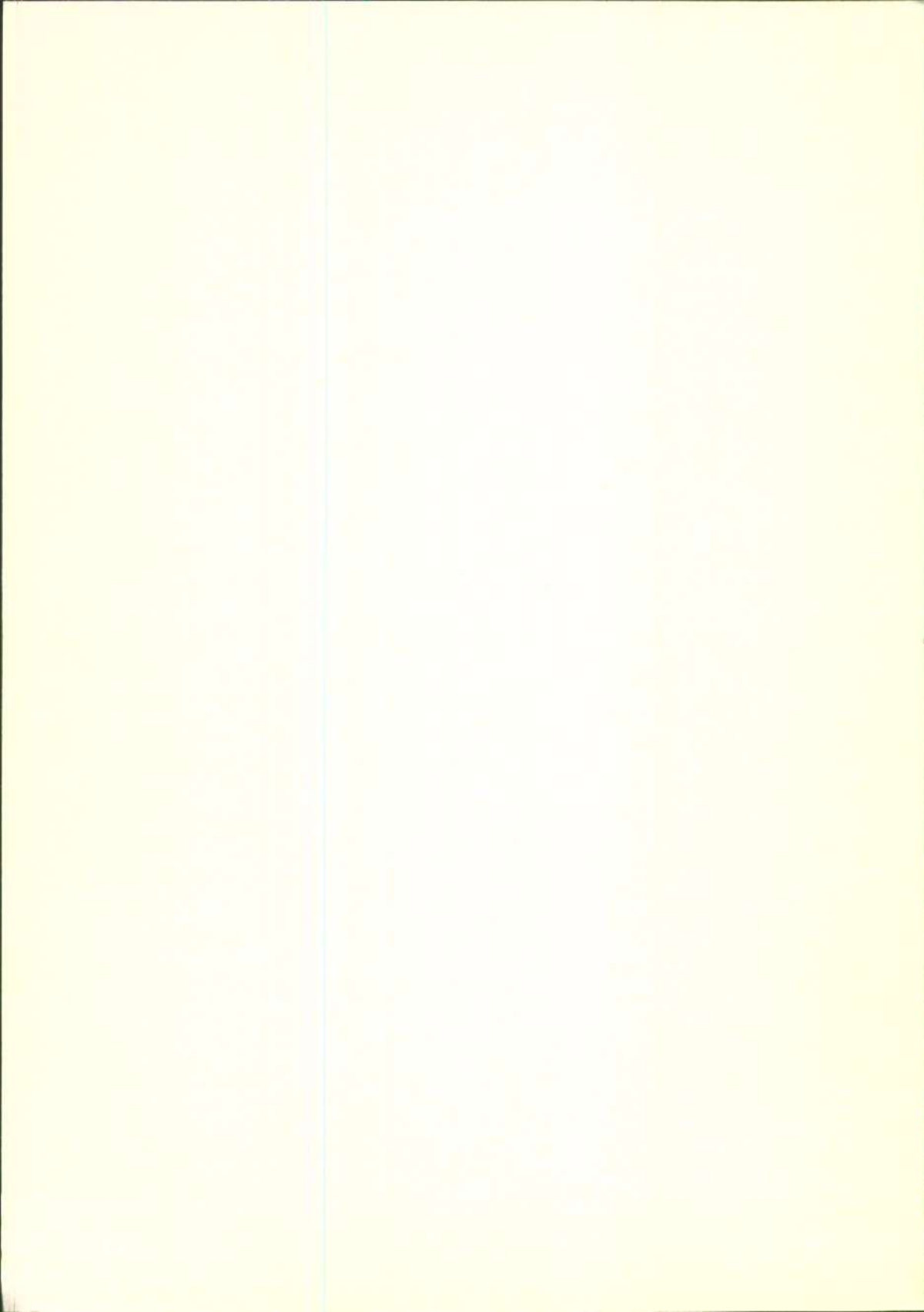
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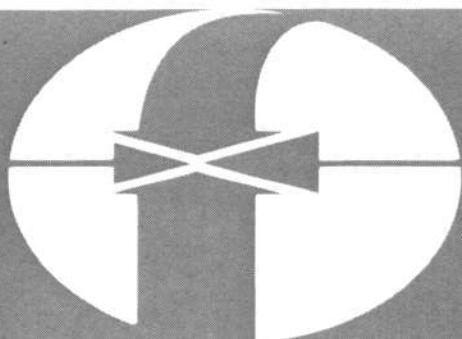
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# **Savings and Development**

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# ANALYTICAL ASPECTS OF INTEREST RATE POLICIES IN LESS-DEVELOPED COUNTRIES (\*)

Vicente Galbis

International Monetary Fund

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## I. INTRODUCTION

This paper critically surveys the theory of interest rates under "financial repression" and the policy conclusions that follow from that theory. Financial repression is practically identified here with the widespread prevalence of negative real rates of interest, although it is, of course, recognized that other forms of financial repression might result from other factors, such as portfolio regulations and oligopolistic financial markets. While those other factors will be referred to in the course of this paper when related to interest rate issues, they will not be given primary attention.

For reasons that will become apparent in the course of the paper, the theory of financial repression is especially relevant for less developed countries. However, it can neither be applied indiscriminately to all less developed countries nor is it necessarily irrelevant for the more advanced ones. Indeed, this theory offers only an abstract perspective on a predefined state of disequilibrium and it is for the empiricist to determine which countries meet the conditions for its application.

The theory of financial repression focuses special attention on the level of interest rates on savings instruments available to the public in relation to the rate of inflation. Furthermore, it often makes the simplifying assumption that the issue can be treated as if there were only one single rate of interest, say a representative rate on bank deposits. This assumption allows some of the more general conclusions to be derived from the theory. It is also necessary, however, to consider the spread between interest rates on assets and liabilities of financial institutions, and the differentials among asset interest rates and among liability interest rates. These additional considerations are especially relevant when analyzing specific policy issues in a short-run context.

This paper proceeds in three stages, from the more abstract to the more specific aspects of the theory of interest rate policy under financial repression. Section II first defines a state of neoclassical equilibrium which underlies the reasons for the now prevalent view that real interest rates on savings instruments ought to be positive on average in the long run, and then contrasts this state of equilibrium with two opposite

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\* An earlier version was presented at the XIV Meeting of Central Bank Technicians of the American Continent, San Carlos de Bariloche, Argentina, November 6-11, 1977. The author wishes to thank Mr. Donald J. Mathieson for comments on this version. The views expressed here do not necessarily correspond to those of the International Monetary Fund.



cases of disequilibrium financial repression on the one hand, and the Keynesian liquidity trap on the other. Section III analyzes the effects of changes in the degree of financial repression, i.e., changes in the level of interest rates with respect to the rate of inflation, from a long-run perspective. It is shown that the level of interest rates poses important macroeconomic questions concerning an economy's ability to accumulate financial assets in real terms (financial deepening), the volume of national savings and domestic investment, the efficiency of investment and the allocation of resources, inflation, and the distribution of income. Additional considerations regarding external finance are necessary when the economy is open to significant financial capital movements and when the existence of large public sector deficits require massive public finance. Some major qualifications to the abstract theory of financial repression are also pointed out in this section. Section IV deals with some general short-run considerations that must be taken into account in designing policies, such as the choice between reducing the rate of increase in the money supply or increasing the rate of interest, the effects of inflationary expectations, exchange rate changes and expectations, and institutional problems of transition toward equilibrium. This section also reviews the advantages and disadvantages of the three alternative policy stances that have been proposed to guide the financial system toward equilibrium: discretionary actions, indexation, and interest rate liberalization. A summary of the main arguments and conclusions of the paper is presented in the last section.

## II. THE THEORY OF FINANCIAL REPRESSION AND THE LIQUIDITY TRAP AS OPPOSITE CASES OF DISEQUILIBRIUM

The neoclassical equilibrium framework provides perhaps the best starting point to approach interest rate theory. This framework is used here to define states of disequilibrium in relation to equilibrium.

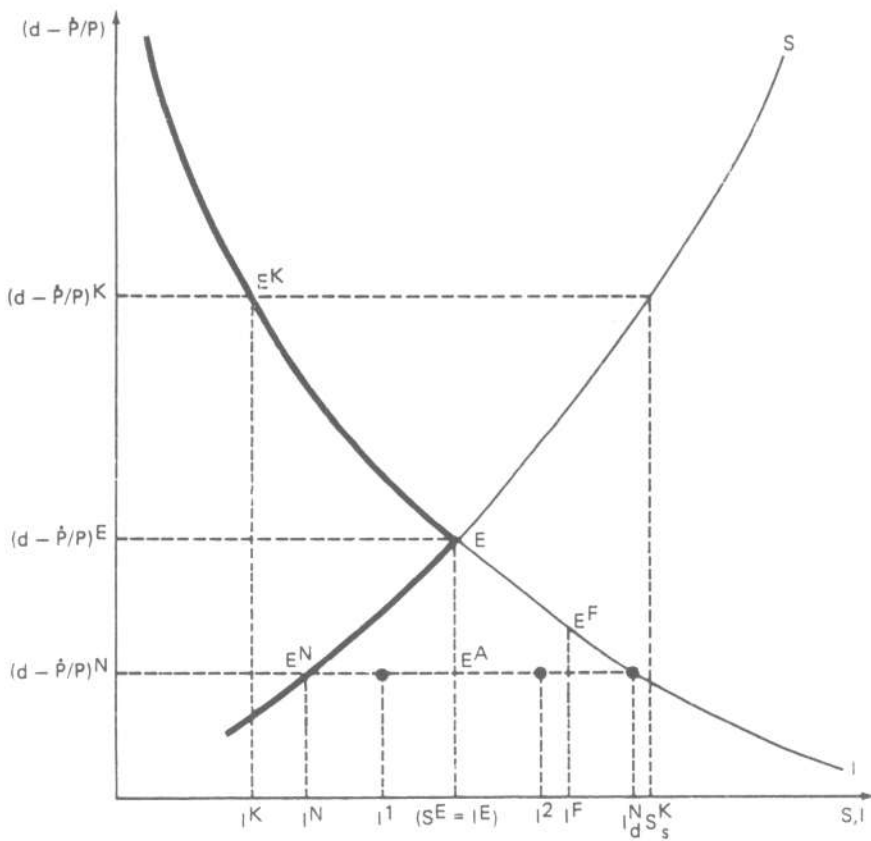
### 1. Equilibrium and disequilibrium theories of interest and the optimality of positive real rates of interest

Figure 1 portrays the usual neoclassical curves used in defining interest rate equilibrium with reference to the real saving (S) and investment (I) functions. Although not always properly spelled out, the general assumptions behind this scheme are that all investment is outside financed, that there is a single real rate of interest, ( $d\dot{P}/P$ ), that



FIGURE 1

NEOCLASSICAL EQUILIBRIUM OF THE REAL INTEREST RATE  
AND ALTERNATIVE DISEQUILIBRIUM STATES



only real magnitudes are relevant, and that inflationary expectations are equal to actual inflation<sup>1</sup>. It will be immediately recognized that this set of assumptions characterizes a very advanced economy with perfect financial markets. However, one does not need to believe in any of these assumptions, nor in the inevitability of the neoclassical equilibrium solution at the point of intersection between savings and investment (E) in order to see the usefulness of this scheme. It is useful for an introduction to the theories both of financial repression, as formulated by Shaw and McKinnon, and of the Keynesian liquidity trap<sup>2</sup>. The scheme also helps to bring out the basic harmony between the three seemingly contradictory theories of interest — the neoclassical, the Keynesian and the more recent "neoliberal" theory of McKinnon and Shaw<sup>3</sup> — and to point out the nature of some critical assumptions of the neoliberal theory (the specific subject of this paper).

The first complete statement of the conditions for the neoclassical equilibrium of interest is generally credited to Irving Fisher. His keen interest in stating meticulously those conditions was motivated by his discovery that interest rates often showed disequilibria that could be explained only by reference to modifications in the stated equilibrium conditions<sup>4</sup>. Unlike the classical economists, Fisher distinguished sharply between the rate of return on physical assets, the rate of interest on financial assets, and the real rate of interest on these assets. The real rate of interest is approximated linearly by the difference between the rate of interest and the rate of inflation, which produces a magnitude comparable to the rate of return to capital<sup>5</sup>. Fisher started with

1 The assumption that all investment is outside-financed is sufficient, although not necessary, to establish neoclassical equilibrium. Alternative assumptions consistent with the neoclassical framework are that only outside-financed investment exists, or that the proportion of outside-financed to self-financed investment is constant, or that any offsetting tendency between the two will not be complete. However, this discussion anticipates some of the results analyzed later in this paper. For the time being, the simplifying assumption that all investment is outside-financed or that the proportion to self-financed investment is constant, will be maintained.

2 See Ronald I. McKinnon, *Money and Capital in Economic Development* (Washington, D.C.: The Brookings Institution, 1973); Edward S. Shaw, *Financial Deepening in Economic Development* (New York: Oxford University Press, 1973); and John Maynard Keynes, *The General Theory of Employment, Interest and Money* (London: Harcourt Brace, 1936).

3 See Vicente Galbis, "Structuralism and Financial Liberalization", *Finance and Development*, Vol. 13, No. 2 (June 1976), pp. 33-37.

4 See Irving Fisher, *The Theory of Interest--As Determined by Impatience to Spend Income and Opportunity to Invest It* (New York: Kelley and Millan, 1954).

5 For calculation in discrete form and when the period is annual, the formula for the real rate of interest is the rate of interest minus the rate of inflation divided by one plus the rate of inflation.

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the classical premise that the real rate of interest is the important variable to determine the equilibrium between savings and investment in a monetary economy by the financial intermediation process, but he also pointed out, through his analysis of the behavior of the rate of interest, the first case of real interest rate disequilibrium.

Briefly, in his analysis Fisher distinguished between full and partial equilibrium and associated these cases with the effects from anticipated and unanticipated inflation<sup>6</sup>. In the first case, the general rise in prices would be accompanied by an equivalent rise in the rate of interest, so that the real rate of interest would tend to remain unaffected by inflation. In the second case, the interest rate would fail to respond fully to the rise in the price level as a result of the inability of the suppliers of funds to perceive fully the loss derived from rising prices. The fall in the real rate of interest resulting from unanticipated inflation could cause a spurt in real investment. In figure 1 the economy would move temporarily to the point  $E^F$  on the investment curve.

The state of full Fisherian equilibrium has the very important implication for the theory of interest rate policy that the equilibrium real rate of interest must be positive because it must be equal to the rate of return to capital, which is in all likelihood positive in a growing economy. Indeed, in a growing LDC the marginal productivity of capital — while declining in the long run as the capital/labor ratio increases — might be very high, thereby justifying an equally high rate of return to capital and a high real rate of interest. Thus, on theoretical grounds, the lower the level of development of an economy, the higher can be expected to be the equilibrium real rate of interest. Therefore, at least in LDCs, policies addressed to sustaining a positive real rate of interest can be presumed to move the economy along the long-run equilibrium path.

Keynesianism made another important contribution to the analysis of interest rates in advanced countries. First, interest rates are mainly determined in the short run by equilibrium conditions in their respective financial markets, while in the long run they are determined by the classical factors of thrift and productivity. Second, it is possible through monetary policy under normal conditions to affect the rate of interest. For example, one way to lower interest rates in the short run is to expand the supply of money. Third, interest rate movements can influence the rate of investment in an inverse direction. Fourth, when there is unemployment, monetary expansion can lower

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6 See John Rutledge, "Irving Fisher and Autorregressive Expectations", *American Economic Review*, Papers and Proceedings, Vol. 67, No. 1 (February 1977), pp. 200-205

the rate of interest without increasing prices and, as a corollary, its effect on investment is formally similar to that of Fisher's unanticipated inflation. However, the existence of unemployment makes a fundamental difference because it reflects a situation in which the short-run rate of interest is above the long-run equilibrium rate, say  $(d - \dot{P}/P)^K$  in Figure 1, and investment is below equilibrium,  $I^K$ , so that the economy is at the disequilibrium point  $E^K$ . The approach toward the equilibrium point E must be made from above, along the investment demand curve, whereas in Fisher's case the economy is temporarily away from the full employment equilibrium point E at a point which is beyond the full employment level.

Some recent monetarists have challenged the theoretical and practical conclusions of Keynesianism, alleging that it has created a confusion between the rate of interest and the real rate of interest. Specifically, the allegation is that Keynesianism has led to the erroneous conclusion that an acceleration in the rate of increase in the money supply will tend to lower the rate of interest, when in fact it will tend to raise it because the higher increase in the money supply will tend to raise the rate of inflation and thereby the rate of interest <sup>7</sup>.

This debate between Keynesians and monetarists reveals an important difference of assumptions of interest rate theory — a difference which can explain their different conclusions. In the Keynesian unemployment case, there is simply no inflation. Therefore, the reduction in the rate of interest is also a reduction in the real rate of interest. In the monetarist full employment case (no different from Fisher's) inflation rises and drives the rate of interest upward, although the real rate can be reduced if inflation is not fully anticipated.

What could happen, on the other hand, if a severe depression were accompanied by falling prices? Then real rates of interest might rise to a high level (point  $E^K$ ) even if interest rates were falling either as a by-product of the depression or as a consequence of expansionary monetary policy measures. Indeed, if the deflation were sufficiently severe there could be a point of no recovery because of the "liquidity trap" phenomenon, which prevents interest rates from falling below the rate of interest on

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7 See Herbert G. Grubel, "Domestic Origins of the Monetary Approach to the Balance of Payments", *Essays in International Finance*, No. 117 (International Finance Section, Department of Economics, Princeton University), June 1976.

currency, institutionally set at zero<sup>8</sup>. The persistence of high real rates of interest under a deflationary depression would tend to perpetuate the depression<sup>9</sup>.

## 2. The state of financial repression

The disequilibrium portrayed by the neoliberals as typical of the LDCs is the antithesis of the Keynesian disequilibrium, although both differ similarly from the neoclassical-monetarist approach in that the latter focuses attention on a state of equilibrium or on a short-run type of departure from equilibrium accounted for by inflationary expectations<sup>10</sup>. In the neoliberal case, the real rate of interest is set below the equilibrium level as a result of inflation combined with an interest rate ceiling, a situation that neoliberals identify as a state of financial repression, which, in their view, discourages savings and thereby reduces realized (although not desired) investment. In terms of Figure 1, whereas Keynesian disequilibrium moves the economy along the investment demand curve for a real rate of interest that is above the equilibrium rate, neoliberal disequilibrium moves the economy along the savings demand curve for a real rate of interest that is below the equilibrium rate. It follows that maximum realized investment can only be achieved when the real rate of interest is in equilibrium, so that *ex ante* savings and investment are equal and therefore coincide with realized savings and investment.

The neoliberal approach to interest rate policy is therefore not in conflict with, but complementary to the traditional neoclassical and Keynesian approaches<sup>11</sup>. The case it portrays is one in which interest rates are below equilibrium principally because of misguided intervention policies designed to keep rates stable and low regardless of

8 For the original analysis of the liquidity trap see Keynes, op. cit., Chapter 15; Franco Modigliani, « Liquidity Preference and the Theory of Interest And Money », *Econometrica*, Vol. 12 (1944), pp. 45-88; and A.C. Pigou, « Economic Progress in a Stable Environment », *Economica*, Vol. 14, No. 3 (August 1947), pp. 180-88.

9 For a discussion of this feature during the Great Depression, see Allan H. Meltzer, « Monetary and Other Explanations of the Start of the Great Depression », *Journal of Monetary Economics*, Vol. 2, No. 4 (November 1976), pp. 455-71.

10 For an earlier identification of these differences, see Galbis, op. cit.

11 See Vicente Galbis, « Una revisión del pensamiento de McKinnon sobre la teoría monetaria apropiada para los países en desarrollo », CEMLA, *Boletín*, Vol. 21, No. 6 (June 1975), pp. 364-68. This view contrasts with McKinnon's claim that neoclassical theory might be contradictory to his theory and even self-contradictory. See McKinnon, op. cit., Chapter 5.



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economic conditions, including inflationary pressures. This case is empirically found to be most typical of inflationary developing countries. The state of financial repression prevents financial deepening, and thereby inhibits real savings and reduces realized investment in real terms.

While these propositions will be critically analyzed in detail in Section III, it can be anticipated here that the neoliberal disequilibrium solution — the movement along the savings supply curve — is not necessarily the only possible outcome from financial repression in less developed countries. First, the assumption that all investment is outside financed or that the ratio of self-financed to outside-financed investment is invariant to the existence or not of financial repression is especially untenable in the LDCs. Second, the implicit assumption that financial repression is a state of disequilibrium that extends equally to all segments of the financial system could seriously misrepresent reality in the LDCs. For these reasons, an economy's solution to the state of financial repression could very well lie to the right of the neoliberal point  $E^N$ , possibly even beyond  $E^A$ <sup>12</sup>. This suggests that one of the basic theorems of the neoliberal view — namely, the presumed positive association between real interest rates and the rate of realized investment under financial repression — might be invalid.

### 3. Causes of financial repression

Is financial repression a disequilibrium state mostly encountered in LDCs that, like the Keynesian liquidity trap for advanced countries, could result from inherent dynamic forces of the economy? For the neoliberals the answer to this question would seem to be largely negative. As noted earlier, the principal cause of financial repression is identified by them as being the application of erroneous monetary, credit, and interest rate policies. McKinnon offers perhaps the best example of this position when he concludes that the monetary authorities determine both the rate of monetary expansion and thereby the rate of inflation on the one hand, and the rate of interest on the

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12 This outcome is, of course, only possible logically if the savings and investment curves represented in the diagram do not comprise all savings and investment. Indeed, since for self-financed investment there is no separation between savings and investment, the diagram can hardly represent this phenomenon. The outcome mentioned in the text is therefore possible if the decline in outside-financed investment (represented in the diagram) induces an increase in self-financed investment (not represented in it). This effect is specifically discussed in paragraph III.2.b (2).

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other<sup>13</sup>. It follows that the real rate of interest is below equilibrium because of both policies that produce excessive monetary expansion and interest rate ceilings<sup>14</sup>. In this view, therefore, the problem could be solved by reducing the rate of monetary expansion and/or freeing interest rates<sup>15</sup>.

How can one then explain why so many countries apply erroneous monetary and interest rate policies leading to financial repression? Leaving aside for the time being the reasons for excessive monetary expansion (which will be discussed in Section IV.1), what are the reasons for low interest rate policies? One answer is provided by traditional policy attitudes embedded in the "usury laws", which limit the payment of interest on moral grounds. This tradition has remained through the ages an ingredient in the legislation of a number of countries, including some developed ones<sup>16</sup>. Another justification — with more modern appeal — that has been used in support of a policy of low and stable interest rates regardless of economic circumstances is the Keynesian paradigm that a low interest rate implies a high rate of investment; this justification is based on a misinterpretation of Keynesian investment theory which, as noted earlier, is not necessarily applicable under full employment with inflation. Third, a policy of low interest rates has also been justified on the grounds that it can help strengthen the stability of financial institutions because low interest rates on their liabilities help to protect their earnings. Finally, a low interest rate policy has often resulted — intentionally or not — from the application of some types of credit policies, such as legal reserve ratios and portfolio regulations, that tend to lower earnings of financial institutions and thereby constrain interest payments on their liabilities.

Against this background, neoliberals propose complete liberalization of interest rates and all other credit policies that prevent interest rates from adjusting to equilibrium.

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13 See McKinnon, *op. cit.*, p. 39.

14 Contrary to assertions normally associated with the neoclassicals and monetarist, McKinnon is essentially correct here. The monetary authorities could, in principle, control both the quantity of money and its price (the rate of interest) if they had the monopoly of the supply of money because the marginal cost curve for money creation is continuously flat or declining. However, it is argued in Section IV.1 that there are in practice substantial qualifications to the proposition that money is under the control of the monetary authorities in LDCs.

15 McKinnon emphasizes the adjustment in interest rates, whereas Shaw emphasizes antiinflationary policies.

16 For the United States, see Rudolph Blitz and Millard F. Long, « The Economics of Usury Regulation », *Journal of Political Economy*, Vol. 73, No. 6 (December 1965), pp. 608-19; and Albert H. Cox, Jr. « Regulations of Interest Rates on Bank Deposits » (Bureau of Business Research: University of Michigan, 1966).



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By contrast, this paper argues that the neoliberal view does not sufficiently emphasize that interest rate constraints can also result from some problems of the financial structure, such as monopolistic factors and other market imperfections often encountered in LDCs. This is certainly the case of most Latin American countries, where bank holding companies both influence the authorities' decisions and fix low loan interest rates for their client-owners. Furthermore, there is ample room to question the validity of the neoliberal assumption — shared with the monetarists — that the monetary authorities are in a position to control the money supply. In addition, it will be argued from a theoretical perspective that any existing monetary system might be unsuited to permit the authorities to avoid completely financial repression under severe inflation.

### III. THE EFFECTS OF REAL INTEREST RATES UNDER FINANCIAL REPRESSION: THE LONG-RUN PERSPECTIVE

Investigations of the detrimental effects of financial repression have focused on the volume of aggregate national savings and domestic investment (or private saving or some other major savings component defined as in the usual national income accounts); on "financial savings", i.e., savings in financial forms (practically defined as the volume of financial sector liabilities to the public, a concept of savings not necessarily related to national income concepts); on the efficiency of investment — rather than its volume — and its implications for economic growth; on inflation; and on the distribution of income between the financial intermediaries and the rest of the economy and among various other groups in the rest of the economy, and its implications for the degree of monopolistic power held by financial intermediaries. All these effects will be critically discussed in this section in a theoretical framework of long-run disequilibrium, i.e., a framework devoid of expectations, problems of adjustment, and concrete policy measures (the latter are the subject of Section IV). This section will also consider three main types of countereffects that might tend to offset the detrimental effects of financial repression: retrogression to self-financed investment; growth of unorganized money markets; and increase in international financial intermediation. Finally, two unwarranted objections to a policy of high interest rates will be discussed.

## 1. Effects on financial deepening

There is probably a wider consensus on the existence and direction of the effects of financial repression of financial deepening than on any other effects of financial repression. Financial deepening is the expansion of the real size of the financial sector, encompassing a broad spectrum of financial services and operations<sup>17</sup>. An aggregate measure of financial deepening is provided by the volume of financial sector liabilities to the private sector in relation to GDP. The hypothesis is that financial repression lowers this ratio<sup>18</sup>.

A more general framework is offered by the concept of the real demand for financial assets held by the public. In this framework, financial deepening is the increase in the real volume of financial sector liabilities to the public in relation to its determinants, such as real GDP and the real rate of interest. McKinnon postulated the following model<sup>19</sup>.

$$(M/P)^d = f(Y, \bar{r}, d\dot{P}^*/P) \quad (1)$$

(+)(+)(+)

where  $(M/P)^d$  is the demand for financial assets by the public in real terms,  $Y$  is real GDP,  $\bar{r}$  is the average rate of return to capital, and  $d\dot{P}^*/P$  is the expected real rate of interest<sup>20</sup>. All three determinants have a positive effect (indicated by the signs below the variables) on the real demand for financial assets under financial repression<sup>21</sup>. In particular, for a value of  $d\dot{P}^*/P$  below  $r$ , i.e., under financial repression, the real de-

17. The expression « financial deepening » is used especially by Shaw, op. cit. A similar concept had earlier been used by John G. Gurley and Edward S. Shaw, *Money in a Theory of Finance* (Washington, D.C.: The Brookings Institution, 1960); and Raymond Goldsmith, *Financial Structure and Development* (New Haven, Conn., Yale University, 1969).

18. This implies an increase in the income velocity of financial assets (money broadly defined) since velocity is the inverse of this index of financial deepening.

19. See McKinnon, op. cit., p. 59.

20. For expository purposes it is assumed throughout this section that the expected real rate of interest is equal to the actual real rate. This assumption is relaxed in Section IV.

21. The positive effect of  $r$  on  $(M/P)^d$  contrasts with the negative effect assumed by neoclassical theory. This discrepancy--which McKinnon calls the « complementarity » vs. the neoclassical « substitutability » hypothesis--captures the positive effect of the rate of return to capital on the investment ratio (see subsection 2 below) which in turn is assumed by McKinnon to be positively associated with financial development. This hypothesis has been found contrary to empirical evidence by Maxwell J. Fry, « Money and Capital or Financial Deepening in Economic Development? » *Journal of Money, Credit and Banking*, Vol. 10, No. 4 (November 1978), pp. 464-75.

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mand for financial assets is positively related to the real rate of interest and this demand effectively determines the real volume of financial assets (except for possible short-run misadjustments) principally through variations in the price level in relation to the money stock. The reduction in financial repression can be effected through a reduction in the rate of inflation or through an increase in the rate of interest. This gives rise to the neoliberal presumption that the monetary authorities are in a position to guide the financial system toward its optimal expansion by controlling the rate of interest and the rate of change of  $M$  which, in this view, determines the rate of change of  $P$  for each level of income and of the rate of interest. This hypothesis on the effect of financial repression on financial deepening, like its antithetical Keynesian liquidity preference theory, implies that money is not necessarily neutral; it can produce disequilibrium in real markets<sup>22</sup>.

Although the neoliberal policy presumption on the possibility of controlling inflation will be retained in the analysis made in this section, and will not be critically evaluated until Section IV, it is necessary, at this stage, to expose a basic problem in the policy of controlling the degree of financial repression through the interest rate instrument. Since the rate of interest on one of the major financial assets available to the public in the LDCs, currency, is zero, this imposes a constraint on the possibility of adjusting the whole interest rate structure to full equilibrium<sup>23</sup>. Such a consideration suggests that an inefficient degree of divergence in the interest rate structure might be an endemic problem when attempting to adjust interest rates to a medium and high rate of inflation. This effect is particularly relevant when discussing distributional issues<sup>24</sup>.

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22 See the following sections.

23 This permanent disequilibrium effect under inflation caused by the zero rate of interest on currency is the antithesis of the Keynesian liquidity trap effect. There is an asymmetry, however, between the two cases because in the Keynesian model under deflation every rate of interest is constrained to remain above zero—a state of total disequilibrium—whereas in the model under inflation, at least part of the structure of rates may approach equilibrium by adjusting to the rate of inflation.

24 This also poses an important issue for empirical research on the effects of financial repression on financial deepening. Different monetary aggregates can be subject to different effects from financial repression in response to the divergence in the interest rate structure. Therefore, in empirical applications, it will be necessary to construct an adequate aggregate measure of the weighted average interest rate. See Mohsin Khan, "The Demand for Money and the Term Structure of Interest Rates," *Journal of Political Economy*, Vol. 86, No. 6 (December 1978).

## 2. Are there real and measurable effects on aggregate savings and investment?

### a. *The neoliberal view*

McKinnon and Shaw attempted to establish a positive relationship between the level of real interest rates and the ratio of realized domestic investment to GDP in an economy under financial repression. McKinnon, in particular, argued that the prevalence of negative real interest rates, by discouraging the holding of financial savings in real terms, reduces the real availability of investment funds which, in turn, is a bottleneck to realized investment (the McKinnon "conduit" effect)<sup>25</sup>.

A reinterpretation of the McKinnon-Shaw position can be made in terms of Figure 1. Under financial repression, *ex ante* or desired investment,  $I$ , decreases with an increase in the real rate of interest (a movement along the investment demand curve), whereas *ex post* or realized investment,  $I'$  (equal to both *ex ante* savings,  $S$ , and *ex post* savings,  $S'$ ), increases with an increase in the real rate of interest (a movement along the savings supply curve)<sup>26</sup>. As a corollary of this basic theorem one can deduce the existence of a macroeconomic rationing effect because desired investment exceeds realized investment for any real rate of interest below the equilibrium level. Although this simple aggregative model cannot be used to analyze the implications from that rationing effect, it led McKinnon to presume that the conduit effect will also tend to reduce the efficiency of realized investment, in addition to reducing its aggregate volume<sup>27</sup>.

In a more recent contribution, Spellman extended to a growing economy the analysis of the aggregate effects of financial repression earlier discussed by Shaw and

25 See McKinnon, op. cit., pp. 60-61.

26 The opposite conclusion holds true for a real rate of interest that exceeds the equilibrium rate of return to capital. In this case the « competing-asset » effect--to use McKinnon's terminology, op. cit., p. 61--requires that realized investment be equal to *ex ante* investment (a movement along the investment demand curve) instead of being equal to *ex ante* savings (a movement along the savings supply curve). Therefore, the real rate of interest is negatively related to realized investment in this traditional Keynesian case. (McKinnon identifies this truly Keynesian case as neoclassical, but it is easy to see that in the neoclassical equilibrium case the effect of the real rate of interest on realized savings and investments can be either positive or negative depending on the causes that altered the real rate of interest).

27 See McKinnon, op. cit., p. 63.



McKinnon<sup>28</sup>. Using a wealth-demand approach in an aggregative nonmonetary growth model, Spellman first shows the possibility of neoclassical growth with a variable aggregate savings (and investment) ratio responsive to the real rate of return to capital. Then he shows that such a modification of the neoclassical model produces a dynamic equilibrium path at the point of intersection between the wealth-demand curve,  $W$ , and the wealth-supply curve,  $T$ , (the latter being determined by the production function of neoclassical characteristics and the equality between the marginal product of capital and the rate of return to capital). This equilibrium determines the capital/output ratio (monotonically positively related in this model to the capita/labor ratio) and the rate of return to capital (see Figure 2)<sup>29</sup>. Using this apparatus, Spellman's specific contribution is to point out (although not to show formally) that the introduction of financial intermediation displaces the wealth supply curve (or production possibility frontier) to the right from  $T$  to  $T'$ , thereby raising both the capital intensity of the economy and the rate of return to capital<sup>30</sup>. Hence, the introduction of financial intermediation into the economic system produces an "efficiency" effect that increases the equilibrium path of per capita income<sup>31</sup>.

In Spellman's model, when financial intermediation is fully efficient and costless, it tends to expand until the real rate of interest is equal to the equilibrium rate of return to capital,  $r^E$ , at which point the full benefit from the introduction of financial intermedia-

28 See Lewis J. Spellman, "Economic Growth and Financial Intermediation", in Ronald I. McKinnon, ed. *Money and Finance in Economic Growth and Development: Essays in Honor of Edward S. Shaw* (New York, Marcel Dekker, Inc., 1976).

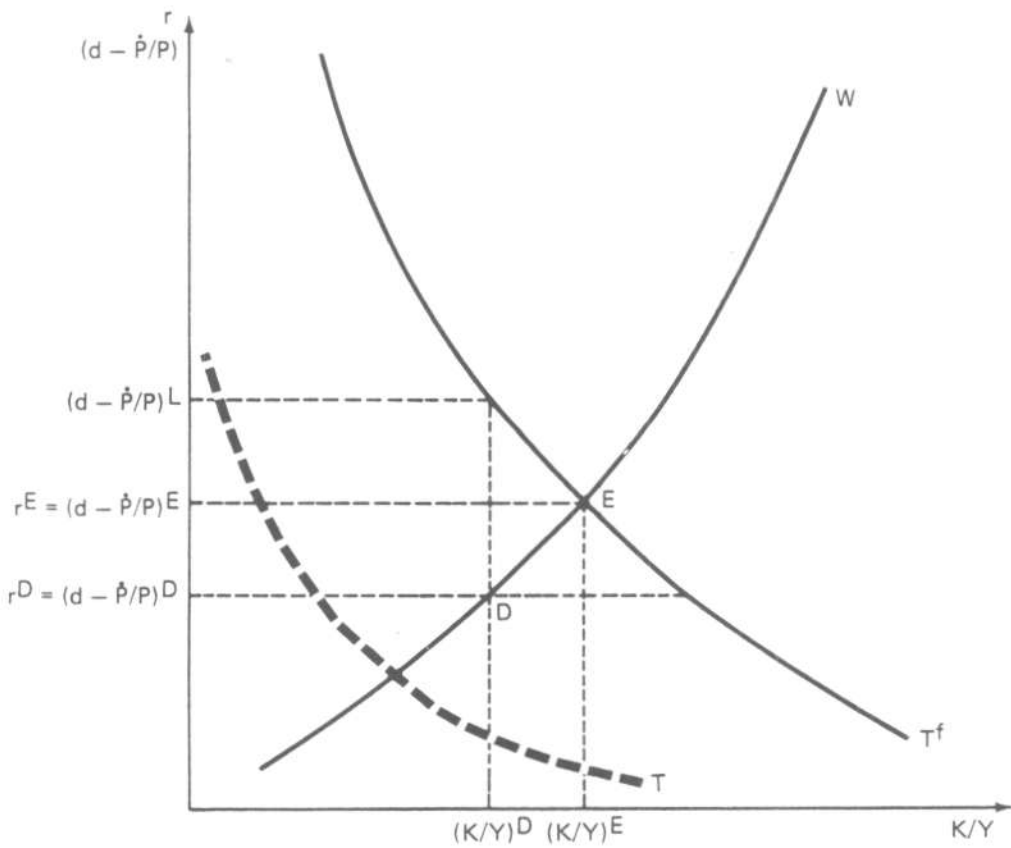
29 A similar representation of neoclassical equilibrium--not derived, however, from first principles--had earlier been made by James Tobin, "Notes on Optimal Monetary Growth", *Journal of Political Economy*, Vol. 76 (July-August 1968), pp. 833-59.

30 Spellman's conclusion contrasts sharply with the unacceptable neoclassical conclusion suggested in the models by Tobin, op. cit., and others--that the introduction of money in a barter economy reduces the capital intensity and the rate of return to capital and therefore reduces the equilibrium rate of growth. As Claudio González-Vega further pointed out in his "Comment" on Spellman's model, op. cit., Spellman's effect from the introduction of money is equivalent to that of a labor-augmenting innovation (labor-saving innovation of the Harrod type). From this point of view, Spellman's contribution, more adequately than McKinnon's, explains the complementarity between capital and money, in contrast to the neoclassical substitution or displacement of real capital by the introduction of money.

31 However, as González-Vega, op. cit., pointed out, paradoxically in this model the path of consumption per capita is not necessarily raised because the increase in the capital intensity of the economy requires greater saving effort and thereby a lower share of consumption to GDP.

FIGURE 2

SPELLMAN'S EQUILIBRIUM GROWTH AND THE EFFECT OF AN INTEREST RATE CEILING



tion is obtained<sup>32</sup>. But when the system is repressed as a result of regulations that artificially lower the real rate of interest below the equilibrium rate of return to capital, say to  $(d\dot{P}/P)^D$ , both the capital intensity of the economy and the rate of return to capital decline to a level below the maximum achievable in a monetary economy (although higher than in a barter economy)<sup>33</sup>. This result implies that a policy that reduces financial repression tends to raise the rate of economic growth, both because of the increase in the ratio of investment to income (as in McKinnon's model) — which, however, requires a sacrifice in the current level of consumption — and because of the increase in the average rate of return to capital. As in McKinnon's static model, financial repression in Spellman's dynamic model implies the existence of credit rationing in the financial market<sup>34</sup>.

Despite the advantages of Spellman's financial intermediation approach over the earlier neoclassical formulations, his model has a basic analytical problem in common with all aggregative monetary models, namely, that it is difficult to find a rationale for the existence of a financial intermediation system in an economy which produces only a uniform output by using uniform inputs<sup>35</sup>. It would be preferable to work with disaggregated models, not only to justify better the efficiency effect of financial intermediation that is merely assumed to exist in Spellman's model, but also to investigate the nature of the underlying allocative and distributional mechanisms. For instance, analy-

32 The introduction of financial intermediation costs creates a spread between interest rates on credit and on deposits, with the return to capital falling in between these two, but it does not otherwise alter Spellman's results.

33 At first sight this conclusion of Spellman seems to contradict earlier arguments to the effect that low interest rates tend to stimulate investment in capital-intensive techniques. See Hugh T. Patrick, « Financial Development and Economic Growth in Underdeveloped Countries », *Economic Development and Cultural Change*, Vol. 14, No. 1 (January 1966), pp. 174-89, esp. p. 187. Spellman's model is aggregative and merely points to a decline in the overall capital/labor ratio of the economy. This does not exclude the possibility that individual investors might raise the capital intensity of their individual projects. The combination of these two effects could pose a serious problem, especially for labor surplus economies, because not only would there be less capital per worker to work with but also the available capital would be more labor saving. For a further discussion of the aggregate versus disaggregate points of view, see subsection 3 below on investment efficiency and growth.

34 See González-Vega, op. cit., p. 31-32. One possibility under this situation is that financial intermediaries might earn economic profits amounting to the difference between a loan rate equal to  $(d\dot{P}/P)^L$  and the ceiling deposit rate,  $(d\dot{P}/P)^D$ .

35 See González-Vega, op. cit., p. 29.



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sis of the type of rationing devices that are used in a society as a substitute for the interest rate mechanism becomes of utmost importance to understand the social process of investment, but this analysis is not possible in an aggregated model <sup>36</sup>.

b. *Some analytical and empirical problems*

The neoliberal conclusion concerning the positive relationship between the investment ratio and the real rate of interest can be questioned on theoretical grounds. First, a different specification by Kapur on how the introduction of money creates an efficiency on output leads to the opposite conclusion from those of McKinnon and Spellman on the sign attributable to that relationship <sup>37</sup>. Second, aggregative models — including Kapur's — have neglected the effect of self-financed investment. Third, in relation to the latter, there is a question as to whether existing national income account concepts are suitable to capture adequately aggregate investment effects that might effectively result from financial repression. All these problems help to explain why available empirical evidence does not always support this neoliberal hypothesis.

*Kapur's cash balance effect*

More explicitly than Spellman, Kapur considered the efficiency aspect of introducing money into the economy and its implication for the behavior of investment, although still within the framework of a one-sector model <sup>38</sup>. The main feature of his model, from the point of view of interest rate theory, is the introduction of real cash balances as an input into the production function with a labor-augmenting effect. With this modification of the neoclassical model, he shows, on the one hand, that an increase in financial repression — in his model equivalent to an increase in the rate of inflation — tends to increase the capital/labor ratio (in accordance with Tobin's "substitution" effect and in contrast to McKinnon's and Spellman's "complementarity" effect) and, on this score, tends to raise the equilibrium rate of growth <sup>39</sup>. On the other hand, the increase in

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36 See a further discussion of this issue in subsection 3 below.

37 See Basant K. Kapur, « Money as a Medium of Exchange and Monetary Growth in an Underdevelopment Context », *Journal of Development Economics*, Vol. 2, No. 1 (March 1975), pp. 33-48.

38 See Kapur, *op. cit.*

39 Although Kapur discusses his model in terms of the rate of inflation, his conclusions apply equally to the real rate of interest, because his model contains the implicit assumption that the rate of interest is zero (in accordance with his explicit assumption that the only financial asset included in his model is currency).

financial repression reduces the ratio of real cash balances to labor, and this reduces the output/capital ratio and the rate of growth. This efficiency effect prevails over the substitution effect, so that financial repression reduces the rate of growth despite the increase in the investment/income ratio <sup>40</sup>.

Kapur's analytical results are more favorable than McKinnon's and Spellman's to the view that policies which reduce financial repression are favorable to economic development. As the reduction of financial repression permits the faster accumulation of real money balances, the increasing economic efficiency derived from that accumulation accelerates the rate of economic growth, at the same time that it reduces the need for physical capital. This makes a consumption sacrifice unnecessary to sustain the increasing rate of output.

#### *The effect of self-financed investment*

Paradoxically, although the neoliberal view focuses attention on the LDCs, where self-financed investment is relatively more important than in advanced countries, it often uses an analytical framework in which only financial savings and bank borrowing determine total savings and investment <sup>41</sup>. This framework is less acceptable the lower the level of development. In very backward economies, the role of the financial system in the coordination of savings and investment decisions may be only peripheral. Most

40 Kapur's model can be viewed in respect of the cash balance effect as a dynamic of Mundell's, who showed in a static equilibrium context the impossibility of attaining a full Fisherian equilibrium under inflation because of the decline in the real value of existing cash balances. See Robert Mundell, « Inflation and Real Interest », *Journal of Political Economy*, Vol. 71, No. 3 (June 1963), pp. 280-83.

41 McKinnon, *op. cit.*, acknowledged the importance of self-financed investment in LDCs, but he did not elaborate on the implications for the behavior of this component of investment from his theory of financial repression. He implicitly assumed that self-financed investment would not be affected by changes in financial repression. Kapur also acknowledged self-finance investment in more recent works: « Two Approaches to Ending Inflation » in Ronald I. McKinnon, ed., *op. cit.*; and « Alternative Stabilization Policies for Less Developed Economies », *Journal of Political Economy*, Vol. 84, No. 4, Pt. 1 (August 1976), pp. 777-95. Kapur explicitly assumed that the proportion of self-financed investment to investment financed by bank borrowing is constant, an assumption which automatically translates any variations in bank borrowing into variations in total investment in the same direction, i.e., the opposite conclusion from that which is drawn in this paper from analytical considerations. (However, Kapur's earlier analytical result, discussed above, is independent from this assumption, since that paper does not distinguish between the two forms of investment finance). McKinnon recognized some of the implications for self-financed investment of his financial repression theory in a later work discussed below.

investment is self-financed, so that independent savings and investment decisions may involve only a relatively small proportion of total savings and investment operations. This fact raises first the static question of whether the effect of financial repression on investment might be quantitatively small in a very backward economy<sup>42</sup>. Second, it also raises the dynamic question of whether the effect is necessarily positive. There are two opposite effects from financial repression on the aggregate ratio of realized investment to GDP. The first is to discourage financial saving and thereby investment supported with outside sources of finance (McKinnon's "conduit" effect); the second is to encourage self-financed investment. The offsetting effect is due to the fact that inflation can create opportunities for self-financed investment in specific items at high private rates of return even though their social rates of return might be negative and it can also encourage self-financed investment for the purpose of offsetting financial losses<sup>43</sup>. As a result of the two opposite effects, the aggregate outcome is uncertain<sup>44</sup>.

### *Empirical issues*

In accordance with the above theoretical arguments, empirical results have thus far failed to disclose a predictable and generally valid relationship between aggregate

42 See Edwin Reubens, Review of McKinnon's book of 1973, *op. cit.*, *Journal of Economic Literature*, Vol. 12, No. 2 (June 1974), pp. 500-501; Lance Taylor, Review of McKinnon's and Shaw's books of 1973, *Journal of Development Economics*, Vol. 1, No. 1 (June 1974), pp. 81-84; and International Labour Office, *Sharing in Development*, Chapter 7 (Geneva: International Labour Office, 1974).

43 There appears to be no adequate model of the relationship between outside finance (debt) and self-finance (equity) even for the advanced countries. Indeed, this issue has proved to be one of the most elusive ones in economics, both in the theoretical and empirical literature. For a theoretical discussion in the context of advanced economies, see John Lintner, « Inflation and Security Returns », *The Journal of Finance*, Vol. XXX, No. 2 (May 1975), pp. 259-80. Tobin referred to the dichotomy between the savings decision (what proportion of income is saved) and the allocation decision (how the volume of savings is allocated among competing assets, both financial and nonfinancial, and what is the role of relative rates of return). See James Tobin, « Asset Holdings and Spending Decisions », *American Economic Review*, Papers and Proceedings, Vol. 42, No. 2 (May 1952), pp. 109-23. The analysis of the interaction between these two decisions has remained unsatisfactory.

44 Note that the reasons for the uncertainty in the effect of the real rate of interest on investment under financial repression are very different from those that apply to the neoclassical case of full equilibrium. In the neoclassical case both the equilibrium saving-investment volume and the real interest rate are endogenous variables and thereby they might both move up or down simultaneously or in opposite directions, depending on the forces that originated changes in supply (savings) and demand (investment).

savings or investment ratios and inflation or real rates of interest. This is demonstrated in particular in two studies on a large number of Latin American countries by Vogel and Buser for the aggregate savings ratio and Galbis for the ratio of private investment to GDP<sup>45</sup>. Furthermore, other studies that focused on several subaggregates such as private savings, business, household or personal savings also failed to uncover any definite relationship with respect to the real rate of interest<sup>46</sup>.

McKinnon himself discussed the possibility that the state of financial repression and the attendant credit rationing effect that he called the conduit effect could have offsetting effects on self-financed investment<sup>47</sup>. For instance, to escape the financial loss due to financial repression, savers discouraged from placing their funds in the financial system might not use them to increase their consumption but to "invest" them in real assets including (but not only) land, housing, consumer durables, precious metals, and jewelry. Among this hodgepodge of potentially volatile and speculative assets — generically referred to by McKinnon as "inflation hedges" — there could be some that enter into the definition of investment made in the national income accounts.

In a later work, McKinnon suggested that his inflation hedging effect might actually provide an explanation for the failure of empirical tests to perform according to his hypothesis on the positive relationship between the investment ratio and the real rate of interest<sup>48</sup>. He argued, therefore, that if the empirical measurement of investment were purified from inflation hedges — a purification justified on the grounds that inflation hedges tend to be socially unproductive, although they might yield a very high private rate of return — his hypothesis could more readily be confirmed<sup>49</sup>. Unfortunately, ho-

45 See Robert C. Vogel and Stephen A. Buser, "Inflation, Financial Repression, and Capital Formation in Latin America", in Ronald I. McKinnon, ed., op. cit.; and Vicente Galbis, "Money Investment, and Growth in Latin America, 1961-1973", *Economic Development and Cultural Change*, Vol. 27, No. 3 (April 1979), pp. 423-443. However, a positive correlation was found for some Asian countries by Maxwell Fry, op. cit.

46 For example, see Vicente Galbis, *Saving and Financial Intermediation in Peru: Analysis and Policy*, IMF, unpublished, 1976, esp. Chapter III.

47 See McKinnon, *Money and Capital in Economic Development*, op. cit.

48 McKinnon has also provided another, less convincing explanation for the failure of empirical tests on his hypothesis, namely, that this might be due to the very long and complex lag structure in the relationship between investment and the real rate of interest. See Ronald I. McKinnon, "Saving Propensities and the Korean Monetary Reform in Retrospect", in Ronald I. McKinnon, ed., op. cit.

49 In other words, in McKinnon's modified view, the "true" investment ratio will tend to behave according to his theory, but the measured ratio can fail to perform empirically well because of the measurement error introduced by the disequilibria of financial repression.



wever, this theoretical reformulation can hardly be useful for empirical use because redefining the concept of investment net of inflation hedges is an intractable problem. The following subsection will show that McKinnon's reformulated position can be more adequately treated within a more general disaggregated framework designed to underscore the inefficiencies caused by financial repression on the allocation of investment.

### 3. Effects on investment finance, efficiency, and growth

McKinnon suggested the possibility that financial repression might lead to a decline in the average rate of return to capital — a deterioration in the quality of the capital stock — as a result of the disintegration of financial markets (and thereby investment markets)<sup>50</sup>. However, neither McKinnon's nor Spellman's aggregative models are suited to investigate this issue.

Galbis moved the analysis away from the uncertain aggregate effects toward the allocative consequences of financial repression on investment<sup>51</sup>. Using a macroeconomic two-sector model — one characterized as being technologically advanced, capable of obtaining high rates of return and resourceful in obtaining loans, the other as technologically backward, subject to low rates of return and unable to borrow — this model shows that even if each sector formulates its plans for consumption (savings) on the basis of its income alone (i.e., with no interest rate elasticity) there is still an important effect from financial repression on the efficiency of investment, although the aggregate volumes of consumption, savings and investment remain unaffected under full employment. In Figure 3 the curve  $I^D_2$  represents the desired demand for investment by the advanced sector, inversely related to the real rate of interest,  $(b \cdot \dot{P}/P)$ <sup>52</sup>. By assumption, all investment in this sector is outside-financed. The broken curve  $I^{S_2}$  represents the supply of financial savings by the backward sector to the advanced sector through the financial system. At the maximum the backward sector can transfer all its savings,

50 See McKinnon, *Money and Capital in Economic Development*, op. cit., p. 63.

51 See V. Galbis, « Financial Intermediation and Economic Growth in Less-Developed Countries: A Theoretical Approach », in P.C.I. Ayre, ed., *Aspects of Finance in Developing Countries*, special issue of the *Journal of Development Studies*, Vol. 13, No. 2 (January 1977), pp. 58-72.

52 This discussion assumes both that the actual rate of inflation ( $\dot{P}/P$ ) coincides with the expected rate ( $P^*/P$ ) and that the deposit and loan rates ( $d$  and  $b$ , respectively) are the same. These assumptions are relaxed below.

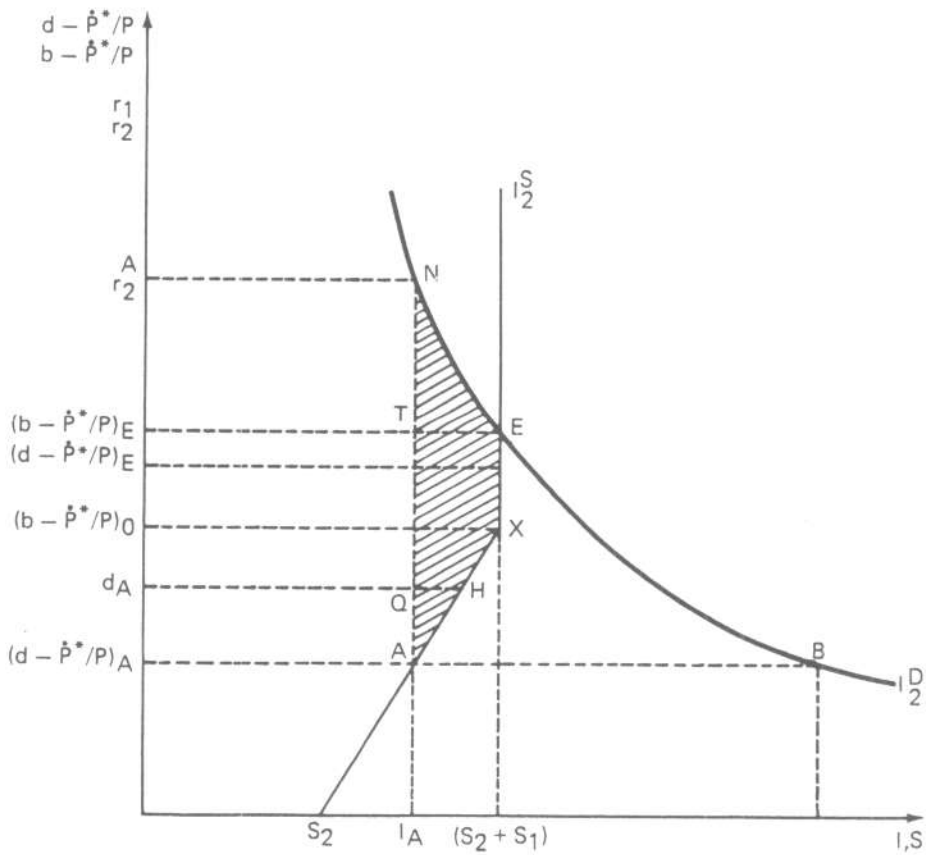
$S_1$ , measured by the distance between  $S_2$  and  $S_2 + S_1$ , but it can decide to transfer nothing if the real rate of interest is sufficiently low. For simplicity it is assumed in Figure 3 that no transfer takes place for any rate equal to zero or below, whereas all savings are transferred when the real rate of interest rises to  $(b\dot{P}/P)_0$ .<sup>53</sup> The alternative to financial savings by the backward sector is self-financed investment, which is carried out when its yield is higher than the real rate of interest. Therefore, the lesser is the degree of financial repression, the more investment is reallocated from the backward to the advanced sector. As a result — given that the rate of return to capital is higher in the advanced sector than in the backward sector — the reallocation raises the overall rate of economic growth without a sacrifice in current consumption. The shaded area measures the “producer’s surplus” lost as a result of the inefficiency in the allocation of investible resources caused by financial repression. This result can be generalized to  $n$  sectors, so that the change from a state of financial repression to financial equilibrium is growth-promoting even if it does not stimulate additional investment. In Galbis’s model financial repression results in more self-financed investment and less investment financed from outside sources, leaving the aggregate investment ratio unchanged by assumption. The increase in self-financed investment lowers the overall rate of return to capital because it leads to the utilization of backward technologies.

There are other unfavorable effects on investment efficiency that can be related to the model. First, the credit rationing effect produced by financial repression on the financial markets for investible resources can reduce the average efficiency of outside-financed investment because credit rationing criteria do not normally coincide with the criterion of ranking investment by real yields. In terms of Figure 3 this means that the increase in self-financed investment (reduction in financial savings) in sector 2, as this sector moves from point X to point A with an increase in financial repression, does not necessarily eliminate investment with the lowest yields in sector 1, depicted by the curve NE; it can just as well eliminate investment with yields above  $r_2^A$ . Therefore, the producer’s surplus lost, as shown in Figure 3, might underestimate the real loss. Second, investment that can be undertaken as an inflation hedge, both in the advanced and backward sectors, will further distort the optimal social pattern of investment. This means that financial repression can cause investment in the advanced sector to be undertaken at yields below the equilibrium real rate of interest, such as those depicted

53 The latter boundary results from the limitedness of yields on self-financed, backward types of investment.

FIGURE 3

GRAPHICAL REPRESENTATION OF GALBIS'S TWO-SECTOR MODEL OF FINANCIAL INTERMEDIATION





by the curve EB. In the backward sector, already operating at rates of return below the economy's equilibrium level, inflation hedging may also eliminate cost consciousness and result in yields that are even smaller than the low marginal yields which are theoretically attainable; instead of undertaking investments with yields along the curve AX, investors may hurriedly use their funds in real investments with a yield equal to  $AI_A$ . Third, financial repression can produce windfall profits for financial intermediaries and thereby make them less cost-efficient. This is due to the effect of financial repression on the spread between asset and liability rates which can occur as a result of the widening gap between the marginal rates of return to capital in the advanced and backward sectors as the transfer between the two sectors is reduced. While in equilibrium the spread between the borrowing rate and lending rate is constrained to the difference EX, under financial repression it can increase to NA (assuming that the real deposit rate is lowered to  $(d-P/P)_A$ )<sup>54</sup>.

Further negative effects on the social efficiency of investment may result from the unfavorable effect of financial repression on the rate of monetization in very backward economies<sup>55</sup>. Inefficiencies may also result from the adverse effects discussed below on the distribution of income.

#### 4. Effects on inflation

Much emphasis has been placed, at least in some policy-oriented circles, on the presumed inflationary effect caused by high and increasing interest rates. This point of view has generally been based on the argument that interest is a cost of production and therefore — following incomes theory — the increase in this cost will raise prices. The conclusion is then put forward that a policy of raising interest rates in order to offset undesirable consequences from inflation could be self-defeating because it might tend to perpetuate inflation, which is the basic problem.

The argument behind that pessimistic view is misleading, because it confuses the distinction between monetary and real costs. The increase in interest rates to offset

54 For further analysis of the determinants of the spread, see subsection 5 below.

55 A negative effect from self-finance on the monetization ratio has been hypothesized by Anand G. Chandavarkar, "Monetization of Developing Economies", IMF, *Staff Papers*, Vol. 24, No. 3 (November 1977), pp. 665-715. This implies, by Galbis's result, that the monetization ratio is adversely affected by financial repression.

inflation does not push real costs of finance above the costs that would prevail under stable conditions; it merely eliminates the implicit subsidy provided to borrowers by low (negative) real interest rates under financial repression. However, a valid consideration is that the increase in interest payments required from borrowers will temporarily lower their liquidity position and could therefore initially force some investors, who are otherwise engaged in sound projects, to go out of business or to raise their prices. This effect is, however, of a short-run nature and not inherent to all methods of raising effective interest rates<sup>56</sup>. Second, the argument is of little application to the LDCs, where interest charges may be expected to be a relatively unimportant cost of production, so that quantitatively this effect may be minimal.

More importantly, the pessimistic view does not take into account the substantial real costs in terms of investment inefficiency that might be incurred by perpetuating financial repression, particularly in the long run. Those costs, including the social costs of hedging against inflation, may far surpass the direct costs consisting of interest rate payments. Thus, raising interest rates to offset inflation might be antiinflationary on the whole. Indeed, if the postulates behind the financial deepening approach embedded in equation (1) are accepted, the overall effect from raising interest rates is antiinflationary, because it increases the real demand for financial assets while its nominal amount remains unchanged.

Due to the possible existence of both kinds of effects, the outcome might be indeterminate in the run, but it seems implausible that an inflationary effect will prevail in the long run. Although little direct empirical evidence appears to be available on this issue, it can be argued that the overall effect of interest rate variations on the rate of inflation might be negligible compared with the effect from other underlying forces — whether endogenous or exogenous — that determine the rate of expansion of *M*. Monetarists might therefore be justified, on this score, in their contention that interest rates are a relatively unimportant variable in explaining the observed correlation between inflation and the rate of increase in one or two key monetary aggregates<sup>57</sup>.

56 See William H. White, « Anti-Inflationary Advantages of Financial Indexation », IMF, unpublished, February 13, 1976; and « Improving the Demand-for-Money Function in Moderate Inflation », IMF, *Staff Papers*, Vol. 25, No. 3 (September 1978), pp. 564-607.

57 Reference is deliberately made here to correlation rather than causality in the belief that the observed correlation (which is implied in the financial deepening model) does not necessarily mean that monetary expansion is the cause of inflation. See Vicente Galbis, « Effects which Alternate Monetary Policies Have Had on Inflation and Growth in Latin American Countries », Inter American Development Bank, IV Round Table on Development Banking, March 1981. See the discussion in Section IV.1 below.

## 5. Effects on the distribution of income

To investigate the effects of financial repression on the distribution of income it is useful to return to Galbis's model. Under some conditions, financial institutions (and their owners) might be the principal beneficiaries of financial repression at the expense of the rest of the economy. Policies that repress interest rates on liabilities of financial institutions do not necessarily achieve their objective of cheapening the cost of credit because the divergence created on real rates of return to capital by capital market disintegration presents financial institutions that operate under oligopolistic or monopolistic conditions with the opportunity to increase substantially the spread between asset and liability rates and reap windfall profits<sup>58</sup>. Or alternatively, to become bureaucratized and inefficient, especially in the long run.

Perhaps because of the awareness of this problem, most countries that have imposed interest rate ceilings have applied them on both the asset and the liability sides of financial institutions. Such control over the spread between asset and liability rates transfers the monopolistic gains of financial repression from banks to privileged borrowers, at the expense of potential borrowers who are rationed out of the market and all bank depositors<sup>59</sup>. Therefore, this policy only helps to aggravate the adverse distributional effects resulting from the empirically observed fact that bank holding companies — the typical structure of bank ownership in LDCs — direct their banks and other financial institutions to provide credit at low interest rates to their own nonbank affiliates and subsidiaries at the expense of the public. This also aggravates the tendency toward concentration of credit in a few large-size firms.

Regardless of whether the financial institutions themselves or their clients appropriate the oligopolistic gains of financial repression, the greatest loss invariably is suffered by middle - and lower - income - classes<sup>60</sup>. This would be so even if financial markets

58 In Figure 3, financial intermediaries could potentially raise loan rates to  $(b \cdot P^* / P)_E$  or even higher, with an effective deposit ceiling equal to  $(d \cdot P^* / P)_A$ . See Galbis, « Financial Intermediation and Economic Growth in Less-Developed Countries: A Theoretical Approach », op. cit., p. 68.

59 However, it is well known that compliance with interest rate ceilings on loans has been much more difficult to enforce than on deposits, due to the ability of financial institutions to levy additional charges either directly or through the practice of compensatory balances.

60 See Galbis, « Financial Intermediation and Economic Growth in Less-Developed Countries: A Theoretical Approach », op. cit., pp. 68-69.

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were perfectly integrated — that is, if there were a uniform interest rate ceiling applicable to all operation — because of their net creditor position. Workers, small entrepreneurs, professionals and other self-employed individuals in LDCs normally have few viable savings outlets other than deposits in financial institutions and, at the same time, have little access to borrowing from those institutions<sup>61</sup>. This situation is particularly burdensome for small entrepreneurs who must accumulate savings during long periods to meet their future projected investment. The wealth of these groups is therefore adversely affected by financial repression; indeed, it is directly destroyed by capital losses when real rates of interest are negative. Confronted with such an adverse situation, depending on their individual circumstances some consumers might react by stepping up their current rate of consumption in order to avoid capital losses, while others might increase their saving effort in order to meet future consumption needs; still others might start or continue investment projects that are likely to produce a higher rate of return than financial assets, even though their return might be low or even negative. None of these alternatives, however, can eliminate the real loss that these groups suffer as a result of financial repression. By contrast, the affluent classes and large businesses might more rapidly develop alternative channels for accumulation of wealth that can protect them from the effects of financial repression (see subsection 6 below).

When the assumption that financial markets are perfectly integrated is abandoned, the adverse effects on the distribution of income are magnified. As the structure of interest rates tends to diverge under the influence of the zero rate of interest on currency, financial repression will affect particularly severely the lower — and middle — income classes which tend to rely more heavily on currency and demand deposits than on other financial assets, especially in relatively backward LDCs. Furthermore, there is the danger that if financial repression is sufficiently severe, the poorer segments of the population might return to barter, or at least that the process of monetization might be so retarded that it would tend to perpetuate the inefficiency of the most backward sectors<sup>62</sup>.

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61 For instance, it is well known that access to mortgage borrowing by these groups is very limited in LDCs.

62 Under the plausible assumption that human capital scarcity is a more pressing problem in LDCs than the scarcity of physical capital, the adverse effects of financial repression on the distribution of income reduce the rate of economic growth.



## 6. Major qualifications to the theory of financial repression

The now prevalent view that under full financial equilibrium the financial sector of an economy will tend to expand over time up to the point of equalization between the marginal benefits derived from increased social efficiency and the marginal resource costs — producing an effect similar to that of labor-saving innovations — aids in understanding why financial repression, which prevents that equilibrium, tends to encourage the development of some forms and channels of quasi-financial intermediation that to some extent tend to offset the effects of the repression. Such alternative channels are substitutes, although often more imperfect, for the financial system which is being repressed.

### a. *Retrogression to self-financed investment*

As discussed earlier, financial repression can increase self-financed investment by economic units that are displaced from financial markets<sup>63</sup>. This may or may not fully offset the decline in outside-financed investment, but in any case both self-financed and outside-financed investment will become less efficient with the result that a greater investment effort will be necessary under financial repression to maintain a given rate of growth.

### b. *Growth of unorganized money markets*

Financial repression often leads to the development of nonconventional types of financial operations and noninstitutional quasi-financial intermediaries for the purpose of avoiding the burden of the repression. One of the principal characteristics observed in those alternative markets is the high level of interest rates paid and charged in them compared with rates in the repressed institutional markets<sup>64</sup>. The growth of unorgani-

63 In a more empirical context, some of these implications have been analyzed under the « group » principle by Nathaniel H. Leff, « Capital Markets in the Less Developed Countries: The Group Principle », in Ronald I. McKinnon, ed., *op. cit.*

64 See U Tun Wai, « Interest Rates in the Organized Money Markets of Underdeveloped Countries », IMF, *Staff Papers*, Vol. 5, No. 2 (August 1956), pp. 249-78; « Interest Rates Outside the Organized Money Markets of Underdeveloped Countries », IMF, *Staff Papers*, Vol. 5, No. 2 (August 1956), pp. 249-78; « A Revisit to Interest Rates Outside the Organized Money Markets of Underdeveloped Countries », *Banca Nazionale del lavoro, Quarterly Review*, No. 122 (September 1977), pp. 291-312; and « The Role of Unorganized Financial Markets in Economic Development and in the Formulation of Monetary Policy », *Savings and Development*, No. 4 - 1980, pp. 259-265.

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zed money markets should therefore be construed from an economic point of view as a healthy reaction from the private sector against unfortunate regulations and other obstacles that prevent financial equilibrium. To the extent that unorganized money markets perform substantially the same functions that would be performed under a system in which financial intermediaries were not financially repressed, they offset the detrimental effects of the repression. However, in general, unorganized money markets will be less efficient than the financial intermediaries that they supplant because it will take much time and ingenuity to develop viable alternatives to ordinary financial institutions and devices, the market will be more fragmented, and the costs and risks of operating through roundabout processes will normally be higher than those encountered in a nonrepressed financial system. Furthermore, it is likely that the authorities — who will naturally be dissatisfied with institutions and channels that they perceive as working against their own policies — will keep on trying to extend repressive policies to new forms of financial intermediation and new financial intermediaries; this can result in substantial administrative costs both for the regulatory agencies in charge of such policies and for the private sector that will have to persist in creating new forms of operations. Finally, it may be considered unfortunate that the economic units most likely to avoid the burden of repressive policies will generally be those both in a strong financial and economic position and prone to operate outside the law.

*c. Substitution of international for domestic financial intermediation*

Policies of domestic financial repression will encourage international financial intermediation for domestic residents if there are open avenues for channeling funds to and from abroad. The causes of the substitution of international for domestic financial intermediation are the same as those explaining the growth of alternative domestic unorganized markets, but some of the consequences can be different.

Domestic financial repression will encourage residents with financial surpluses to deposit funds in foreign financial institutions because of the more attractive yields offered abroad; this will constitute a capital outflow<sup>65</sup>. On the other hand, local residents with financial deficits, whose demand for funds will not be satisfied by the local financial

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<sup>65</sup> Throughout this subsection it is implicitly assumed that the exchange rate is expected to remain constant or that foreign interest rates are adjusted for the expected rate of depreciation of the exchange rate. Furthermore, the expected change is equal to the actual. Exchange rate issues are explicitly dealt with in subsection IV.3.

system — as a result of the local scarcity of funds created by the rationing effect due to financial repression — will be encouraged to borrow from foreign financial institutions; this will constitute a capital inflow. Under financial repression it will be rational for borrowers displaced from local markets to borrow abroad at higher interest rates than those prevailing in local markets, and it will be profitable for importers of funds to pay high interest rates abroad since they will be able to distribute those funds through secondary domestic markets, including the growing unorganized market<sup>66</sup>. Local financial institutions themselves, unless legally restricted, could become major participants in the development of international financial intermediation, helping residents to place funds abroad and at the same time importing funds to satisfy local demands for loans granted in foreign currency to avoid regulations on domestic currency loans<sup>67</sup>. Another important channel could develop through direct trade credit by which foreign firms could finance their local suppliers or customers<sup>68</sup>. In today's world, multinational corporations could develop important interests in this respect.

Unlike the growth of unorganized domestic markets, the increase in international financial intermediation might not offset in the aggregate the effects of domestic financial repression. It seems reasonable to suppose — subject to an important qualification made in subsection 7.b below — that domestic financial repression will encourage more capital outflows than inflows, i.e., a net capital outflow. Therefore, the increase in international financial intermediation might aggravate the effects of domestic repression policies by further reducing the domestic availability of funds.

Furthermore, countries that pursue policies of domestic financial repression are also likely to impose very strict controls on capital outflows (and sometimes also on capital inflows). These controls are viewed as an extension of policies to control the domestic financial system. Thus, regulations on capital movements will generally play a larger role in eliminating the substitution of international for domestic financial intermediation

66 This implies that under financial repression the conventional theory that relates international capital movements to interest rate differentials is inappropriate. Indeed, it will be argued in sub-section 7 below that when public sector deficit finance is important, financial repression could cause capital movements to be in the opposite direction from that predicted by conventional theory.

67 If there were no regulations on foreign currency deposit rates paid by local banks, local financial institutions could supplant international financial intermediaries by accepting foreign currency deposits and granting foreign currency loans. This will, however, create a « dollarization » problem.

68 For a discussion of this channel, although in the context of the more developed countries, see Arthur Laffer, « Trade Credit and Other Forms of Inside Money », in Ronald I. McKinnon, ed., op. cit.



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under a repressed domestic financial system than under financial equilibrium. Although capital control regulations might succeed in producing a net capital inflow, they will nevertheless tend to aggravate the effects of domestic financial repression by distorting the patterns of both inflows and outflows as well as reducing their gross volume.

For all of the above reasons it cannot be expected that international financial intermediation will offer a reasonable alternative to domestic intermediation under domestic repression. In addition, the small degree of overall international integration of many LDCs severely limits the possibilities of substituting international financial intermediation for domestic intermediation. Still worse, international financial intermediation is unlikely to offset the effects of domestic financial repression on small savers and borrowers, thereby increasing the adverse effects on the distribution of income.

An exception to the rule that international financial intermediation will not adequately offset domestic repression is likely to arise, however, when domestic financial repression is the result of policies directed toward increasing the spread between lending and deposit rates — such as taxes on credit, high legal reserve ratios, and some kinds of portfolio regulations — rather than toward reducing the deposit rate below equilibrium. In this case international financial intermediation is likely to result in net capital inflows, thereby making it less compelling for the authorities to impose capital controls<sup>69</sup>. Furthermore, under those circumstances the volume of gross flows involving domestic residents will tend to be re-established toward a level approaching the optimum that would have existed under domestic financial equilibrium. The only remaining problem from domestic financial repression is that the size of the domestic financial system will remain smaller than under financial equilibrium — an effect similar to the reduction in the size of any other specific industry within the country.

The above analysis of international financial intermediation caused by domestic financial repression must be sharply distinguished from a similar analysis under domestic financial equilibrium. In the latter case the replacement of some domestic financial intermediation by international intermediation might be definitely advantageous in an absolute sense in some LDCs<sup>70</sup>. This latter possibility arises from the recognition that there are real costs involved in any financial intermediation process and that under

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69 The case of Bolivia seems to provide a relevant example of this situation.

70 For instance, the importance of international financial intermediation in the early stages of development of the Canadian financial system, when Canada was an LDC, has been noted by Charles P. Kindleberger, « International Financial Intermediation for Developing Countries », in Ronald I. McKinnon, ed., *op. cit.*

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some competitive conditions the costs of foreign financial intermediation might be smaller than those of domestic intermediation even when the latter is in equilibrium.

## **7. Discussion of some criticisms of a policy of equilibrium domestic real rates of interest**

### *a. Excessive capital inflows*

To reject the theoretical conclusion that, in inflationary LDCs, interest rates ought to be kept at the very high levels required to satisfy equilibrium in domestic financial markets, i.e., positive in real terms, it has been argued that the foreign-domestic interest rate differential in favor of domestic rates that would result from that policy, even after allowing for depreciation of the domestic currency, would be so large that the accompanying volume of capital inflows would be excessive, thereby further disrupting the stability of the domestic economy. Implicit in this view, when referring to the long run, is the assumption that the rate of exchange rate depreciation for an inflationary LDC will tend to be smaller than the difference between the domestic and foreign rates of inflation and, in addition, the foreign rate of interest might not be fully adjusted to the foreign rate of inflation. Then the rate of growth of monetary aggregates would tend to accelerate as capital inflows would be converted into international reserves within that insufficiently flexible exchange rate system. The authorities would then have to raise interest rates further to catch up with the accelerating rate of inflation. The end result would be to raise unnecessarily the country's level of indebtedness without any real gain.

Against this pessimistic view there are several counterarguments. First, the assumption that the exchange rate will not sufficiently adjust in the long run according to the purchasing power theory needs to be empirically corroborated. This criticism therefore merely emphasizes the need to properly coordinate exchange rate with interest rate policy<sup>71</sup>. Second, both in the case of an insufficient exchange rate adjustment and when foreign interest rates are below equilibrium, the domestic monetary authorities

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71 This is not to minimize the serious short-run difficulties that may arise in the coordination of those policies, particularly when considering the role of exchange rate expectations and when attempting to re-establish domestic financial equilibrium by domestic reform. See Subsection IV.3.

need not be bound by those disequilibria if they are prepared to directly cope with excessive inflows. Indeed, if a policy of domestic financial equilibrium resulted in excessive capital inflows, the authorities could impose controls to screen those inflows and select the most acceptable. This would be an enviable position rarely found among the LDCs <sup>72</sup>.

Finally, there is evidence that excessive capital inflows and substantial foreign indebtedness have been related, in many cases, to policies of domestic financial repression rather than to policies of high interest rates. The general pattern of foreign indebtedness in LDCs indicates that foreign debt has been largely incurred by the public sector and it has been much more closely related to the need to cover budgetary and public enterprise deficits than to the interest rate relationships described in the conventional theory of capital flows. Indeed, when taking account of the behavior of the public sector a strong argument can be made that policies of financial repression tend to be associated with excessive capital inflows and excessive foreign indebtedness, i.e., the opposite result from conventional theory. Under financial repression, large public sector deficits — often the cause, or at least a major reinforcing element, of inflation — will have to be largely financed by foreign borrowing, because domestic public security offers will not be successful at unrealistically low interest rates; the only domestic sources of finance available to the public sector will be the central bank and financial institutions, but the former might be either subject to a legal limitation or bound by its role as a guardian against excessive monetary expansion, and the latter will acquire public debt only to the extent that they are forced to do so by portfolio regulations. Excessive public borrowing from abroad will further accelerate domestic inflation, increase the degree of financial repression, and raise the burden of foreign debt <sup>73</sup>. Furthermore, it is difficult to understand why the authorities of LDCs would attempt to borrow domestically at very low interest rates while being prepared to incur foreign debt at rates which, after being adjusted for exchange rate risk, are much higher than those paid domestically; this policy obviously discriminates against national residents.

72 See McKinnon, *Money and Capital in Economic Development*, op. cit., Chapter 13. In the short run, temporary capital-inflow controls might have to be imposed, even when pursuing a long-run policy of exchange rate equilibrium, in order to offset destabilizing exchange rate expectations. See subsections IV. 3 and IV. 4.

73 For concrete examples, see Galbis, *Saving and Financial Intermediation in Peru: Analysis and Policy*, op. cit.; and Richard T. Stillson, « Some Policy Implications of Foreign Capital Flows in Certain Developing Countries », in Ronald I. McKinnon, ed., op. cit.

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b. *Inflationary finance of public investment*

In the absence of enough leverage to raise conventional taxes, planning authorities in LDCs may favor monetary expansion for the purpose of financing the public sector deficit resulting from policies of intensive public capital formation. It can therefore be argued that if the benefits from increasing public investment outweigh the costs associated with the decrease in real monetary balances held by the public, it might be socially efficient to induce some inflation<sup>74</sup>. This argument properly emphasizes the benefits that might be derived from public investment, but it does not correctly assess the costs of inflationary finance<sup>75</sup>. First, inflationary finance might increase only marginally the real volume of public sector revenues because it will simultaneously erode the real value of conventional tax revenues<sup>76</sup>. Second, in any case there will be no reason for keeping interest rates low under inflation.

On the contrary, it can be argued that high interest rate policies will increase (reduce) whatever potential benefits (costs) might be derived from inflationary finance<sup>77</sup>. First, high interest rates will to some extent reduce the need for inflationary finance because the public sector will be able to borrow from the private sector by issuing securities. Second, by requiring public sector entities to bear an adequately high interest rate burden they will be forced to rationalize public investment projects. It has not been sufficiently emphasized that the provision of cheap credit to public development agencies — particularly public enterprises — leads to much social waste because those agencies have little incentive under those circumstances to search for the most efficient methods and the lowest costs to achieve their objectives.

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74 See Bijan B. Aghevli, « Inflationary Finance and Growth », *Journal of Political Economy*, Vol. 85, No. 6 (December 1977), pp. 1295-1307; and Joseph B. Bisignano, « Comment » on Kapur's paper, in Ronald I. McKinnon, ed., op. cit.

75 Structuralists have stressed the investment benefits of inflationary finance in LDCs. However, governments that are unable to raise the level of taxation because of bureaucratic disorganization or strong pressures from the private sector, are also likely to be those that consume rather than invest. Deficit finance has been associated with disorganized bureaucracies and inefficient public decentralized agencies and enterprises.

76 See Bijan B. Aghevli and Mohsin S. Khan, « Inflationary Finance and the Dynamics of Inflation: Indonesia, 1951-1972 », *American Economic Review*, Vol. 67, No. 3 (June 1977), pp. 390-403.

77 This discussion focuses exclusively on the benefits derived from high interest rates for the public sector debt, since the benefits derived from high interest rates in the private sector will be the same as discussed throughout this paper.

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#### IV. SHORT-RUN CONSIDERATIONS IN DESIGNING REALISTIC INTEREST RATE POLICIES

This section examines various short-run considerations that have to be taken into account in designing interest rate policies to achieve full equilibrium. The first issue is whether it might be possible to eradicate permanently financial repression and what the necessary conditions are to do so. Then it will be necessary to investigate types of short-run circumstances that might require justified departures from the general rule of policy that real rates ought to be positive. The special problems that might be encountered when attempting to make a transition from a state of financial repression to a state of equilibrium will be discussed next. Finally, it will be necessary to analyze the technical and administrative conditions of alternative policies designed to steer the financial sector toward equilibrium.

##### 1. Policies to reduce inflation vs. policies to increase interest rates

The most definitive way to eradicate financial repression is, of course, to eliminate inflation. Under stable prices the rates of interest usually prevailing in LDC would result in positive real rates at a sufficiently high level to encourage the rapid real growth of institutional domestic financial savings necessary to finance an optimally distributed volume of investment<sup>78</sup>.

In practice, however, inflationary conditions might not be easily eliminated in some developing countries. Even under ideal conditions, monetary authorities might not be well equipped in terms of the necessary policy instruments to offset disturbances in the money supply owing to factors outside their control, such as foreign price fluctuations that effect export earnings, and they might simply be inaccurate in attempting to achieve reasonable stability targets. More importantly, monetary aggregates might be subject to endogenous forces that the monetary authorities will be unable to offset without disrupting the economy. For instance, the monetary authorities might have no

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<sup>78</sup> Actually, the authorities' inability to pay interest on currency and to make financial institutions pay interest on demand deposits may require a negative rate of inflation, in order to establish full financial equilibrium. Deflation is a sufficient condition for the real rate of interest on currency and demand deposits to be positive, but it is not a necessary condition if there are positive nonpecuniary returns to holding those financial assets. This has prompted Shaw, *op. cit.* to prefer a policy of reducing inflation to a policy of raising interest rates.



choice but to finance directly or indirectly large public sector deficits arising either from excessive public consumption associated with inefficient and disorganized bureaucracies or from public investment efforts promoted by planning authorities<sup>79</sup>. Or they might have to finance large autonomous increases in economic rents or wages caused by oligopolistic socioeconomic forces. Summing up, for a multitude of reasons it might not be feasible for the authorities to achieve the goals often publicly expressed of maintaining a moderate rate of monetary growth and a reasonable degree of price stability. Indeed, from a general theoretical and empirical perspective it seems appropriate to raise the question of whether, in the observed correlation between inflation and monetary expansion, the reverse causality from which is generally assumed by extreme monetarists, or at least a two-way causality, could be found<sup>80</sup>.

If inflation cannot be controlled, adjustment will have to be made through an adequately flexible interest rate policy. Of course, this policy will provide only a second best solution to the equilibrium of the financial system since there are adverse effects in other areas, such as wages and the labor market. No interest rate policy will adequately offset all the undesirable financial consequences of inflation<sup>81</sup>. There is at the minimum the inherent problem that currency and demand deposits generally bear no interest even under the most severe inflation, and that this fact indirectly imposes a constraint for full adjustment of interest rates on other instruments; thus, part of the financial structure is bound to remain in disequilibrium<sup>82</sup>. The more specific problems posed by having to adjust through interest rate policies are discussed in the remaining subsections.

79 See Bijan B. Aghevli and Mohsin S. Khan, « Inflationary Finance and the Dynamics of Inflation: Indonesia, 1951-1972 », op. cit.; and « Government Deficits and the Inflationary Process in Developing Countries », IMF, *Staff Papers*, Vol. 25, No. 3 (September 1978), pp. 383-416. See also Vicente Galbis, *Saving and Financial Intermediation in Peru: Analysis and Policy*, op. cit.

80 See Arturo Brillembourg and Mohsin S. Khan, « The Relationship Between Money, Income and Prices: Has Money Mattered Historically? », *Journal of Money, Credit and Banking*, Vol. 11, No. 3 (August 1979), pp. 358-65; and Vicente Galbis, « Effects Which Alternate Monetary Policies Have Had on Inflation and Growth in Latin American Countries », op. cit.

81 McKinnon's preoccupation with policies to raise interest rates was apparently derived from his awareness that inflation might not always be easily brought under control unless other policies—e.g., tax policy and exchange rate policy—were simultaneously improved (See McKinnon's 1973 book, Chapters 10-12). Unfortunately, however, he used the simplifying assumption that the authorities could control inflation by controlling the rate of change of  $M$  (in Chapter 4) and repeated this simplification when dealing with the policies to carry out a price stabilization plan (in Chapter 8).

82 See subsections III.1 and III.5.

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## 2. Inflationary expectations

Imperfections in the adjustment to changing economic conditions might require short-run departures from the rule that real interest rates ought to be positive.

One factor to be taken into account is inflationary expectations<sup>83</sup>. This will be especially important during periods of wide variability in the rate of inflation, which are frequently associated with a high degree of inflation. The public might expect a rate of inflation rather different from the actual rate, so that inflationary expectations could play a large role in determining the behavioral response of the public in any given situation. For instance, if the public generally expected a much lower rate of inflation than the actual rate during some period, it might not be optimal to fully adjust the rate of interest to the actual rate of inflation because that policy might encourage a volume of financial savings in excess of the demand for credit. When this possibility is taken into account, the optimal rate of interest might have to be negative in real terms in the short run. Clearly, however, this policy is one of a second-best type because it will not prevent the redistribution of resources caused by the erosion of the real value of financial savings nor the capital gains accrued to borrowers. A positive effect derived from the latter might be a temporary spurt in the rate of investment<sup>84</sup>. But the distribution of investment might be less desirable than that obtained if it were possible to achieve full equilibrium.

The empirical assessment of inflationary expectations presents many difficulties. Nevertheless, there are a number of hypotheses that have proved to be useful. The most frequently applied in the context of LDCs is the hypothesis of autoregressive or adaptive expectations<sup>85</sup>. This hypothesis postulates that inflationary expectations are based on past inflationary experience. The implication is that when inflation is on the rise, the public's inflationary expectations will be below the actual rate of inflation, and vice versa. Thus, under variable rates of inflation the public will fail to fully anticipate

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83 See Vicente Galbis, « Interest Rate Policy Framework for a Developing Economy: The Case of Peru », IMF, Unpublished, November 16, 1976.

84 This is the effect pointed out by Irving Fisher, *op. cit.*

85 As noted in subsection II.1, this hypothesis was first formulated by Fisher, *op. cit.*, to explain the lack of full adjustment of the rate of inflation in an advanced country. For an elaboration of this hypothesis, see Phillips Cagan, « The Monetary Dynamics of Hyperinflation », in *Studies in the Quantity Theory of Money* (Chicago: University of Chicago Press 1956). It has subsequently been used in many empirical studies of LDCs.

changes in inflation; only if the new rate of inflation persists for a sufficiently long period will the public be convinced that it reflects the true underlying forces. This hypothesis can be especially useful in LDCs with an average rate of inflation which is neither very low nor very high, and where the process of formation of inflationary expectations might be relatively smooth and predetermined by the past history of inflation, say in the previous five or six years<sup>86</sup>. In this case, interest rates will have to be adjusted by less than the change in the rate of inflation in any given year, but the pattern that will develop from this policy will tend to maintain rates at positive real levels in the long run. Even in this relatively simple case, however, policy should not be applied following a rigidly determined rule because there might be special factors disturbing expectations in some periods<sup>87</sup>. In high-inflation countries, the time horizon or the average lag for the formation of inflationary expectations might be considerably shorter than in medium-inflation countries and it might be especially short during periods in which the variability in the actual rate of inflation increases<sup>88</sup>. However, because high inflation and the variability in the inflation rate tend to be positively correlated, the problem of variability of inflationary expectations is of a difficult nature mostly during the transition toward periods of higher or lower inflation rather than of low inflation per se.

The public might also form inflationary expectations on the basis of relevant information other than past price behavior, such as the rate of change in monetary aggregates, monetary policy announcements, exchange rate changes and expectations, and the general policy orientation of the country. Application of more sophisticated research techniques, like the rational expectations hypothesis, might perhaps cast some light on the importance of some of these additional considerations in LDCs<sup>89</sup>. Howe-

86 The relevant period and weights to be attributed to each observation of past rates of inflation within the relevant period must be estimated for each country using an adequate econometric model of financial deepening. For an application to Peru, see Vicente Galbis, « Interest Rate Policy Framework for a Developing Economy: The Case of Peru », op. cit.

87 This is in addition to the need to take external and other considerations into account.

88 See Mohsin Khan, « The Variability of Expectations in Hyperinflations », *Journal of Political Economy*, Vol. 85, No. 4 (August 1977), pp. 817-27; and « Variable Expectations and the Demand for Money in High Inflation Countries », *The Manchester School*, Vol. 65, No. 3 (September 1977), pp. 270-93.

89 For an application to the United States see Edgar L. Feige and Douglas K. Pearce, « Economically Rational Expectations: Are Innovations in the Rate of Inflation Independent of Innovations in Measures of Monetary and Fiscal Policy? », *Journal of Political Economy*, Vol. 84, No. 3 (June 1976), pp. 499-522. However, the usefulness of the rational expectations hypothesis for LDCs is questionable.

ver, in designing interest rate policies, decisions about the appropriate level of interest rates will probably have to be made without the advantage of sufficient information on many of those factors. One alternative possibility is to develop sample surveys on inflationary expectations similar to those on investment intentions <sup>90</sup>.

### 3. Exchange rate changes and expectations

Changes in the rate exchange rate and expectations on those changes will generally have important implications for the short-run conduct of interest rate policies in the LDCs through their influence on private capital movements. Full domestic equilibrium requires that an LDC set the real rate of interest at a higher level than in the advanced world, a condition that could be achieved if the rate of inflation is lower in the LDC or if the rate of interest is higher, or both. In addition, external equilibrium requires that an LDC depreciate its exchange rate *pari passu* with the difference between the domestic and foreign rates of inflation. Under these conditions an LDC will benefit from a normal long-run inflow of capital to finance its economic development <sup>91</sup>.

It matters, however, whether full domestic equilibrium is achieved in an LDC through price stability or through a policy of high interest rates. When the rate of domestic inflation largely exceeds that of the advanced world, the domestic currency will tend to depreciate in the long run, but the time path of depreciation and of the expectations of depreciation generated by it will become highly relevant for the appropriate level of interest rates in the short run. In particular, the level of interest rates that might be appropriate in the long run could exceed the level necessary for short-run stability if the exchange rate were more or less fixed in the short run and expectations of depreciation did not fully anticipate the long-run exchange rate change. On the other hand, if a significant difference in inflation rates had taken place for a sufficiently long period of time without any exchange rate depreciation, the public might at some point develop expectations of a substantial depreciation, so that the level of interest rates required for full domestic equilibrium might be — although high — too low for equilibrium in the short run <sup>92</sup>. In the first case there might be excessive short-term private capital inflows

90 See William H. White, « Improving the Demand-for-Money Function in Moderate Inflation », IMF, *Staff Papers*, Vol. 25, No. 3 (September 1978), pp. 564-607.

91 The long-run point of view on capital movements was considered in subsections III.6.c. and III.7.a.

92 Long run equilibrium requires that the domestic interest rate be higher than the foreign interest rate plus the expected rate of exchange rate depreciation of the domestic currency. Exchange rate policies may prevent



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and in the second case, excessive outflows. Furthermore, the maturity structure of foreign borrowing could be biased in both cases toward the shorter maturities because of the greater uncertainty associated with the behavior of the exchange rate; this situation might reduce domestic capital formation and the efficiency of investment.

It is in practice very difficult to quantify how much importance should be attributed to exchange rate considerations in any given situation. They will tend to become more important the smaller and more open is the economy of the LDC, and the more abrupt are the exchange rate changes that are allowed to take place through exchange rate policies in order to restore long-run external equilibrium. Exchange rate expectations are more likely to follow a systematic pattern when exchange rate changes are more or less continuous than when they take place through large discrete jumps.

#### 4. Problems of transition toward equilibrium

During transitional period toward a greater or a smaller degree of inflation, implementation of an equilibrium interest rate policy could be burdened with serious problems related to the stability of financial institutions and their customers or both<sup>93</sup>. In general, the process of adjustment will be easier the smaller the magnitude and speed of the required adjustment, the more integrated and competitive the financial system, and the fewer the regulations tending to limit the possibility of adjustment of individual segments of the financial system. All these are empirical problems to be considered in any given situation.

Some recent studies have focused, in particular, on the special but very important role that interest rate adjustment can play during the application of a price stabilization plan and the conditions for its success<sup>94</sup>. As is well known, the application of stabilization

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changes in the exchange rate in the short run, thereby making the effective difference between the domestic and foreign deposit interest rates very large. This tends to cause large capital inflows. Nevertheless, the behavioral response of capital movements will be determined by expectations of the exchange rate which could considerably exceed the short-run exchange rate change.

93 As noted in subsection IV.1, there might be situations in which the monetary authorities will not be able to control inflation, at least in the short run.

94 See Basant K. Kapur, "Two Approaches to Ending Inflation", op. cit.; and "Alternative Stabilization Policies for Less Developed Economies", op. cit. See also Donald J. Mathieson, "Optimal Stabilization Poli-



measures normally results in a temporary loss of output, and the authorities must therefore choose between reducing inflation rapidly and thereby facing a sharp downturn in output growth or adopting a more gradual approach. However, this difficult choice can be avoided if the cause of the output downturn is primarily the reduction in real monetary balances, due to a slower rate of decrease in inflationary expectations than in the actual rate of inflation during the transitional period<sup>95</sup>. When starting from a seriously low level of interest rates, the authorities should raise interest rates sharply at the beginning of the stabilization plan simultaneously with measure to reduce the rate of growth of monetary aggregates<sup>96</sup>. More specifically, interest rates should be raised to the level of the expected rate of inflation to attract enough financial savings in real terms to eliminate the initial excess demand for funds, thereby sustaining the growth of outside financed investment and possibly the rate of economic growth. Following the initial discrete increase in interest rates, the authorities should reduce the interest rates *pari passu* with the reduction in the expected rate of inflation. This program therefore requires that once a disequilibrium in interest rates has been corrected — and this should be done immediately — the authorities gradually adjust the level of interest rates in line with the decline in the expected rate of inflation<sup>97</sup>.

While it is easy to understand the reasons for the gradual adjustment in interest rates along the equilibrium path during the second phase of the stabilization program, there are a number of qualifications to be made to the result that a single initial discrete

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cies in a Developing Economy », IMF, unpublished, February 1, 1977; « Financial Reform and Stabilization Policy in a Developing Economy », *Journal of Development Economics*, 7 (1980), pp. 359-95; and « Financial Reform and Capital Flows in a Developing Economy », IMF, *Staff Papers*, Vol. 26, No. 3 (September 1979), pp. 450-89.

95 See McKinnon's 1973 book, *op. cit.*, Chapter 8, and the two works by Kapur mentioned in the previous footnote.

96 As shown by Mathieson in his paper of 1977, *op. cit.*, within a formal optimization model designed to maximize the authorities' objective function over time, the optimal program would consist of both an initial discrete over time, the optimal program would consist of both an initial discrete adjustment and subsequent gradual change in all relevant policy variables. This solution had earlier been suggested by Kapur in his two papers of 1976, *op. cit.* In Mathieson's model, in addition to adjustments in interest rate and monetary aggregates, the authorities must also undertake a discrete depreciation of the exchange rate in order to re-establish the terms of trade at its long-run equilibrium level, and then must depreciate the exchange rate gradually by the difference between the domestic and foreign rates of inflation.

97 In the absence of any short-run constraints, it is not surprising that the optimal program requires immediate adjustment to equilibrium. Thus once the initial disequilibrium has been corrected, the policy rule becomes the same as that discussed for ordinary circumstances in subsection IV.2.

increase to equilibrium in interest rates is optimal. First, when entry of new financial institutions operating at the new interest rates is permitted while the old established institutions carry initial holdings of long-term, fixed interest rate loans the program requires — in addition to the described changes in deposit rates of interest — moving loan interest rates to follow a pattern that ensures at least zero profits for the established financial institutions; this requires a smaller initial discrete increase in loan rates to a level that is yet below equilibrium and a smaller gradual reduction during the subsequent period<sup>98</sup>. Secondly, under some degree of capital mobility the optimal program requires an initial discrete over-depreciation of the exchange rate and an initial increase in interest rates to a level below equilibrium, in addition to the usual decline in the rate of growth of the domestic component of the monetary base<sup>99</sup>. This “patient” program of interest rate reform is necessitated at the initial stage in order to avoid an excessive volume of capital inflows, because overdepreciation of the exchange rate raises expectations of a subsequent appreciation which, together with the increase in domestic interest rates, brings domestic yields to an effective level comparable to foreign yields. During the second stage of the optimal program, all variables are gradually adjusted to their equilibrium levels.

The complexity of the optimization models involved has thus far precluded obtaining results under more realistic assumptions. Models have not recognized the possible short-run implications of a large discrete increase in interest rates for the liquidity of financial institutions’ borrowers. Although it is possible that policies such as the extension of the maturity of loans might suffice to cope with this problem, under more realistic considerations the optimal strategy might not consist of a unique discrete initial adjustment to reach equilibrium<sup>100</sup>. A full stabilization package consisting of very sharp discrete changes may be beyond the authorities’ capacity of implementation, not necessarily for administrative reasons alone. Nevertheless, it is reasonable to suppose that unless there are very special circumstances for which full action may have to be temporarily delayed, the optimal strategy to bring interest rates to equilibrium will be

98 See Donald J. Mathieson, « Financial Reform and Stabilization Policy in a Developing Economy », op. cit.

99 See Donald J. Mathieson « Financial Reform and Capital Flows in a Developing Economy », op. cit.

100 Adjusting the maturity of loans has the limitation that it might shift the burden of short-run illiquidity to financial institutions.

101 See Vicente Galbis, « Interest Rate Framework for a Developing Economy: The Case of Peru », op. cit.; and « Interest Rate Management: The Latin American Experience », *Savings and Development*, No. 1, 1981, pp. 5-43.

close to that derived by Mathieson. For example, it might be appropriate to adjust the full structure of interest rates to the expected rate of inflation through a rapid sequence of two or three discrete upward changes. One benefit from this gradualist but firm approach would consist of the opportunity provided to observe directly the response of the system to the sequence of policy actions. This information could be of great value, in the absence of quantitative knowledge of the relevant parameters, to determine the magnitude of the required adjustments<sup>101</sup>. The importance of this gradualist approach might be particularly enhanced when there are severe initial institutional imbalances that the program of financial reform must eliminate<sup>102</sup>.

## 5. Policy alternatives

Three main policy stances might be adopted to steer interest rates towards equilibrium in the short and the long run: discretionary actions, indexation and interest rate liberalization. The relative merits and problems of each of these stances will in what follows be discussed mainly in the light of the theoretical considerations of this paper, but some additional practical issues will also be considered in this final subsection.

### a. *Discretionary actions*

Developing countries have generally been reluctant to let interest rates be determined by free market forces. They have preferred to intervene through discretionary actions. While this could have in principle resulted in a pattern of continual equilibrium, in fact the opposite normally has taken place<sup>103</sup>. The invalid reasons for complacency with discretionary policies conducive to interest rate disequilibrium were reviewed in Sec-

102 Mathieson's optimal program considers the imbalances that could result when the application of the program induces differential treatment of old and new institutions, but it does not take into account the existence of an institutional imbalance *before* the program is implemented. The latter played an equally important role in the shortrun failure of the Chilean financial reform of 1974-77 described by Mathieson in his 1980 paper. See Vicente Galbis, « Inflation and Interest Rate Policies in Latin America, 1967-1976 », IMF, *Staff Papers*, Vol. 26, No. 2 (June 1979), pp. 334-66, esp. p. 349.

103 See Anand Chandavarkar, « Some Aspects of Interest Rate Policies in Less Developed Economies: The Experience of Selected Asian Countries », IMF, *Staff Papers*, Vol. 20, No. 1 (March 1971), pp. 48-112; Vicente Galbis, « Inflation and Interest Rate Policies in Latin America, 1967-1976 », op. cit.; and U Tun Wai, « Interest Rates in the Organized Money Markets of Underdeveloped Countries », op. cit.

tion II.3. However, this subsection discusses whether there are some valid reasons for attempting to steer interest rates toward equilibrium through discretionary actions. The answer is yes under some particular circumstances.

In the case of a highly oligopolistic financial system one cannot expect that a policy of interest rate liberalization will necessarily be conducive to achieving a state of interest rate equilibrium. This applies especially to small backward economies in which there are usually only a few financial institutions. The reason is that, under a more or less severe inflation, an oligopolistic financial system will have a good opportunity to extract economic rents from the public by effectively increasing the spread between asset and liability rates so as to maintain or increase its profits, while reducing the volume of financial operations to a level below the optimal. Furthermore, if the oligopolistic financial sector were inefficient in the sense of not necessarily attempting to maximize its profits, it could thrive even if it were setting both the deposit and loan interest rates well below equilibrium, provided that the spread between the two was sufficiently large. Another form of market inefficiency is found in the bank holding company structure characteristic of many developing countries, under which the parent company forces its bank to provide credit at low interest rates to its nonbank subsidiaries and affiliates, at the expense of the public.

Therefore under oligopolistic conditions some kind of discretionary policy may be required to keep interest rates in equilibrium both in the long run and especially in the short run. Of course a major policy effort should be directed, whenever feasible, to solve the underlying problem of lack of competition by allowing for the entry of new or foreign banks and other intermediaries into the market. However, this policy may be a more effective solution in the long run than in the short run, because the establishment of new and effective institutions might require some careful planning<sup>104</sup>. Short-run policy might thus have to rely primarily on discretionary measures to promote directly interest rate equilibrium<sup>105</sup>. Consider, for instance, the case that a stabilization plan of the type discussed in subsection 4 above is put into effect, but instead of increasing interest rates through discretionary action, interest rate controls are simply

104 Even in the long run this policy option may not be feasible when the country is small and backward, especially if there are strongly held views against foreign control of domestic banking institutions.

105 For the moment it is assumed that such policy is solely based on discretionary action; a comparison of the relative merits of discretionary action vs. indexation is made below.



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removed<sup>106</sup>. This might not cause interest rates to rise significantly, or still worse, it might prompt institutions to increase the loan rate without noticeably increasing the deposit rate. This crucial part of the stabilization plan could therefore fail and could seriously reduce the rate of economic growth during the transitional period.

When a large discrete increase in interest rates is required to restore equilibrium, discretionary policy can be more appropriate than immediate interest rate liberalization also under a competitive financial system. Here the reason is that discretionary action could, more rapidly, and with less transitional errors than an inexperienced market, drive interest rates to equilibrium. For instance, discretionary action could reduce the search costs of the markets' groping toward equilibrium and reduce the risk of formation of unstable expectations in the short run, the likelihood of which might be directly related to the magnitude of the initial disequilibrium.

Having established the need for discretionary action under some circumstances, what kind of discretionary action will be required for equilibrium? The theoretical considerations discussed in this paper partly provide guidance to answer this question<sup>107</sup>. The autoregressive expectations hypothesis on inflationary expectations discussed in subsection 2 suggests that the optimal level of interest rates on savings instruments should be above some weighted average of past rates of inflation. No simple rule should be followed rigidly, however, because of the need to take into account many factors that could alter the normal state of inflationary expectations and such other considerations as exchange rate changes and expectations. Nevertheless, the autoregressive expectations hypothesis can provide at least a floor as a basic point of reference around which the authorities might wish to experiment in search of the most efficient level for short-run as well as long-run purposes. Trial and error methods are

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106 Note that under oligopolistic conditions it may not suffice to increase maximum legal rates, since this offers no guarantee that the oligopolists will raise their deposit rates even if they raise their loan rates. Therefore, consideration should be given to impose minimum deposits rates as discussed below.

107 For guidelines for interest rate discretionary action based on the theoretical propositions of this paper, as well as practical experience, see Vicente Galbis, « Interest Rate Management: The Latin American Experience », *op. cit.*, Section II.

108 When a trial and error method is made necessary by the absence of precise knowledge of the relevant parameters, the authorities should--as they gradually raise the minimum deposit rates--closely observe whether any particular institutions are seriously affected by the rate increases, so as to remedy individual problems instead of aborting the policy.

much more likely to succeed when the process of experimentation takes place within a range that broadly encompasses the point of equilibrium.

For the reasons discussed above in relation to oligopolistic financial structures, as well as for obvious policy efficiency considerations during transitional periods, a discretionary policy needed to raise the level of interest rates should be based on legal norms determining the structure of *minimum* deposit rates, in contrast to the prevailing attitude in favor of maximum rates<sup>108</sup>. This would also have the advantage of raising the rates to a level sufficiently high to satisfy the other criteria based on the foreign rates of interest adjusted for the expected rate of depreciation of the national currency. If legal minimum deposit rates were set at a level sufficiently high to offset expected inflation, there might normally be little need to regulate loan rates, because financial institutions might not be able to raise them much above deposit rates. Even under oligopolistic conditions, the desire of oligopolists to raise loan rates substantially above deposit rates, i.e., to maximize their spread, might be counter-balanced by a sharp decline in the demand for loans as a result of highly positive real interest rate charges. Nevertheless, especially during periods of financial reform involving a transition from financial repression to equilibrium, the authorities might need to intervene by fixing loan rates at an appropriate margin above the actual deposit rates in order to limit the interest rate spread<sup>109</sup>. This policy will tend to safeguard the efficiency of financial intermediaries and especially to reduce some potentially destabilizing effects of oligopolistic behavior. More specifically, it will eliminate the possibility that the fixing by the oligopolists of a very high loan rate, even if temporary, might create a serious problem with capital inflows<sup>110</sup>. Or that they might temporarily fix a negative spread to drive each other out of business in the event of an oligopolistic war.

109 However, it is generally not advisable to formulate the loan rate policy in terms of a legal loan rate maximum, even when this maximum is designed to provide an adequate spread above the minimum deposit rate, because this policy will eliminate the possibility for competitive forces to raise the deposit rates above their legal minimums. Given the tendency of policy makers to proceed conservatively to raise deposit rates, especially in the absence of precise knowledge about the desirable level to which these rates should be raised, these policy measures might have the effect of perpetuating financial repression. For instance, in Bolivia and Venezuela, where this policy was followed, the legal interest rate ceilings on loans that were imposed above the legal interest rate floors on deposits (in order to minimize the spread) made it impossible for financial institutions to raise deposit rates above their minimum when inflation accelerated in the 1970s. See Galbis, « Inflation and Interest Rate Policies in Latin America, 1967-1976 », op. cit., p. 345.

110 As discussed earlier, the authorities must coordinate interest rate with exchange rate adjustments.

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### b. Indexation

Indexation of financial instruments is a technique that is generally intended to automatically bring interest rates to a positive real level <sup>111</sup>. However, a distinction must be made between *ex ante* or autoregressive indexation and *ex post* or retroactive indexation. It will be assumed first that indexation is related to a relevant price index — rather than other variables such as the exchange rate — and that it is applied uniformly throughout the financial system. The implications of relaxing these assumptions will be described later.

*Ex ante* indexation is based on the principle of pre-correcting financial contracts for the rate of inflation that is expected to prevail during the life of the contract; this is the form that in practice has been used in a number of countries <sup>112</sup>. This type of indexation can be applied only if a measure of the expected rate of inflation is developed, so that a basic practical problem is to develop such a measure <sup>113</sup>. As a practical rule this has normally been done by linking the value of financial contracts to an index of past rates of inflation. This practice therefore embodies the idea of the autoregressive expectations hypothesis on the formation of inflationary expectations and it should therefore approximate the interest rate pattern that would result from discretionary actions based on the application of that hypothesis. *Ex ante* indexation can therefore be viewed as a method of approximating equilibrium. One possible advantage of this form of indexation over its discretionary counterpart is that it might permit a greater frequency in the adjustment process <sup>114</sup>. On the other hand, commitment to a rigid formula could be inefficient because inflationary expectations might be variable depending on several

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111 For a theoretical discussion of indexation, see Milton Friedman, « Monetary Correction », in Milton Friedman, ed., *Essays in Inflation and Indexation* (Washington, D.C.: Domestic Affairs Study 24, American Enterprise Institute for Policy Research, 1974), pp. 25-61.

112 See Vicente Galbis, « Inflation and Interest Rate Policies in Latin America, 1967-1976 », *op. cit.*, esp. pp. 345-48.

113 Another issue is: Should the correction be applied on the principal or should the monetary correction factor be added as a marginal interest rate to the rate of interest? It can be shown that correcting the principal will always result in a higher effective yield than applying a marginal interest rate. This has the advantage that it prevents the fall in the real value of the positive part of the real rate of interest when inflation rises. This is the system that has generally been used.

114 This will depend on the flexibility of discretionary action and on the indices used for monetary correction. If fairly up-to-date monthly data are available and are used for monetary correction, the adjustment could be undertaken monthly.

circumstances, as discussed in subsection 2, and foreign interest rates and exchange rate expectations will not be taken into account. Furthermore, during the implementation of a price stabilization plan this form of indexation will have the disadvantage that it will not immediately increase the level of interest rates to a position of equilibrium; the speed of adjustment will depend on the lags in the formula used for correction, but in general it will not necessarily approximate the optimal adjustment path during the period of transition.

Nevertheless, *ex ante* indexation might be preferable to discretionary action under some circumstances: when there is a tendency for discretionary action to be based on ceilings on deposit rates causing disequilibrium, when absence of any empirical knowledge precludes appropriate determination of the level of interest rates, and when the authorities might remain hesitant in the application of equilibrium policies or might be subject to pressures to modify or undo equilibrium policies. Finally, indexation might be advisable, as in Brasil, as a method of approximating interest rates to the equilibrium level, when this approximation is supplemented with appropriate discretionary actions in order to correct some temporary imbalances resulting from indexation <sup>115</sup>.

Retroactive indexation could be used to correct financial contracts for the rate of inflation prevailing during the life of the contract, thereby ensuring full compensation to savers and full repayment from borrowers. Since this indexation would be applied *ex post* there could be no errors with regard to the adjustment for inflation, but delays in recording statistical indices used for correction could cause administrative problems. Besides this, *ex post* indexation might pose difficult problems for liquidity management of borrowers who would neither be able to anticipate the repayment amounts nor their timing. And, like *ex ante* indexation, it would not take into account other relevant indicators such as foreign interest rates and exchange rate expectations.

Indexation of financial contracts must be fairly comprehensive — although not necessarily complete — to be successful. If not complete, it should be combined with regulations permitting financial institutions to index freely or to determine freely interest rates applicable on operations not officially indexed, so as to enable them to compete with indexed instruments <sup>116</sup>. Indexation of some instruments used by some institutions

115 See Jack D. Guenther, "Indexing" Versus Discretionary Action—Brazil's Fight Against Inflation », *Finance and Development*, Vol. 12, No. 3 (September 1975), pp. 24-29.

116 Such a system was the basis for the relative success of the Brazilian indexation. See Vicente Galbis, « Inflation and Interest Rate Policies in Latin America, 1967-1976 », *op. cit.*, p. 346.



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coupled with interest rate restrictions on other instruments used by other institutions — partial indexation — could produce a serious imbalance in the financial system as deposits would be reallocated from controlled to indexed instruments, and would put the authorities in the position of having to choose between the liquidation of losing institutions or financing withdrawals from them at the expense of monetary stability<sup>117</sup>. Partial indexation contradicts the theoretical requirement that any increase in interest rates should affect the whole structure of rates and must be rejected as potentially dangerous.

Indexation with respect to other indices such as variations in the exchange rate and foreign interest rates — special indexation — could also pose serious difficulties, because those indices are not necessarily adequate for the savings decisions to be made by the public. Exchange rate changes may take place only infrequently even if inflation is a continuing process; in the intervening period there is no adjustment for losses incurred by savers, so that this policy will tend to reduce financial savings. Besides the potential problem of fomenting speculative and destabilizing capital movements, special indexation gives undue emphasis to particular indices which do not reflect the preference of the majority of the public.

### *c. Interest rate liberalization*

Interest rate liberalization has been proposed for LDCs under the assumption that market determination of interest rates would automatically produce a level and structure of rates that would reflect all relevant information such as inflationary expectations, exchange rate movements, liquidity pressures, and relative costs of financial transactions. As an alternative to discretionary action directed to produce disequilibrium — such as ceilings on deposit rates — interest rate liberalization can have distinctive advantages under some circumstances, but it cannot be expected to be a panacea and produce automatic equilibrium in all cases<sup>118</sup>.

Liberalization will not work for countries with a highly concentrated and unsophisticated financial structure, such as that generally found in relatively small countries at a relatively early stage of their economic development. In those countries, liberalization may

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117 Chile and Colombia offer two relevant examples. See Vicente Galbis, « Inflation and Interest Rate Policies in Latin America, 1967-1976 », op. cit., p. 347.

118 See Vicente Galbis, « Interest Rate Management: The Latin American Experience », op. cit., Section I.

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not prevent interest rate fixing by the financial institutions themselves. They are likely to attempt to fix deposit rates in order to increase the spread between asset and liability rates and thereby their excess profits, or to maintain low interest rates for their borrowers (their client-owners, in the case of bank holding companies). Even in larger and more advanced countries, concentration of financial institutions might pose problems both for attaining financial equilibrium and for the stability of the financial system. The authorities must therefore remain vigilant over the behavior displayed by financial institutions, and must intervene not only through general legislation and supervision, but also through moral suasion, and when necessary, through explicit orders directed to correct anomalous situations that clearly violate equilibrium conditions.

Experience on the whole seems to corroborate the need for a distinction between the more advanced and larger LDCs and small backward LDCs. In the former, such as in Argentina, Chile, and Uruguay, interest rate liberalization has led to the establishment of high interest rates by the market. In other countries, such as El Salvador, interest rate freedom did not prevent the financial institutions from fixing rates at an unrealistically low level <sup>119</sup>.

## V. CONCLUSIONS

This paper has focused on the implications of financial repression caused by negative real interest rates in developing countries and on the meaning of interest rate equilibrium, both in the long and short run. It is neither implied here, however, that all or even most developing countries are financially repressed, nor that developed countries are necessarily free from financial repression <sup>120</sup>. However, empirically, financial repression has generally been most pervasive among the developing countries <sup>121</sup>.

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119 See Vicente Galbis, « Inflation and Interest Rate Policies in Latin America, 1967-1976 », op. cit., p. 348.

120. For an example of a financially repressed industrial country, see Vicente Galbis, « Negligencia de la política de los tipos de interés en la posguerra », *Revista Española de Economía*, No. 3 (Sept. - Dec. 1977), pp. 75-108.

121 From a theoretical perspective, financial repression would cause proportionately greater economic damage in developed than in developing countries.

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Financial repression is a particular state of disequilibrium within the general theory of interest. This disequilibrium is analytically the opposite of that portrayed by Keynesians for periods of economic depression with price deflation that might occur in the more developed countries. The theory of interest — sharply distinguished from the rate of return to capital — is inherently within the scope of monetary theory and it has to be viewed in relation to variations in the real value of money (or its inverse, the price level) both for internal and external purposes. Thus, real magnitudes are crucial for understanding any interest rate phenomena and, in particular, financial repression.

The theory is definite on the optimality of sustaining positive real rates of interest on savings instruments in the long run. This maximizes the rate of increase in the real volume of financial savings elicited from the public, with little danger — particularly in LDCs — of creating a situation in which the financial system might be unable to place all funds. Both theory and available evidence suggest that the marginal rate of return to capital in LDCs might be well above the long-run rate of economic growth, thereby making it possible for sound enterprises to repay debts at relatively high real interest rates. Neither is there any danger that raising interest rates to positive real levels will increase the rate of inflation. On the contrary, if any perceptible effect on inflation is derived from increasing interest rates it will tend to be antinflationary through releasing the pressure for immediate utilization of funds and avoiding the costs of social waste resulting from misallocation of investible resources.

Although maintaining positive real rates of interest in the long run is growth-promoting, this cannot be expected to be shown in empirical tests relating the level of interest rates to the level of investment or the investment ratio. Those tests — at least in the form presented under existing theory — not only suffer from lack of well grounded theoretical support but are not fully compatible with the usual notions of savings and investment, which are embedded in existing national account concepts. What the theory distinctly shows is that, because equilibrium policies increase the efficiency of investment, they will require a smaller volume of investment to achieve the same productive expansion, or that the same volume of investment will be required to achieve a higher rate of growth. Some recent theoretical results indicate that a change from financial repression to equilibrium can accelerate the rate of economic growth despite a decline in the rate of investment, i.e., with a gain in the current rate of consumption. This is the best of all possible outcomes and contrasts with McKinnon's earlier presumption that the rate of growth would accelerate as a result of the increase in investment. The underlying reason for the higher rate of economic growth under financial equilibrium

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than under repression is that financial repression reduces the economy-wide, efficiency-creating aspect of the financial intermediation system, which can technically be described as a labor-augmenting innovation. Financial repression works against the efficiency of investment because it reduces investment financed with outside sources in favor of less productive forms of self-financed investment; it leads to credit rationing (based on noneconomic criteria) of investment supported by outside finance; and it encourages all types of investment in "inflation hedges," i.e., speculative types of investment that might be highly remunerative for individual investors but socially unproductive. In addition to efficiency and growth considerations, financial repression tends to worsen the distribution of income, and to increase the opportunities for financial institutions to obtain oligopolistic profits.

Fears that establishing positive real interest rates in LDCs might result in excessive capital inflows into them can also be dismissed in a long-run context. Under domestic financial equilibrium, net capital inflows into LDCs would naturally take place to finance their growth in response to the differential rate of return to capital in favor of those countries compared with the more developed ones. Empirical evidence suggests that interest rate equilibrium in LDCs tends to prevent excessive dependence on foreign capital inflows (foreign borrowing). Conversely, excessive and destabilizing buildups of external debt have been accompanied by severe domestic financial repression caused by rapid monetary expansion and inflation originating in public sector deficit finance, coupled with low interest rates — a situation which creates a shortage of national savings to support domestic investment. In this connection, deficit finance — even if it had some merits, which is becoming increasingly doubtful — would reinforce the need to sustain positive real interest rates on both private instruments and, especially, domestic government debt (instead of reducing the need as is sometimes suggested). Such a policy would not only avoid the detrimental effects of financial repression in the private sector, but would automatically impose high-standard criteria for the selection of public investment projects, particularly those of public enterprises.

Some detrimental effects of financial repression might be partially offset by the natural response of markets toward developing new forms of financial intermediation to substitute for those that are repressed (in addition to relying more heavily on self-financed investment). Alternative financial channels can be created either through domestic or international markets. However, alternative channels will be more costly and less efficient. They will also tend to aggravate the adverse effects of financial repression on the distribution of income because the lower income groups and smaller entrepreneurs



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generally have less access to those escape valves. In addition, authorities who promote or allow financial repression are also likely to keep trying to extend their control over new domestic noninstitutional channels. They will naturally perceive them as working against their policies. Again, countries that are domestically repressed are also likely to be those that impose very rigid external capital controls.

Interest rate policy cannot fully eliminate the adverse effects of inflation. At the very least, in practice it has proved to be very difficult to invent a system to pay interest on currency and demand deposits, two principal components of the financial portfolios of the public. Therefore, the surest way to eliminate financial repression is to bring inflation under control. Realistic interest rate policies are of a second-best nature and should be utilized to offset the effects of inflation, not to excuse the application of antiinflationary policies.

In practice, many considerations of a short-run nature must be taken into account when formulating interest rate policy, occasionally and temporarily requiring departures from the long-run positive real position. A major consideration must always be the public's inflationary expectations, which more directly than inflation determine its financial attitudes. In moderate inflation countries, inflationary expectations might adjust smoothly, although with a lag, to past inflationary experience, suggesting a simple rule of thumb to approximate short-run equilibrium, namely, that interest rates be set slightly above the average rate of inflation during, say, the past five years, as a first step in the right direction. But, the expectations' lag and its precise form might be affected by such events as the variability in the rate of inflation, major monetary policy pronouncements, monetary rules, and public consciousness of the significance of past rates of growth of monetary aggregates. The lag in the formation of inflationary expectations might be considerably shortened under hyperinflation, which normally is associated with a wide variability in the rate of inflation. In the extreme, hyperinflation might make it very difficult for the authorities to guess correctly public expectations.

Other major short-run considerations in formulating realistic interest rate policies are movements in foreign interest rates and expectations of exchange rate variations and their effects on capital flows. Interest rate deviations from the long-run equilibrium position might have to be allowed for (in conjunction with other policies such as temporary capital controls) in order to offset potentially destabilizing effects from external flows on monetary aggregates, a danger particularly intense when the expected exchange rate adjustment is very large and brusque, as frequently happens under fixed exchange rate regime typical of many LDCs. Both inflationary expectations and exchange rate

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changes and expectations will play a prominent role in the appropriate level of interest rates during periods of severe economic adjustments resulting from exogenous economic shocks or dramatic changes in general policy orientation.

Other important short-run considerations must be taken into account during the period of transition from financial repression toward equilibrium. In the absence of adjustment constraints, an optimal policy that might be applied in conjunction with a price stabilization plan would consist of an initial discrete increase in interest rates to a position of equilibrium, i.e., to exceed inflationary expectations, and a subsequent gradual reduction in interest rates *pari passu* with the decline in inflationary expectations. In most cases, however, constraints derived from initial positions of imbalance among financial institutions, differential legal treatment of financial institutions that might take time to remove, and the lack of adjustability in interest rates on loan portfolios of financial institutions, and other similar considerations, might advise a more patient approach to financial reform. Due consideration must also be given to the effect of a sudden increase in loan rates on the immediate liquidity position of borrowers, although this problem can be avoided to a large extent by extending the repayment period of existing loans. In addition, constraints derived from temporary adjustments in other policies, such as the exchange rate, can modify the speed with which a transition ought to be implemented. In general, the larger the number of constraints and the less room for maneuvering them, the slower will have to be the process of transition.

Theoretical considerations suggest that some policy stances are more conducive to equilibrium than others. Interest rate ceilings on financial sector liability rates and pegged low interest rates on public security offers — still the most prevalent pattern of policy in the LDCs — are opposed to equilibrium under inflationary pressures. More consistent with theoretical considerations would be to use the power to determine interest rates through discretionary action — a power now available to the monetary authorities in almost all countries — in order to impose minimum rates on savings instruments offered to the public. Minimum rates could at least permit rough adjustment to equilibrium and might unleash market forces to move further toward equilibrium.

Indexation as a technique to promote positive real interest rates has an obvious theoretical appeal, yet the practical circumstances required for the success of this policy have rarely been met. Perhaps the greatest difficulty has been the perceived radical nature of this policy; this has led authorities, out of timidity, to misapplications, such as partial indexation (indexation of only one segment of the financial sector), and special

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indexation (indexation with respect to indices other than a relevant price level). Some practical administrative difficulties have also contributed to tarnishing the theoretical appeal of this policy stance. Moreover, indexing to domestic inflation tends to disregard other important considerations, such as foreign interest rates and expected changes in the exchange rate.

The hope that has recently been expressed that free determination of interest rates by market forces will rationally promote equilibrium and minimize adjustment problems has to be qualified. Interest rate freedom might be conducive to high interest rates in some of the more advanced and large LDCs in which the financial sector has reached a certain degree of maturity and competition, as recent experiences in Latin America have indicated, but it cannot be expected to be a panacea in small, less advanced countries with a limited number of largely uncompetitive financial institutions, where oligopolistic power might easily be exercised. In any case, liberalization will be more appropriately undertaken when starting from a position of approximate equilibrium, established either through discretionary action or indexation. Interest rate freedom should not prevent the authorities from being ready to intervene, when necessary, to correct temporary market disequilibria and the lack of adequate competition.

## **QUELQUES ASPECTS ANALYTIQUES DES POLITIQUES DES TAUX D'INTERET DANS LES PAYS MOINS DEVELOPPES**

### **RESUME**

*Cet article analyse la théorie des taux d'intérêt en situation de taux d'intérêt réels négatifs — ce qui se passe souvent dans de nombreux pays en voie de développement et quelques pays avancés — et les conclusions qu'on peut en tirer en termes de politique, tout en essayant de déterminer le niveau du taux d'intérêt le plus approprié pour les instruments d'épargne à la disposition du public. Le problème est vu surtout par rapport au taux d'inflation prévu et aux taux d'intérêt étrangers compte tenu des variations des taux de change prévisibles. L'auteur prend également en considération les facteurs principaux déterminant la différence entre les taux d'intérêt passifs et actifs des institutions financières et les différentielles parmi les taux d'intérêt actifs et parmi les taux d'intérêt passifs.*



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*La deuxième partie définit un état d'équilibre néoclassique soulignant les raisons pour lesquelles aujourd'hui l'opinion que les taux d'intérêt réels sur les instruments d'épargne devraient être positifs en moyenne à long terme semble prévaloir. Cet état d'équilibre est en suite comparé avec deux cas opposés de déséquilibre: les taux d'intérêt réels négatifs et le piège Keynesien de la liquidité.*

*La troisième partie analyse les effets des taux d'intérêt dans une perspective de longue période. Avant tout, on a démontré que le passage des taux d'intérêt négatifs à des taux d'intérêt positifs entame une accumulation rapide d'actif financier en termes réels (intensification financière), favorise l'efficacité des investissements et de l'allocation des ressources et peut-être aussi l'augmentation du volume aggregé de l'épargne et des investissements nationaux, et donc la croissance économique. Des taux réels positifs sont aussi anti-inflationnistes et engendrent une meilleure distribution du revenu. Deuxièmement, quand l'économie permet des mouvements de capital financier significatifs, les taux à l'intérieur du pays devraient être plus élevés que les taux internationaux ajustés par rapport à la dépréciation de la devise du pays de façon à permettre un afflux de capital à long terme normal dans les PVD. Troisièmement, quand il y a des déficits importants dans le secteur public qui demandent un financement substantiel de ce secteur, il est particulièrement essentiel de maintenir des taux positifs sur les obligations du Gouvernement aussi bien que sur le passif du secteur financier de façon à financer le secteur public tout en minimisant le risque d'exclure une large partie du secteur privé. D'autre part, ces conclusions devraient être acceptées car elles prévoient la substitution de l'investissement financé du dehors avec l'autofinancement et le développement de canaux financiers alternatifs, c'est-à-dire les marchés de crédit non organisés et non institutionnels et l'intermédiation financière internationale. Ces alternatives pourraient contrebalancer, dans une certaine mesure, les effets des taux d'intérêt négatifs prédominant dans un système financier institutionnel national.*

*La quatrième partie traite de quelques considérations de courte période qui devraient être prises en considération quand on envisage des politiques de taux d'intérêt. Avant tout, même si, en principe, la seule façon d'éliminer les taux réels négatifs est d'éliminer l'inflation, la décision de réduire le taux d'augmentation de l'offre de monnaie ou bien d'augmenter le taux d'intérêt doit être prise en tenant compte de considérations pratiques relatives à l'économie dont il est question. Deuxièmement, les taux d'intérêt devraient être ajustés aux prévisions en termes d'inflation, plutôt qu'en termes d'inflation courante, puisque c'est justement sur la base de ces prévisions qu'on prend les décisions concernant l'épargne financière et l'endettement public. D'autre part, les*

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taux devraient également être ajustés de façon à contrebalancer les prévisions concernant les taux de change plutôt que le taux de change courants, puisque ce sont ces prévisions qui déterminent les flux de capitaux (avec, naturellement la différentielle entre le taux d'intérêt national et étranger). Troisièmement, on ne doit pas oublier qu'au cours de la transition de taux d'intérêt réels négatifs à des taux réels positifs, il peut y avoir des problèmes d'ordre institutionnel si on ne prend pas des mesures pour coordonner la réforme des taux d'intérêt avec un changement dans la politique fiscale, la politique du taux de change etc. et si on n'élimine pas les contraintes qui limitent la capacité des banques d'augmenter les taux, telles que les ratios des réserves obligatoires, les règlements sur le portefeuille et les prêts à long terme à taux d'intérêt fixe. Cette partie analyse également les avantages et les désavantages des trois politiques alternatives envisagées pour amener le système financier vers l'équilibre. En l'absence de forces de marché, on devrait suivre des actions discrétionnaires, suivant les principes qu'on vient de citer. L'indexation des taux d'intérêt à la hausse des prix à l'intérieur du pays n'a jamais fait grande bonne épreuve et de plus néglige d'autres indicateurs importants, tels que le niveau des taux d'intérêt internationaux, et les variations prévues du taux de change, aussi bien que toutes les considérations concernant la liquidité et la solidité du système financier. La fluctuation libre des taux pourrait arriver à établir le niveau et la structure des taux d'intérêt les plus appropriés dans un certain nombre de PVD de grandes dimensions et relativement avancés, mais ne peut pas être considérée comme une panacée et résoudre automatiquement ce problème, surtout dans les pays en voie de développement petits et caractérisés par un secteur financier concentré et oligopoliste dominé par des sociétés d'holding bancaire.

