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The Flow of Funds

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In order to design effective financial sector policies for growth and poverty reduction, it is imperative to intimately understand the key relationships between the financial and real sectors of the economy and the role of the financial sector in the development process. Such fundamental insight into the mechanisms that link the financial and real sectors of developing countries can be derived primarily from the medium of the flow of funds, for "...a main function of the flow of funds accounts is to reveal the sources and uses of funds that are needed for growth and development..." (Klein, 2000).[1]

Flows of funds arise from the transactions which take place in an economy, involving purchases or sales of goods, services, or assets and liabilities. National flow of funds accounts provide a record of these flows for the whole economy; the corresponding accounts covering individual or corporate transactions are more usually called sources-uses statements.

The interpretation and analysis of flow of funds data are important tasks for economic policy advisors, for a main function of the flow of funds accounts is to show the sources and uses of funds which a country needs for its growth, development and poverty reduction. Flow of funds analysis can reveal information about imbalances in the economy and changes in the distribution of funds. Simulations of the effects of different economic policies on intersectoral flows can give a clear picture of the channels through which policies may affect different sectors of the economy and therefore the functional distribution of income in the economy.

Flow of funds analysis is widely used in the industrial economies as a basic information tool, and for detailed policy analysis. However, its use in developing countries is very limited, mainly because of a general lack of detailed, accurate and timely flow of funds data. An exception is India, which has unusually detailed flow of funds data that has been developed over the last 40 years. However, the publication of the Indian data has generally taken place with a lag of some 5 years; hence the data cannot be used for immediate policy analysis. In general, a lack of data implies a lack of existing applications of the flow of funds in developing countries, but there is no shortage of potential applications to improving understanding of diverse economic problems.

Lack of Flow of Funds Data in Developing Economies is Unfortunate

The absence of flow of funds data in developing economies is unfortunate, for it can be argued that flow of funds analysis may be of even more value in the developing world than in the industrial countries. Economic analysis and policy are based on information about the prices and the quantities traded in an economy. The major industrial economies benefit from a vast range of organized and informal markets whose prices provide much of the basic, timely information upon which economic policy is based.

In developing economies, where markets are more fragmented, and securities markets are invariably thin and illiquid, prices provide much less useful policy information. More information on quantities, particularly on the flow of funds, would be very valuable for policy-makers. Thus, the flow of funds could play an important role in developing countries to aid the study of financial sector development and resource mobilisation issues so as to identify effective financial sector policies for promoting poverty-reducing economic growth.

A New Flow of Funds Device: How to Generate "New" Data

As part of a DFID-funded research programme concerned with finance and development, we have recently developed a new framework for the compilation and analysis of the flow of funds in developing countries.

In constructing this framework we had three main objectives. First, we aimed to make the best possible use of existing data sources to construct flow of funds data. The data used in this new template are all derived from information which is reported to and regularly published by the IMF in its main statistical publications. Of course, it can be argued that the use of pre-existing data implies that the constructed flows of funds merely involve a rearrangement of the data and do not provide 'new' information. ▶

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However, the flow of funds format is generally the most useful presentation of data for policy purposes, since it identifies the key flows in the economy, and these are typically used explicitly or implicitly in policy analysis.

Second, since the flow of funds has to be internally consistent, construction of the accounts helps identify inconsistencies in the data and areas for improvement in data collection. Thus our methodology provides a framework within which national statisticians can adapt pre-existing data compiled for the IMF, and upon which they can build and extend their own flow of funds data at substantially lower cost than would be incurred in compiling these data from scratch. These data have the further advantage that they are compiled within internationally-agreed guidelines, and are therefore broadly internationally compatible across countries. In many countries, compilation of basic flow of funds accounts would require relatively small improvements in the timeliness and coverage of national data already reported to the IMF.

Third, we aimed to extend the coverage of existing financial data to include financial instruments not typically held or issued by the banking system. These particularly include instruments arising from recent innovations in financial markets and the development of national stock markets. Thus, the framework aims to make possible a wider range of policy analyses, including issues that are of particular concern to poorer countries which are seeking to broaden their capital markets, such as the sources of capital flight, and the relation between domestic and international equity flows.

Flow of Funds and Good Policy-Making

Accurate and timely information is central to good policy-making. Decisions taken in ignorance of the facts or as a result of guesswork are all too likely to be regretted at a later date. The flow of funds provides a basic framework for understanding how financial resources are being generated and allocated across the economy.[2]

The flow of funds framework provides the basis for the construction of macroeconomic models for policy design and evaluation. These model are flexible enough to capture the main policy variables which play a major role in financial reform programmes in developing countries, for example the official interest rate, government spending, commercial bank loans, income tax and foreign reserves. Using these models, simulations of the effects of different economic policies on intersectoral flows can give a clear picture of the channels through which policies may affect different sectors of the economy and therefore the functional distribution of income in the economy. Typical simulation applications include analysis of the potency of interest rates (e.g. liberalisation), changes in different types of tax rates (e.g. income tax, import tax), and changes in government spending, including insight into money financed and debt financed government spending. Examples are discussed below for India and Kenya.

India Must Sustain the Financial Liberalisation Momentum

For India there were several more specific findings, which may still bear some general lessons for other countries.

First, there were substantial interactions between bank reserve requirements (for cash and liquid assets) on the one hand and interest rate ceilings imposed on the banking system on the other. In the constrained regime, the combination of reserve requirements and lending guidelines implied that Indian banks had control over a relatively small proportion of their total portfolios. In general secondary reserve requirements are imposed to create a captive market for government debt and, in India, for the obligations of development banks. Interest rate controls reduce the cost of financing this debt for the issuers and again act as a tax on banks and their customers. It is widely believed that releasing the controls will increase the flow of loans to the private sector and may create a problem for the financing of government debt, since the captive market is eliminated. However, we found that in India, a cut in secondary reserve requirements combined with interest rate liberalization could lead to increased bank holdings of government debt. This effect could arise because liberalization may reduce interest rates: if firms can more easily raise funds on the stock market, business demand for loans may decrease. If interest rates do fall, risk-free government debt becomes more attractive to banks than are loans. This mitigates the problem of financing government activities in the short-run, but does not produce the expected increase in the flow of bank lending to the private sector.

Second, changes in bank rate were found to have a relatively minor effect on interest rates, again because of a strong substitution effect between cash and liquid assets in the banking system: a fall in bank rate primarily induced a switch from cash into liquid assets rather than from liquid assets into loans as might otherwise be predicted.

Third, we found that increases in real deposit rates did attract household savings into the banking system. This is consistent with the aim of financial liberalization and may well be one of the main channels through which liberalization increases the flow of funds into investment projects.

Insight into African Banks and Interest Rate Liberalisation Policy

Our research on African banking systems focussed initially on the feasibility of compiling comparable panel data. In this larger sample of countries (Botswana, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Namibia, Tanzania, Uganda, Zambia and Zimbabwe) for 1970-2000, we found that there were considerable variations in the availability and timeliness of data. We confirmed that the flow of funds methodology represents a novel way of circumventing data limitations in modelling the behaviour of banks in African economies.

Using the flow of funds framework, we constructed a model for the banking sector in African economies. The model consists of four asset demand equations, namely the reserve demand equation, credit demand equation, foreign debt demand equation, and government securities demand equation. We used monthly data to estimate and test the model on seven African countries during 1970-2000: Kenya, Malawi, Namibia, Tanzania, Uganda, Zambia and Zimbabwe.

We found that the asset demand equations

Box 1: **A Case Study of Flow of Funds Analysis for India**

India has a substantial base of flow of funds data comparable to many industrial countries, but one which has not so far been used for policy analysis. Following independence, the financial sector in India functioned in a heavily regulated framework, involving administered interest rates, credit controls including directed lending, and variable reserve ratios which required commercial banks to place a (variable) proportion of their funds in government debt. Major commercial banks were nationalized in 1969 and credit controls were tightened during the 1970s. The combination of reserve ratios and directed lending implied that Indian commercial banks have had discretionary control over a relatively small proportion of their portfolios: at certain times in the 1970s and 1980s as little as 28% of their total funds could be freely invested.

Flow of funds data were used to estimate a comprehensive econometric financial model for the major sectors in the Indian economy: households, businesses, banks, and other financial institutions. Simulations of the model were carried out: first to evaluate the impact of interest rates and credit controls on portfolio behaviour, and second to study the effects of monetary policy, financial controls and subsequent liberalization on different sectors of the economy and the flow of funds.

Although it is difficult to generalize results from one particular country, India's monetary controls share some features with those of other developing countries, especially in the use of interest rate and credit ceilings and reserve ratios for commercial bank holdings of government debt. This suggests that there may be some lessons to be learnt from the Indian experience, both in the operation of the controls and in the impact of liberalization.

Box 2: **Other Case Studies of Flow of Funds Analysis**

The second case study involved Kenya, a country in which flow of funds data are much less well-established and which is therefore in line with most developing countries as far as information is concerned. For Kenya, more rudimentary flow of funds data were compiled, and a model was estimated to study the relationships between the financial and real sectors of the economy, emphasizing inter alia the role of the unofficial markets for credit in Kenya. This case study emphasizes the application of flow of funds as a policy device. Specifically, we found that the flow of funds was a useful framework for studying the relationships between the financial and real sectors of the economy, including the linkages between the unofficial and official credit markets, during 1966 - 1999. In addition, the flow of funds model was flexible enough to capture the main policy variables which underpin financial reform programmes in Kenya: these are the official interest rate, government spending, commercial bank loans, income tax and foreign reserves.

The third case study involved a broader evaluation of the flow of funds in some Sub-Saharan African countries. We started with entire set of all Sub-Saharan Africa countries, but after assessing the availability and quality of flow of funds data, we ended up with the sample of Kenya, Malawi, Namibia, Tanzania, Uganda, Zambia and Zimbabwe, for 1970 - 2000. In these countries data limitations are more severe still, and we therefore concentrated on the banking system, where data are relatively good. We estimated flow of funds models aimed at understanding how African banks behave in response to interest rate changes, often in the context of high inflation.

Other applications of flow of funds methodology included particularly corporate finance and bank behaviour. For example, we examined the structure of the finances of quoted and unquoted companies in India using as framework the flow of funds. The models of African and South East Asian banking systems have direct relevance for understanding bank behaviour. In addition, we set out a theoretical framework for evaluating the response of policy-makers to the recurrence of bad debts in the banking systems of developing countries, particularly in the context of the capital adequacy rules typically faced by these banking systems.

for the banking sector are well-behaved, and are consistent with theory. Specifically, the demand for reserves, credit, foreign debt and government securities by banks are primarily determined by own rates of return: thus we concluded that interest rates for various bank assets matter, in the sense that the demand is sustained by the existence of commensurate returns.

One important implication for policy makers is that any government intervention in these interest rates may perversely affect the demand for these assets by banks. We also found that, in general, other interest rates (in addition to own returns) are also important.

In this context, a key phenomenon of banks in industrial economies seems to hold true in African emerging markets: that is, market induced returns are important in asset allocation through the banking sector, which in general enhance the asset formation behaviour of households and firms.

Formalise the Informal Financial Sector

For Kenya, there were three very interesting findings, which are particularly relevant for policy makers. First, we uncovered results that shed important light on the coexistence of informal and formal (official) financial markets in Kenya (arguably applicable to other developing countries) and particularly on the mechanisms by which the informal markets may be integrated into the formal markets through changes in financial policy. Specifically, we found that the effect of a rise in the official interest rate, which represents interest rate liberalisation policy, leads to higher incomes in Kenya. Interest rate liberalization increases the supply of bank deposits and reduces the demand for bank loans, thus reducing credit rationing, as funds are channelled from the informal to the formal financial sector. Loanable funds in the formal banking sector increase; increased credit availability may lead to higher investment and higher economic growth.

Second, we found that a rise in government spending unambiguously leads to higher income growth. However, we also noted that if the expansion in government spending is financed by money (through the central bank), inflation is the inevitable result. Hence, in general, this result suggests that it matters how the increase in government spending is financed: "printing" of money by the central bank is inflationary and should be avoided, while policy makers should explore the alternative means of financing government spending.

Third, we found that an increase in external aid and capital inflows leads to higher economic growth, by expanding investment expenditure and hence aggregate demand. Specifically, the increase in foreign aid and capital inflows complement locally available resources for investment expenditure. The results also suggest that on the whole, the exchange rate appreciates: this is consistent with the fact that foreign aid and capital inflows directly improve the foreign exchange reserves of the country and help stabilise the exchange rate in the short run. In general, the findings relating to commercial banks loans and an income tax rate surcharge are rather mixed, although in general, they point to the need for a careful mix of policy instruments in order to achieve desired macroeconomic effects.

Some Lessons from the Flow of Funds

Box 3 presents the key lessons. In general, it should be emphasized that flow of funds is not an hypothesis or a policy prescription but rather a framework for thinking about a range of economic problems, particularly but not exclusively macroeconomic policy problems. The lessons which can be learnt by developing countries from flow of funds analysis are concerned largely with policy issues which are connected to methods for improving general monetary management and economic performance, and by this route to improvements in living standards. However, the lessons which can be learned from individual country case studies are necessarily limited by the institutional characteristics of the country concerned. Policies which work in a particular way in one country may work differently elsewhere.

First and in general, it is clear from our studies that applied financial research can be carried out in countries with relatively limited data, and this research does shed light on a range of issues, especially: the way in which different sectors of the economy choose their portfolios; how liberalization in the financial sector affects financial and economic performance; how interest rates are determined in a liberalized economy, and how they affect different sectors of the economy, particularly through portfolio selection and the rate of credit expansion.

Second and more specifically, our studies show that interest rates have a significant influence on portfolio behaviour and therefore on the operation of financial markets in ways which are mostly (and perhaps surprisingly) conventional, and consistent with what is known about industrial economies. This appears to be true, irrespective of whether the system is liberalized or subject to direct controls. For example, differences between the liberalized and the previously controlled regimes in India stem from the way in which the controlled regime itself functioned rather than from any features of the economy which are peculiar to India. This suggests that liberalizing the interest rate regime and giving markets a greater role in the economy will not necessarily complicate the task of monetary policy management. It will be possible for developing countries to learn from the experience of industrial countries in this respect. Lessons learnt in the developing world may also be relevant in more industrialized economies.

A third general lesson from our research is that certain troublesome features of liberalized financial markets are also likely to be evident in developing countries. One example is that of "distress borrowing". In the industrial countries, a rise in interest rates intended to restrain credit expansion often produces the opposite effect, at least in the short-run, with borrowing from banks

increasing, particularly by businesses. This is a typical result of firms struggling to contain and to finance inventories as spending in the economy slows in response to the higher interest rates. We found evidence of this phenomenon in India and Kenya, particularly at times in the 1990s. If this proves to be a general characteristic of liberalized markets in developing countries, it underlines the need for gradualism in the implementation of policies intended either to raise interest rates or more generally to give a greater role to the market in interest rate determination. Market determined interest rates are generally higher than interest rates which are constrained by central bank ceilings. However, it cannot be assumed that if borrowing increases following liberalization, that this is due to a more efficient allocation of credit and not to a greater incidence of financial distress. Thus, the scope for orthodox policies in a particular country needs to be tempered by the institutional features of its regulations and by the pace of liberalization. ■

[1] Klein, L.R. (2000), "Preface", in: A.E. Fleming and M.M. Guigale (Eds.), Financial Systems in Transition, Singapore: World Scientific, pp. ix-xii.

[2] Two studies are important here:

(a) Green, C.J. and Murinde, V. (1998a), "Flow-of-funds and the macroeconomic policy framework for financial restructuring in transition economies", in: J. Doukas, V. Murinde and C. Wihlborg (Eds.), Financial Sector Reform and Privatisation in Transition Economies, Amsterdam: Elsevier Science B.V. (North Holland), pp. 239-277.

(b) Green, C.J. and Murinde, V. (1998b), "Modelling the macroeconomic policy framework for an emerging market economy", The Manchester School, Vol. 66, No. 3, June, pp. 302-330.

Box 3: **Key Points**

- *Fundamental insight into the linkages between the financial and real sectors of developing countries can be derived primarily from the medium of the flow of funds, for a main function of the flow of funds accounts is to reveal the sources and uses of funds that are needed for growth, development and poverty reduction.*
- *This research has developed a new framework for the compilation and analysis of the flow of funds in developing countries.*
- *Accurate and timely information is central to good policy-making. Decisions taken in ignorance of the facts or as a result of guesswork are all too likely to be regretted at a later date. Thus, small improvements in the collection of flow of funds data may easily lead to more substantial improvements in decision-making.*
- *Financial liberalisation policies provide effective mechanisms by which the informal financial sector can be successfully integrated into the formal financial institutions and markets.*
- *Differences between the liberalized and the previously controlled regimes in India stem from the way in which the controlled regime itself functioned rather than from any features of the economy which are peculiar to India.*
- *Liberalizing the interest rate regime and giving markets a greater role in the economy will not necessarily complicate the task of monetary policy management. It is possible for developing countries to learn from the experience of industrial countries in this respect. Lessons learnt in the developing world may also be relevant in more industrialized economies.*
- *The flow of funds framework extends the coverage of existing financial data to include financial instruments arising from recent innovations in financial markets such as the development of national stock markets. The framework aims to make possible a wider range of policy analyses, including issues that are of particular concern to poorer countries which are seeking to broaden their capital markets, such as the sources of capital flight, and the relation between domestic and international equity flows.*
- *A key phenomenon of banks in industrial economies seems to hold true in African emerging markets: i.e., market determined returns, which influence the asset formation behaviour of households and firms, are important in asset allocation through the banking sector. Further research should apply the flow of funds framework to explore the asset formation behaviour of the poor, which remains enigmatic.*

Further Reading

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