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A Test of the Controversial Assumptions in the McKinnon-Shaw Hypothesis versus Neo-Structuralist Propositions

An Empirical Test From a Field Survey in the Congo

Jean-Claude MASWANA*

Abstract

This paper attempts to shed light on the efficiency/effectiveness issues of informal financial markets and the pattern of portfolio allocation shift in response to change in interest rate, in the process of financial liberalization. The two issues have been both controversial and hotly debated between proponents of the McKinnon-Shaw liberalization and Neo-structuralist economists. To examine whether interest rate changes are associated with the former or the latter view in the Congo we resort to a survey of household portfolio behavior in informal finance. Survey results suggest that informal finance is relatively effective in intermediating funds and providing financial services and access. In addition, the portfolio pattern indicates that households shift resource more from informal loan to deposits than from cash. These results provide some support for the Neo-structuralists'argument; rejecting thus the McKinnon-Shaw argument that higher bank interest rates would generally increase investment.

I. Introduction

Policies of interest-rate liberalization that emerged in the early 1970s predict that raising the bank interest rates would increase financial savings-in particular, holdings of bank deposits. Banks could then increase the supply of credit available to finance investment, both in short-term working capital and longer-term fixed capital, thus increasing output and growth and lowering inflation.

Considering the unexpected effects of early liberalization measures, "neo-structuralist" economists have argued that the reason why higher bank interest rates lead to larger bank deposits is simply that funds are transferred out of alternative-asset holdings (Taylor, 1983), such as informal credit markets (Van Wijnbergen, 1982). These alternative financing sources, such as informal credit markets, might be a more efficient means of financing investments, since these are unregulated and do not need to keep holdings in reserve (as banks do). Thus, according to the neo-structuralists, raising the interest rates on bank deposits would decrease, rather than increase, the rate of investment in the economy, because the portion of bank deposits that must be kept in reserve does not find its way into investment in the economy.

Based on a Tobin-type portfolio-allocation model, the comparative static analysis often used by theorists[ii] leads to the central question of whether, in response to an increase in the interest rate, the

＊Jean-Claude Maswana is a Lecturer at the Nihon Fukushi University. He holds a Ph.D. in International Development from Nagoya University.

resulting increase in deposits occurs at the expense of cash or informal loans. The result that comes out of the comparative static analysis is that the former is associated with high output and an increase in the supply of loans, which is in line with the McKinnon-Shaw hypothesis, while the latter is associated with output contraction and a reduction in the supply of loans.

Given these varied analytical arguments and the fact that policies regarding interest rates have economy-wide impact, it is important to evaluate them empirically. Thus, in this paper, we seek to evaluate these hypotheses in relation to the Congolese economy while providing empirical evidence of the two hypotheses that constitute the major point of dissension between the *liberalizationists* and the *neo-structuralists*. This study constitutes the first investigation of the two issues that incorporates a field survey.

Considering the economic setback and financial disintermediation experienced by the Congo in the aftermath of the first wave of financial liberalization, we hypothesize that informal financial intermediation performs efficiently and that interest-rate changes are associated with an increase in funds being transferred out of the informal loan market.

We begin with an overview of the literature relevant to the present analysis. Next, we describe the survey design and methodology and discuss the main characteristics of the informal financial sector in Kinshasa. After addressing the issues of effectiveness and efficiency of informal markets, we provide data on the portfolio-allocation pattern in the Congo, followed by our conclusions.

II. Literature Overview

For years, an influential view of informal finance was of a predatory, monopolizing group of usurers charging exorbitant interest rates and exploiting powerless peasants and laborers. Recently, there has been a shift in mainstream views on informal finance, to a focus on questions of risk, uncertainty, and information costs as factors explaining the high informal-sector interest rates (Bell, 1988). Some new institutional economists see the informal sector as an efficient response to problems of small-scale lending in high-risk environments with little or no physical or social collateral (Adams, 1988). Other analysts refer to a “paradigm shift” in relation to micro-finance, whereby the delivery of credit services to poor and informal-sector clients is being increasingly understood as an extension of formal financial systems, rather than credit programs delivered within a “welfare” context.

The theory of financial repression (McKinnon, 1973) sees the development of informal-sector finance as linked to distortions in financial markets caused by government controls, leading to the creation of parallel markets, in order to serve those who are “crowded out” of regulated markets by rationing.

Financial liberalization as proposed by McKinnon (1973) and Shaw (1973) implies that higher bank interest rates attract additional assets to the banking sector from the non-financial sector (which is assumed to be ineffective and inefficient). According to this point of view, the domestic financial system is then able to extend more loans, hence the equilibrium rate of investment will rise, resulting

in a positive impact on economic growth.

The neo-structuralist critique provides a different view of the effects of liberalization than that proposed by McKinnon and Shaw. This critique, which counts scholars such as Van Wijnbergen, Taylor, and Buffie among its proponents, considers the effects of incorporating informal loan markets into the original McKinnon-Shaw models, and finds that freeing of interest rates, far from resulting in output growth, may have the opposite effect.

Since all assets held in informal loan markets are loaned out, whereas only a portion of assets in the banking system are (because of reserve requirements), an increase in bank interest rates may have a contractionary effect on economic activity. A decrease in informal-market funds raises the informal loan rate and/or the cost of financing working capital, thereby causing inflation. The combination of inflation and contraction could cause stagflation.

A key feature of the neo-structuralist critique is the emphasis on informal credit markets as an important source of residual financing. They argue that if this important institutional characteristic of less-developed countries (LDCs) is taken into account, the effects of increasing the bank interest rates, particularly the short-run "portfolio-shift" effects, depend critically on the degree of substitutability-in household portfolios-of bank deposits for loans to the informal markets and/or for what are labeled "unproductive" assets (usually envisaged as cash, gold, or commodity stocks). If portfolio substitution leads to an increase in the rate of interest on informal loans, output will fall and, even if allowance is made for the positive effects of higher bank interest rates on savings (Maswana, 2003), medium-term growth and the total supply of loans may be reduced.

Several studies have confirmed the dynamism of informal financial schemes in Africa. For instance, Aryeetey (1995) notes that informal finance in Africa is demand driven. The variation in informal financial arrangements is derived from the fact that they are purpose oriented. Specific financial services develop to meet the demands of communities and groups with specific socioeconomic goals. Thus, there will be different types of informal lenders as long as there are different goals for different socioeconomic groups. The complexity of informal social institutions-and of the economic agents involved in informal finance-suggests that any attempt at evaluating the response to a given policy may be fraught with uncertainty.

Gupta and Lensink (1996) note that the banking sector in some developing countries, especially in sub-Saharan Africa, is relatively unimportant for the financing of investment projects. In many developing countries, a flourishing informal financial sector exists that is sometimes more important in terms of meeting the need for financing. Meier (1995) explains that, in developing countries, unorganized money markets also play an important role, and that any adequate study of credit conditions in these countries must be extended to cover the unorganized as well as the organized markets.

The role and potential contribution of informal finance in economic activity can be found in certain

successful development stories such as that of Taiwan. Berthelemy and Varoudakis (1996) note that informal financial systems have been able to provide small investors with financing instruments to which they could not gain access through the formal system, on account of credit rationing.

According to the McKinnon-Shaw model, informal activities would be reduced with the liberalization of the financial sector. However, most sub-Saharan African countries have experienced the opposite effect. Chandravarkar (1987) explains that there is an "autonomous" informal sector, which developed indigenously prior to the formal sector, and a "reactive" side that emerged in reaction to regulations and other constraints. While the latter is likely to shrink after liberalization, the former might even increase, depending on a core of complex factors.

Montiel et al. (1993) argue that informal finance is not subject to the interest-rate ceilings that are often imposed on the formal sector. As such, interest rates on loans from financial institutions in the informal sector tend to be market determined. In addition, because the government has no means by which to impose reserve or liquidity requirements on these institutions, they are able to escape this form of disguised taxation and may therefore operate at a competitive advantage relative to institutions in the formal sector.

In summary, financial markets are characterized by imperfect and costly information, risks, and market segmentation, which-taken together-result in credit rationing. This is one of the underlying factors in the coexistence of the formal and informal credit markets that serve the needs of the different segments of the economy. Policy-based and structural-institutional explanations attempt to attribute the coexistence of the two markets to policy and structural-institutional rigidities.

III. General Approach to the Survey

The design of the questionnaire, as well as the sampling method and the approach taken in the analysis, are described below.

3.1. Sampling design

The survey that is reported on herein was carried out in Kinshasa, the capital of the Democratic Republic of the Congo[iii], from March 5 to March 22, 2002. This survey was unique in that it included questions that were designed to explore householders' use of informal networks of family, friends, and community organizations, as well as their use of formal financial sources such as banks, savings and loans, and credit unions. The objective of the survey was to investigate the portfolio allocation pattern of households and the effectiveness/efficiency of informal finance. The ultimate aim of studying the former was to determine whether informal assets are unproductive in the sense implicitly assumed by McKinnon (1973) and Shaw (1973), while the point of exploring the latter was to determine the effectiveness of informal markets and their efficiency in respect to certain socioeconomic criteria.

The main reason for selecting only urban (rather than suburban or rural) households is that other

surveys on informal finance have shown that the phenomenon under study (use of informal financial markets) is widespread in urban areas (Montiel et al., 1993). In particular, in analyzing the survey results one has to consider whether the conclusions have broad applicability to all households in the Congo, or are specific to the sample of members of households that were polled. More than ninety percent of banks in the Congo are found in Kinshasa, while only about 1% are found in rural areas. The absence of formal banks in rural areas renders a comparative test of formal and informal finance inappropriate. However, we have no reason to believe that if formal banks existed in larger numbers in rural areas of the Congo, households there would exhibit different behavior than those polled in Kinshasa.

The sampling method consisted of three stages:

- Selection of residential wards (based on the 1998 population census)
- Random selection of streets within each ward
- Random selection of households through random-number generation

Data were collected from households (some of which operate small businesses) and managers of informal financial institutions. Respondents were randomly selected from a population living in sixteen wards (out of a total of twenty-four) in the city of Kinshasa, without regard to the occupation of the head of the household. Multi-stage sampling was used and consisted of first sampling a set of geographic areas, then sampling a subset of areas within each of those areas. Each survey worker was assigned the area from which he or she was to draw a random sample of individuals or households. A sample size of 500 respondents was initially targeted, of whom 334 were successfully interviewed, so the final response rate was 66 percent (see Table 1). Of those 334 respondents, 24 also completed the second part of the questionnaire, which applied exclusively to households with an informal financial manager.

Table 1. Household distribution and response rate

Wards	Households	Sample	Responses	Rate
1. Bandalungwa	8,689	32	24	75%
2. Barumbu	9,012	32	21	66%
3. Gombe	4,160	26	16	62%
4. Kalamu	7,812	32	19	59%
5. Kasa-vubu	7,121	32	22	69%
6. Kinshasa	8,102	32	20	63%
7. Kintambo	8,338	32	23	72%
8. Lemba	7,294	32	25	78%
9. Limete	9,147	32	24	75%
10. Lingwala	6,279	32	18	56%
11. Makala	9,042	32	21	66%
12. Masina	9,929	32	23	72%
13. Matete	9,156	32	21	66%
14. N'djili	9,161	32	19	59%
15. Ngaba	9,671	32	20	63%
16. Ngaliema	5,866	26	18	69%
TOTAL	128,779	500	334	66%

Note: The figures for the numbers of households in the various wards are taken from the latest population census conducted in 1998 by the Urban Division of the Department of Interior Affairs of Kinshasa.

Using the standard formula for the confidence interval (see Healey, 2002), the sample size of 334 shows a 5.3% confidence interval at the 95% level. What this means is that if the same survey were conducted 100 times, 95 of the 100 surveys should yield results that lie within ±5.3% of the current numbers.

Given the distribution of respondents in terms of employment (table 1), the sample is quite good insofar as the proportion of informal workers and temporary workers (29%) is nearly equal to the estimate of urban unemployment (31%) given in the 1996 annual report of the Central Bank of Congo (CBC). Therefore, it appears that the survey sample is likely to represent the population fairly closely.

3.2. Questionnaire design

The questions asked in the questionnaires were closed ended, requiring simple yes/no answers, multiple-choice responses, or a selection of all applicable items from a list. They consisted of finance-specific (types of financial institutions households deal with, savings vehicles; prospects and sources of credit, level of confidence in formal and informal institutions, pattern of responses to interest rate and exchange rate; levels of interest rate and reserve, evolution of income in the last decade, etc.) and general information questions (occupation,, family, business, membership and incentives for dealing with informal institutions, level of education; attitudes). For practical reasons, the questionnaire was divided into two parts; the first part concentrated on households, while the second part targeted informal group managers (moneylenders, *papa-cartes*) and exchange traders. The nature and role of what we are referring to as moneylenders and *papa-cartes* are described later. In order to determine the effectiveness of the survey questionnaire, it was necessary to pretest it before actually implementing it. Based on a sample of 35 households, the pretest helped to determine the strengths and weaknesses of the survey insofar as question format, wording, and order were concerned, and adjustments were made accordingly.

3.3. Enumeration

Administration of the questionnaire used the dropoff-pickup method. The questionnaire was delivered to the chosen households by a survey assistant, who provided a copy of the questionnaire in the preferred language (either French or Lingala), explained the aims of the survey, and showed the recipients how to fill out the questionnaire. The questionnaire was then left with the recipient. The completed questionnaires were picked up by the survey assistants at a later date.

The data and information collected have been grouped into pertinent categories and tested for significance using various statistical methods, including cross-tabulations, analyses of variance, tests of significance, and tests of independence. The data analysis was performed with the use of special-purpose software, Survey Crafter Pro 3.0, which is designed for the analysis of social survey data.

IV. Informal Finance in Kinshasa

This section introduces a brief typology of informal financial schemes operating in the Congo, presents basic aspects of their membership and services, and describes the incentives for dealing with such institutions.

4.1. Typology

In the context of this paper, informal finance refers to all transactions (loans and deposits in domestic and foreign currencies, as well as exchange activities) occurring outside the regulation of the monetary authority. Elsewhere, informal finance has been defined as including operations such as savings and credit associations, rotating savings and credit associations (ROSCAs), professional moneylenders, and part-time moneylenders such as traders, grain millers, small farmers, employers, relatives, and friends, as well as cooperative societies (see Aryeetey et al., 1997; Aryeetey and Udry, 1997).

Aryeetey and Udry (1997) observe that the main reason why units of informal finance vary so greatly is that they are purpose oriented and develop to meet the demand for specific financial services. Various financial arrangements with different purposes and modes of operation are currently found in the Congo, so that establishing a typology of informal financial schemes is rather challenging. Another difficulty arises from the fact that some institutions change in response to their environment and the opportunities available to them. For instance, a rotating savings association may engage in foreign exchange in order to take advantage of a lucrative opportunity. Despite the complexity of informal arrangements, informal finance can be grouped into seven main categories:

1. Rotating savings and credit association (ROSCA), known as a *likelemba* in the Congo: a regular pool of savings, with loans provided on a reciprocity basis. Actually, there are two basic types of ROSCA groups, those with rotating funds and those with non-rotating funds, the latter of which are called accumulating savings and credit associations (ASCRAs) by Bouman (1995). In the Congo, the latter type of fund is quite rare.

2. Relatives, friends, and neighbors: a casual association in which members lend to each other at negotiated rates that depend upon social relationships and reputation. Interest rates on these loans are recorded as either low (especially those to neighbors) or free (mainly in the case of loans to relatives and close friends). A loan of this type may be extended for the purpose of repair or construction of housing; payment of emergency expenses, such as the costs of medical care and time off from work as a result of illness; covering the costs of a funeral or wedding; or, rarely, purchase of materials to be used as input for production.

3. Moneylender: a person who provides loanable funds on a commercial basis. This form of finance is known locally as the *Banque Lambert* system. Terms and conditions of loans from moneylenders

are very diverse, flexible, and timely. In general, no collateral is needed. Procedures are simple and convenient; hence, transaction costs are assumed to be zero or very low.

4. Money-keeper: usually a trusted person who holds cash for others (mainly as a kind of financial safety valve) and has to return it interest free upon demand.

5. Emergency group: a group that uses its funds to meet unusual expenses borne by its members, such as hospital fees, bail, and house rebuilding after storms; in other words, these groups function as insurance groups. More recently, most of them have diversified their operations by expanding their range of functions. The most important variant of emergency schemes in the Congo is a sort of sorority group, known as a *moziki*.

6. *Papa-carte* system (or *maman-carte*, in reference to females): a recently introduced saving system that consists of placing daily deposits from earned income with a respected "father" or "mother" of the district or the market, someone who is well known for his or her honesty and possessions. The same amount is deposited with a *papa-carte* every day of the month. Each month, the *papa-carte* may take one day's deposit as his commission from the total amount of (say) a rickshaw puller's monthly savings.

7. Foreign-exchange group: an association of unlicensed exchange traders and brokers. Operators in such markets purchase and sell foreign currencies and lend and borrow for themselves or for businesses. They act also as brokers, matching importers and exporters and facilitating deals.

It is quite common for one household or individual to be involved in more than one informal scheme, depending on the main uses to which the funds are to be put. People can be involved in both formal and informal activities at different stages in their life cycles, at different times of the year, or even at different times of the day, as stressed by Bromley (1978).

4.2. Membership and services

Table 2 shows the distribution of the main occupation of the heads of household in the surveyed sample. It shows clearly that, in terms of employment in Kinshasa, the informal sector is just as important as the formal private sector. Nearly half of the respondents were public servants, and another one-fourth were involved in the registered private sector. An insignificant number either had temporary jobs or were involved in family businesses.

Table 2: Distribution of main occupation of respondents

Employment Sector	Percent
Public sector	43
Registered private sector	24
Registered family business	4
Informal sector	23
Temporary jobs	6

Source: Computed from survey data

Respondents were asked whether they were participants in at least one informal financial arrangement. Table 3 summarizes the responses, which indicate that 55% of respondents belonged to at least one unofficial credit association.

Table 3 Membership in informal financial schemes[a]

Membership	Count[b]	Percent
Yes	165	55
No	133	45
Total	298	100

[a] Includes ROSCAs, cooperatives, and other unofficial arrangements.
[b] Informal financial-group managers and " don 't-say " responses are excluded (36 units).
Source: Computed from survey data

Is membership in ROSCA related to the evolution of income? We resort to the regression of these two variables in order to explore possible relationships between them. According to the results of these tests, notably the coefficient of correlation (Pearson's *R*) and the coefficient of determination (*R*-square), which are found in table 4, no such relationship is indicated.

Table 4. Membership in ROSCA and income

R	R-square	Adjusted R-square	Std. Error of the estimate	Durbin-Watson
.001[a]	.000	-.003	.766	1.591

[a] Predictors: income situation compared to previous decade
Dependent variable: membership to ROSCA

The level of education, in contrast, does relate to involvement in informal schemes. The summary data in table 5 indicate a moderate relationship, as given by the coefficient of correlation (R = 0.642) and the coefficient of determination (R-square = 0.412). The existing literature shows that less-educated people earn less and lack collateral, so they have to rely more on informal investment and saving schemes.

The value of the membership-in-ROSCA variable was set to either 0 or 1, depending on whether at least one household member belonged to a ROSCA (1) or not (0). There were five income ranges, where income was defined as the net revenue from all sources. The level of education of the head of household was set to 0 for uneducated, 1 for primary-school level, 2 for secondary-school level, and 3 for university level.

Table 5. Membership in ROSCA and level of education

R	R-square	Adjusted R-square	Std. Error of the estimate	Durbin-Watson
.642[a]	.412	.410	.591	1.935

[a] Predictors: level of education
Dependent variable: membership in ROSCA

In the Congo, depositors have completely lost confidence in banks because they are convinced that their claims are not wholly secure. It would seem fair to guess that in such a context very few households have bank accounts. What has emerged from the survey is that only 7.3% of respondents do have a bank account. The literature on informal finance tends to associate the practice of having a bank account with engaging in certain occupations, but such a hypothesis is ruled out in the present study. The ANOVA (analysis of variance) results given in table 6 show that the F-statistic obtained here (1.474) does not fall into the critical region (according to *F*-distribution tables, the *F*-statistic obtained in this study is less than the critical value of 2.37 at the 5% significance level), so that any mean difference in the holding of banking accounts (by households) from one professional category to another is likely to be purely coincidental.

Table 6. ANOVA: Bank-account holding and occupation

	Sum of squares	Df	Mean square	F	Sig.
Between Groups	.896	4	.224	1.474	.210
Within Groups	48.311	318	.152		
Total	49.207	322			

Note: Dependent variable: bank account holding。the value of " Sig. " (in the last column) is the exact probability of getting these results if the null hypothesis is true.

The above result is not surprising in the context of widespread inflation, which damages confidence in the banking system across all professional categories. Informal finance-offering, as it does, a wide range of incentives-thus appears to be a credible alternative for most households.

4.3. Incentives for dealing with informal institutions

Since formal banks do not provide consumer credit, all the credit needs of consumers are satisfied by the existing informal schemes. Moreover, formal banks are reluctant even to assist small businesses. Households and small businesses borrow primarily from relatives, friends, and neighbors; otherwise, they have to rely on moneylenders and exchange traders for emergency funds. Since the formal market is characterized by low nominal interest rates and high transaction costs, those who require small loans, even for production, borrow from the informal markets. Many businessmen who require loans in a hurry (within one or two weeks to a month) also borrow from informal sources.

The choice between formal and informal financial services derives from comparing the costs and benefits of loans from the two sources. When asked about incentives for dealing with informal institutions, 26% of respondents mentioned the encouragement to save that came from other participants, while 21% preferred the social services provided by the group (table 7). Another 14% were interested in having clearly defined rules and organization. Obtaining a higher rate of return on assets took last place (out of seven possible answers). This result points up the dominance of non-economic factors over financial ones.

In the informal financial markets, loans are often tied to deposits, thus enabling individuals to

Table 7. Incentives for dealing with informal institutions

Incentive	Count	Percent
Social services associated with the group	54	21
Security of savings	29	11
Higher return on assets	18	7
Flexibility in conditions of entry	30	12
Clear rules and organization	35	14
Encouragement to save from other members	65	26
Encouragement to save from family and friends	22	9
Total	253	100

Note: Households with informal financial operators and " don 't-say " responses are not counted.
Source: Computed from survey data

increase their access to credit by improving their deposit performance. This allows participants to enhance their creditworthiness through their saving and repayment record. This constitutes a strong motivational factor, which accounts-at least to some degree-for the performance and effectiveness of informal financial institutions.

V. Informal Finance: Effectiveness and Efficiency

Issues of informal interest rates, reserve requirements, and the effectiveness of informal finance are investigated in this section. The issue of efficiency of informal finance depends on the point of view from which it is approached.

5.1. Informal lending rate and reserve efficiency

If informal finance is truly effective, it should count as a major source of credit. In terms of efficiency, informal financial intermediaries operate without reserve requirements and have lower free reserves. Checking the level of their free reserves and comparing it to the reserve ratio required of formal banks can serve as an indicator of market efficiency.

On being asked about interest rates currently being charged on loans, 72% of informal lenders reported rates between 0 and 5% (loaned out in amounts that were denominated in U.S. dollars), 20% reported charging between 6 and 15%, and 7% charged between 16 and 30%. Note that loans provided by the informal sector are typically denominated in U.S. dollars. Given the high rate of depreciation of domestic currency, the lending rate on foreign-currency-denominated deposits is much higher than the interest rate on domestic-denominated loans (in formal banks). As noted by Alami (2001), this differential in favor of foreign-currency deposits prompts portfolio shifts out of domestic money and into foreign currency.

By breaking down the components of informal interest rates, Ghate (1992) and Morduch (1999) have shown that there is little evidence of monopolistic or exploitative profiteering. Interest rates in the informal sector include costs of providing certain necessary social services that are basically inseparable from financial services in the social and economic lives of people. While the division of labor among institutions has led to specialization in industrialized countries, such a division, necessary

and important though it may be, is still absent in low-income communities in the Congo.

One justification for the low level of interest rates in formal systems is the fact that part of the cost associated with the granting of loans has to be separately supported. For instance, a formal bank does not need to factor a high level of risk into its loan rate, insofar as the borrower has insurance coverage that has been contracted for elsewhere. Besides providing collateral, the same borrower may be part of a group or industrial network, which ultimately constitutes a valuable guarantee for banks. This makes failure to repay unlikely. Should such an event occur, the bank might expect the company to receive financial support from either the group or the state.

By all accounts, the informal interest rate is higher in nominal terms than the formal rate. The comparison becomes less straightforward, however, when considering other factors such as insurance, social services, and reciprocity.

The issue of reserves is very important in the present analysis insofar as reserves (imposed or free) play a key role in terms of availability of funds. Although there is no reserve ratio imposed on deposits made to informal institutions, informal lenders nevertheless have to maintain a certain level of free reserves-a level that depends on their specific purpose or mode of operation. As illustrated in table 8, 42% of informal managers reported holding between 1 and 5% of deposits as free reserves.

Table 8. Free-reserve ratio in informal institutions

Reserve ratio (%)	% of institutions
0	4
1-5	42
6-10	16
11-20	19
21-30	19

Source: Computed from survey data

Responses regarding free reserves suggest that most of the respondents belong to schemes whose members pool savings that are re-loaned on a rotating basis to the designated participants within a short period of time.

Table 9. Evolution of the reserve requirement in the banking sector (%)

1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1997	1999	2000	2002
25	19	40	35	47	50	50	55	55	55	42	37	43	20

Source: Central Bank of Congo (1991, 1994) and Maswana (2003)

High reserve requirements restrict formal banks from lending out all the funds placed on deposit with them, as shown in table 9. Be it for fiscal or anti-inflationary motives, the imposition of such a high ratio of reserves to deposits has undermined the capacity of formal banks to provide loans, especially in comparison to the ability of informal institutions to do so. Therefore, informal institutions have an advantage over formal banks in terms of financial intermediation (as defined in neo-

structuralist fashion).

5.2. Effectiveness of informal finance

In terms of effectiveness of informal schemes in providing financial services (such as small loans and minor credit), the survey shows that among the 21% of respondents who reported having received credit in the last two years, the largest group (42%) acquired their operating capital from family and friends (table 10), while another 37% relied on (informal) moneylenders (as described earlier). Commercial lenders seem to have been the least attractive source of funds for borrowers in this sample, who preferred to borrow from close friends and relatives as a means of pooling risks.

Table 10. Source of credit

Source	Count	Percent
Bank	3	5
Exchange traders	1	2
NGO	1	2
Family/friends	24	42
Suppliers/*papa-cartes*	21	37
ROSCA	7	12
Total	57	100

Source: Computed from survey data

Without third-party enforcement, Congolese firms cannot usually mobilize much capital beyond that which can be obtained through entrepreneurial savings or family connections. This fact alone suggests that informal markets influence economic growth more than would be the case in industrial countries. If such a proposition is true, the portfolio behavior of households may be largely dictated by informal financial considerations.

As noted by Thomas and Worrall (2002), if the costs of giving, whether in the form of gifts or quasi-credit, are covered by the perceived benefits of future reciprocity, then these forms of informal credit are likely to be more effective than other informal or more formal systems. The weak institutional insurance and social security available in the Congo make informal substitutes much more of a necessity in the life of the average Congolese citizen. Moreover, reliance on kinship, religious brotherhood, and neighborhood schemes weaken allegiance to more formal institutions.

There are informal pressures that constitute incentives to repay informal loans. As Udry (1990) points out in a study of risk pooling in northern Nigeria, in credit markets confined to relatively small groups of households people know a lot about one another's circumstances, so they are able to lend and borrow with greater certainty of being repaid and acquiring loans, respectively, than would be the case in most other circumstances. It is precisely this feature that makes this kind of informal credit market relatively successful.

The information costs of screening and monitoring borrowers are generally very high for formal institutions. If one studies the banking system in the Congo (particularly the system that prevailed in

the 1990s), one will find that the provision of banking services in a local context is squarely inoperative-and that claims of the advantages of the banking sector over informal markets are simply unfounded.

Informal financiers provide a level of credit that is closer to the one desired by the borrowers. In addition, the relative dominance of informal markets over formal ones derives from the informal financiers' ability (and the formal bank's relative inability) to threaten the borrower's future access to credit. Such a conclusion clearly follows from the assumption that the former can observe the borrower's use of borrowed funds, while the latter cannot.

Formal banks in the Congo are located in urban areas. Gathering information on SMEs (small- and medium-size enterprises) is costly, given the poor state of communication systems, the under-developed means of transportation, the lack of trained personnel, and the thin branching networks. By contrast, informal financiers who are physically present in the downtown markets and who have developed long-term relationships with local borrowers incur lower information costs than formal banks.

The system of informal finance in the Congo adequately serves the needs of its users. It does not operate under the iron hand of externally imposed reserve requirements; as a result, deposits are almost fully convertible into loanable funds. The higher interest rates on loans can be justified by the inclusion of non-economic factors, such as insurance, and other considerations, such as expectations surrounding the behavior of the foreign-exchange rate, in the cost structure.

VI. Household Portfolio Allocation Patterns

6.1. Currency and asset substitution

In the Congo, household portfolio behavior has largely been influenced by fluctuations in the informal exchange rate. As a result of inflationary waves that have been occurring since the early 1980s, foreign-exchange bureaus and street moneychangers are particularly active in the Congo, handling transactions involving anywhere from a few dollars to several thousand dollars.

The evolution of the official exchange rate is closely related to fluctuations in the informal rate. Because of price indexation and widespread holding of foreign currencies as assets, economic agents are forced to increase the frequency of their exchange transactions. Survey results indicate that 55% of respondents exchange money once a week, while 25% do so twice weekly, and nearly 10% operate on a daily basis. This shows that in the Congo, economic activity has become totally dominated by the street exchange markets.

The importance of foreign-exchange activity in the Congo can be assessed from the data in table 11, which show that among various sources of foreign exchange, street traders remain the most popular (64%), followed by exchange bureaus (which were originally informal but became semi-formal after previous attempts at exchange-market unification).

Table 11. Main source of foreign exchange

Source	Count	Percent
Formal banks	5	2
Foreign-exchange bureaus	33	12
Street traders	185	64
Own sales	23	8
Remittances	3	1
Unrevealed sources	38	13
Total	287	100

Source: Computed from survey data

When asked how they make deposits to the ROSCAs, 75% of respondents reported that they deposit in hard currency (mainly U.S. dollars and Euros), and 25% claimed to make their contributions in the domestic equivalent of hard currency (the leader of the association being responsible for conversion). As to whether the use of foreign exchange is associated with particular professional categories, results from ANOVA suggest that there is no difference between professional groups, so that the source of foreign exchange is not associated with income level (*F*-Critical = 2.09, *F*-obtained = 1.87). This outcome corroborates the conclusion by Mbaya and Streiffeler (1999) that asset and currency substitution (known as dollarization) are common practices across socioeconomic groups in the Congo.

Table 12. Form of deposits in informal institutions

Form of deposits	Count	Percent
Hard currency	62	75
Domestic equivalent of hard currency	21	25
Bank transfer	0	0
Gold	0	0

Source: Computed from survey data

The extent of dollarization can be inferred from the fact that almost all institutions, from the Central Bank to ROSCAs, were publicly exchanging their depreciated Congolese currency against the dollar. Banks were open but not involved in financial intermediation (CBC, 1994). With the collapse of the banking system, financial intermediation was taking place in the streets rather than at the banks. Each of the twenty-four wards of Kinshasa had at least five to ten main places for exchanging the dollar and other foreign currencies against the zaire. Several attempts by the government to stop the spread of *cambiste,* such as the monetary reform of 1993, were futile.

6.2. Saving pattern and incentives

Saving depends not only on personal preferences but also on institutional structures and incentives, and it can have a wide range of positive psychological, social, and economic impacts. Concerning the motivations for saving, a large number of respondents (58%) pointed to the building up of reserves to cover unforeseen contingencies as a major incentive (table 13). Providing for what was anticipated in the future and securing sufficient funds for speculation or business came in second and third,

respectively. The importance of precautionary motives in Congolese household behavior is in line with the framework of saving behavior in developing countries as developed by Deaton (1989).

Respondents were asked about the extent to which their decisions in regard to saving were influenced by the official interest rates. Forty-eight percent of respondents were not influenced; while 28% said they were somewhat influenced (table 14). Those who claimed to be strongly influenced comprised just fewer than 10% of all respondents.

Table 13. Motivation for saving

Motivation	Count	Percent
Build up reserves to cover unforeseen contingencies	166	58
Provide for anticipated future	49	17
Enjoy gradually increasing income	21	7
Enjoy a sense of independence and power to do things	5	2
Secure a sufficient amount for speculation or business	40	14
Bequeath a fortune	4	1
Total	285	100

Source: Computed from survey data

For each of the possible answers to the question about the degree of influence of interest rates, there was considerable variation among people in different employment sectors. Of all the respondents who claimed to be strongly influenced by interest rates, for example, those employed in the public sector constituted the largest group percentagewise (with 40% of the total), followed respectively by those in the private sector (30%), those in the informal sector (20%), and those in temporary jobs (10%). People engaged in a registered family business were the least likely group to be strongly influenced by official interest rates, which is not surprising, given the inherently unofficial nature of self-financing.

Table 14. Decisions on saving and official deposit rates

Employment sector	Strongly influenced (%)	Influenced (%)	Somewhat influenced (%)	Not influenced (%)	Total (%)
Public sector	4	6	16	13	39
Registered private sector	3	4	6	16	29
Registered family business	0	1	1	2	4
Informal sector	2	3	3	14	22
Temporary jobs	1	1	1	3	6
Total	10	15	27	48	100.00

Source: Computed from survey data

Beverly et al. (2001) describe the process of asset accumulation as occurring in three "stages." The first stage of asset accumulation is referred to as *reallocation*. This is the stage at which current resource inflows exceed current outflows. To meet the objective of reallocation, people often take some of the resources that would otherwise have gone into consumption and divert them into savings and investment, but they may also increase resource inflows without reducing consumption, for example, by working longer hours or taking a second job.

In the second stage of asset accumulation, called *conversion*, resources are changed from a more liquid to a less liquid form. For example, cash may be converted to resources in a bank account or held in cash by a trusted friend. Asset accumulation is more likely to occur when resources are converted to less-liquid forms. Finally, in the third stage, individuals must resist the pressure to spend, so that saving will lead to asset accumulation. This stage is referred to as *maintenance*. Maintaining assets is not an end in itself, but a means to obtaining certain capital goods. Although the reallocation and conversion stages can be inferred from table 13 and table 12, respectively, the survey results do not suggest any evidence of the maintenance stage.

6.3. Portfolio shift pattern

One of the most important objectives of this study is to assess portfolio allocation following an increase in the official deposit rate. The test consists of determining whether the highest-probability response to a change in the official deposit rate comes from the holding of cash (proxied by savings kept at home) or from the holding of informal assets (proxied by ROSCA membership). The test proceeds in two steps. First, two bivariate tables are generated and a chi-square test is used to assess the dependency relationship between the reaction following a change in deposits and, respectively, savings kept at home (tables 15 and 16) and ROSCA membership (tables 17 and 18). The second step involves an indirect investigation of the portfolio pattern through a cross-tabulation comparison of some elements in tables 13 and 15.

Table 15. Reaction following a change in deposit rate and savings kept at home:cross-tabulation

Reaction following a change in deposit rate	Savings kept at home		Total
	Yes	No	
Change deposits	2	5	7
Change hard-currency composition	20	18	38
Change gold assets	0	0	0
Change selling price	56	78	134
Do not change	11	17	28
Total	89	118	207

Note: The variables that account for the reaction following a change in the official deposit rate represent various strategies commonly used by households in the context of a dollarized economy coupled with price indexation. (For further details, see Mbaya and Streiffeler, 1999.)

The result of the chi-square test associated with table 15 is given in table 16, under the null hypothesis that the reaction following a change in the official deposit rate is independent of the savings kept at home.

Table 16. Chi-square test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.454	8	.001

The value of chi-square given in table 16 strongly rejects the null hypothesis of independence between the variables “reaction following a change in deposit rate” and “savings kept at home”, which

implies that the overall dependency relationship between them is significant (the value of χ^2 that is obtained, 26.454, is above the critical value of 15.507 at the $\alpha = 0.05$ level). The dependency relationship is also confirmed between the variables "reaction following a change in deposit rate" and "membership in ROSCAs" (the value of χ^2 obtained there, 26.454, is above the critical value of 24.996 at the $\alpha = 0.05$ level).

Table 17. Reaction following a change in deposit rate and membership in ROSCA: cross-tabulation

Reaction following a change in deposit rate	Membership In ROSCA		Total
	Yes	No	
Change deposits	3	4	7
Change hard-currency composition	17	22	39
Change gold assets	0	1	1
Change selling price	57	83	140
Do not change	14	16	30
Total	91	126	217

Source: Computed from survey data

The result of the chi-square test associated with table 17 is given in table 18, under the null hypothesis that the reaction following a change in the deposit rate is independent of ROSCA membership.

Table 18. Chi-square test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	25.659	8	.000

Here, the value of chi-square tells us only that the overall relationship between the variables is significant. To assess the potential impact of a change in the official deposit rate more precisely, further analysis is needed.

To determine whether there may be a dependency relationship between "changes in deposits" and "savings kept at home," and whether such a relationship may exist between "changes in deposits" and "ROSCA membership," the number of respondents who indicated that they would make a change in deposits as a result of a change in the official deposit rate can be compared to the number of respondents who indicated that they had savings kept at home and the number who belonged to a ROSCA, respectively. Such a comparison indicates the probability of response due to each of the above factors following a change in the official deposit rate. This analysis shows a probability of response of 2.2% (2 out of 89 in Table 15) on the part of those who have savings kept at home, and 3.3% (3 out of 91 in table 17) on the part of those who participate in a ROSCA. The economic interpretation of the above result is that in the event of a change in the official deposit rate, a greater response is expected to come from informal markets than from cash. Such a conclusion confirms the neo-structuralist prediction stated previously.

VII. Conclusion and Policy Implications

A number of findings from the survey results are presented in this paper. One major conclusion is that a large number of households in the Congo rely on informal financial schemes at the expense of formal banks. The combined effects of the provision of needed services by informal financial markets and the country's hyperinflation during the 1990s have resulted, by and large, in financial transactions being conducted in foreign currency (which has been used as a substitute for local currency and assets).

The survey has also shown that informal markets in the Congo are far from the "savings-exclusive" institutions and inefficient mechanisms described by McKinnon (1973). Rather, they are effective in serving their market niches, and they operate efficiently in terms of savings and loan activities, access, and associated social services. Therefore, such a market should be counted as an important institutional characteristic likely to influence the outcome of financial policy.

Results derived from comparative static analysis of interest rate liberalization in developing economies (notably the one by Van Wijnbergen, 1983) suggest two possible outcomes, both of which depend on the portfolio-shift pattern of households. The first expected outcome is associated with high output and an increase in the supply of loans, in line with the McKinnon-Shaw hypothesis, while the second is associated with output contraction and a reduction in the supply of loans. Which of the two outcomes will prevail depends critically on the degree of substitutability-in household portfolios-of bank deposits for loans to the informal markets and/or for cash.

Testing the above propositions against the findings of the field survey in the city of Kinshasa suggests that portfolio-allocation shifts made by households exhibit much more of an "informal loan-deposits" pattern than one of the "cash-deposits" type. This important conclusion supports the Neo-structuralist hypothesis in that, following a change in the formal deposit rate, the response from the informal market dominates that from the holding of cash.

In addition to the efficiency of informal markets as evidenced in section 5, portfolio-allocation patterns have very important policy implications in that they seem to indicate that interest-rate liberalization is associated with output contraction and reduced financial intermediation. Therefore, the evidence found here calls for a more cautious approach toward financial liberalization. It is quite possible that the dual system of financial markets (formal and informal) will have to be integrated into a single system prior to interest-rate liberalization; otherwise, the policies expounded by the *liberalizationists* may not be a wise path to follow in developing countries.

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Endnotes

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ii For further discussion, see Van Wijnbergen (1982, 1983), Buffie (1984), and, for a model that integrates the effects of dollarization, Maswana (2003).

iii A Central African country and former Belgian colony that gained independence in June 1960 and was known as Zaire from 1971 to 1997.