

Institute of Economic Development and Research
SCHOOL OF ECONOMICS
University of the Philippines

Discussion Paper No. 76-10

June, 1976

A STUDY OF FINANCIAL FLOWS
IN THE PHILIPPINES

by

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(REVISED) 1976

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I

INTRODUCTION

What Is A Flow of Funds System of Accounts?

As originally conceived by Copeland and others^{1/} a flow of funds system of accounts presents a comprehensive picture of the circuit flow of payments and receipts, which portrays transactions in financial instruments and existing assets as well as transactions in current output of goods and services. Its main features therefore are that it reflects flows arising from the financial processes taking place in the economy (i.e. the creation and the exchange of money and other credit instruments) as well as flows arising from non-financial processes. The assumption underlying such a presentation is that there are interrelationships among the financial and non-financial transactions and that when these are organized into a body of accounting measurements those interrelationships will become clear.

In subsequent work, however, the Federal Reserve shifted its focus away from the comprehensive picture as originally envisioned towards a presentation of the investment account of the nation on a sources and uses basis.^{2/} In the current

^{1/} M. H. Copeland, A Study of Moneyflows in the United States (New York: National Bureau of Economic Research, 1952.)

^{2/} Compare the presentation in "A Quarterly Presentation of Flow of Funds, Saving and Investment" in the Federal Reserve Bulletin. August, 1959, with the Analysis of Copeland, cited above.

(Revised) 1972

presentation of the flow of funds as published in the Federal Reserve Bulletin, emphasis is on the manner in which capital investment is financed rather than on the presentation of the picture of all types of transactions and how they are financed. This shift can be viewed in two parts: first, a change in focus toward the analysis of how investment is financed; second, a shift towards using the flow of funds accounts as a set of sources and uses statements. These adjustments in Federal Reserve presentation reflect the development of a more articulated demand for sources and uses accounts for the purpose of analyzing financial market conditions in the short run.

We share this perspective and emphasize in our analysis the potentials of sources and uses statements which underlie the traditional flow of funds accounts. Most of our analysis is based directly on the sources and uses statements. We also think that many of the other tables underlying flow of funds accounts - particularly the sectoral balance sheets - are of equally important use in analysis. We utilize this information not simply to analyse short-run changes in investment activity, as important as these are. We also think that a major use of these accounts is for the improvement of long-term planning. The kinds of analyses we make furnish information which assists us in understanding sectoral expenditure behavior. We show how it is possible to construct sectoral budgets - both for current and capital accounts - which can then be integrated into long-term planning. We feel that

these accounts make possible a more penetrating analysis of expenditure patterns by sectors.

Why Have a System of Financial Accounts?

There are many reasons for having a set of financial accounts in a developing country. They are connected with the investigation of expenditure behavior, with the refinement of investment and saving estimates, and with the improvement of our understanding of the financial process and its relationship to output growth. We list below some specific reasons why a system of financial accounts is beneficial.

1. At the present time estimates of capital formation are prepared on a commodity-flow basis for the nation as a whole. When estimates of investment are made on an expenditure basis, it is possible to prepare them on a sectoral level in a way which makes possible the investigation of expenditure behavior by sector. Obviously the motivation for capital expenditures can be expected to vary from sector to sector.^{3/} We would expect, for example, that corporations have an investment demand function with somewhat different explanatory variables than households, where the major item of expenditure is residential dwellings. Closely associated with the

^{3/}Most existing studies of investment functions have been for non-financial corporations, from company income statement and balance sheet records.

explanation of investment on a sectoral basis is the possibility of making estimates of sources of financing. We maintain that sources of finance are related to investment in the sense that certain types of investment require certain kinds of financing. This means that the composition and magnitude of sources is related to the composition and magnitude of investment, and that a study of the former throws light on the size and composition of investment.

2. When sectoral accounts are prepared on a sources and uses basis it becomes possible to construct a sectoral budget. We have done this in several ways by constructing sectoral capital budgets, and analyzing the main items in those budgets. Existing budgets and assumptions about expenditure behavior, when combined, become the basis for projections of sectoral budgets. We think that this is very useful as a device to improve overall planning accuracy and particularly improve the possibility of overall planning implementation. Much has been written about the need to integrate the government budget with macroeconomic plans.^{4/} But why should not budgets of sectors other than government be integrated with economic plans? This question is particularly pertinent in mixed economies where a large share of investment activity is undertaken by non-govern-

^{4/}United Nations, Government Budgeting in Economic Planning in Developing Countries (New York, 1965); see also Albert Waterston, Development Planning: Lessons of Experience (Baltimore: John Hopkins, 1965), especially pp. 201-241.

ment sectors.^{5/} In the Philippines, for example, about nine-tenths of investment activity is undertaken by the business and household sectors. In order to make an economic plan a realistic document from the standpoint of both estimation and implementation, it is necessary to draw up sectoral budgets encompassing these sectors so that they can be integrated into the national investment plan.

3. The original schema for national accounts as developed by the United Nations included five major accounts: the consolidated national product and expenditures account, personal income and outlay account, government receipts and expenditures account, a combined capital formation account and the foreign transactions account. In none of these accounts was the enterprise sector singled out for special detail. To the extent that there was a sectoral focus the accounts focused primarily on consumer and government sectors. In general the sectoral identity of enterprise transactions was suppressed because they were consolidated in other types of transactions. In the new system of national accounts as revised by the United Nations, however, enterprises receive much more attention. There is a separate enterprise account, and non-financial enterprises have a subsidiary account separate from

^{5/}Richard Hooley, "Private Saving in the 1960's: An Experiment in Financial Account" in G.P. Sicat, The Philippine Economy in the 1960's (Quezon City: University of the Philippines, 1964).

financial institutions. This change in the national income schema is a reflection of the increased importance attached to the behavior of enterprises in a mixed economy, and the necessity of redressing the long neglect of obtaining information for an enterprise sector. The accounts which are shown in this publication make it possible to fill in the gaps with respect to enterprise behavior for the Philippines--be it on capital or on current account. Not only are the estimates sectored in a way which makes them easily integrated into the national accounting system, but the methods of estimation contain certain novel aspects which will be of interest to research workers in national accounting systems who may wish to derive expenditure estimates for other developing countries.

4. Economists are aware of the great power of the consumption function as an analytical construct. If the use of an aggregate demand function has been highly successful in analyzing consumer demand, then the question naturally arises why we cannot develop similar constructs for analyzing the aggregate demand of other sectors. Undoubtedly this view is behind the proliferation of efforts directed at estimating aggregate investment functions in recent years. We think there is good reason to explore the possibility of expenditure functions for major sectors in a developing economy such as the Philippines. We are particularly interested in explaining capital investment behavior and make some effort to

construct such expenditure functions for the corporate, non-corporate and household sectors. We feel that these efforts are important for the advancement of econometric models, because without an investment function macro-theoretical models will remain deficient in realism as well as analytic power.

We think that such expenditure functions are highly important for effective planning, and we have made some tentative efforts at estimation of parameters of sectoral capital expenditure functions.

5. We hope that the existence of information on financial flows and financial institutions will work toward a better understanding of the relationship of money and intermediation in growth. Up to the present time, this topic has received largely "impressionistic" treatments. That is, the relationship of financial institutions to growth has been handled in a relatively generalized manner. We suggest that the relationship runs specifically from types of finance to volume and composition of expenditures by sector. For example, if life insurance finance is in short supply, then residential housing expenditures (which depend primarily upon life insurance as a financial source) will be reduced. This means that the line of causality goes from life insurance finance (source) to residential construction (use), as well as a line of causality from life insurance as an institutional source to the household sector as the using sector. This view is based upon the presumption that finance is not a homoge-

neous service but a differentiated one with varying degrees of substitution among competing services. We feel that genuine progress on the relationship of financial institutions to growth will await the investigation of hypotheses of this character in specific growth situations. We have undertaken some preliminary investigations in the introduction to this study and we hope that these investigations will prove suggestive to others. We do not present them as final or exhaustive research results. Rather we present them in the hope that others will carry them further and in that way enlarge our understanding and comprehension of these aspects of the growth process. But we wish to emphasize the importance of these investigations being conducted on the data of a developing country. Up to this point highly detailed estimates of financial flows have been mainly prepared for developed countries, where the uses of the results have been essentially for analyzing short-term changes in the money and capital markets. Our concern is mainly with the relationship of the money and capital markets to saving and investment behavior in the context of long-term growth. It is evident that these markets as well as the investment behavior connected with them, are undergoing rapid structural changes in less developed countries.

6. In concluding this list of uses of aggregate financial accounts, it should be emphasized that their construction is an indispensable tool to the improvement of savings and investment estimates for the country as a whole. In

practice, when these estimates are prepared for the country on an aggregate basis, the statistical error involved is almost certain to be unmanageably large. An advantage of preparing financial flow accounts such as these is that a totally independent basis for saving and investment estimates is attained because these accounts are based not on commodity-flow but on expenditure records. Moreover, we show in subsequent sections of this report how, for some sectors, expenditure records can be surprisingly accurate. We have even worked out a model for estimating the sampling error in expenditure estimates, and that model indicates that depending upon the sector, expenditure estimates can give results which are accurate to within 10 to 15% of a population parameter. In short, the use of expenditure data, heretofore little utilized in the preparation of national accounts, involves the working up from micro-data to macro-data. This process not only enables one to sector in ways previously thoughts impracticable but also yields a check on macro estimates which is indispensable in improving the statistical reliability of aggregate estimates. Obviously, it is only with some minimum level of statistical reliability that the kinds of theoretical and econometric investigations which we have been suggesting can ever be undertaken with the promise of useful results. We feel that on the whole the estimates of financial flows which we have prepared here meets those minimum statistical reliability standards. Where they do not, the reader will find warning flags thrown up when we feel that the data may contain unusually large statistical errors.

II

METHODS OF ESTIMATION

In any system of quantitative measurements the methods of estimation are of paramount importance to users of those data. They are critical in clarifying the meaning of the results because methods of estimation ultimately determine conceptual content, and not the other way around, as is sometimes assumed. Areas of special strength or weakness in the data should be indicated so the practicing researcher can make allowance in applications of the system to specific problems. In this study a description of estimating methods is particularly useful because we have made some alterations in the usual sectoring categories to make the system more consonant with LDC institutional behavior. Also, we have made extensive use of micro data in building our system, and a description of the methods employed is of importance viewed simply as a technique of measurement in itself.

We have divided economic units into five major sectors, with each sector sub-divided into twelve subsectors. Subsectors are formed to encompass units of essentially homogeneous behavior. The sectoral classification is as follows:

1. Financial Sector - includes all banking, insurance, and investment activities. The subsectors are:
 - 1) The Central Bank of the Philippines
 - 2) Commercial Banks - includes the Philippine National Bank and private commercial banks;

- 3) Insurance - includes private life and non-life insurance companies, private pension plans and mutual fund, the Government Service Insurance System, and the Social Security System of the Philippines. The last two are administered by the Philippine Government;
- 4) Other financial - includes all savings banks (private and public), rural banks, development banks, and finance and investment companies.

II. Government Sector - includes two subsectors:

- 1) the National Government
- 2) Local Governments - includes chartered cities, municipal and provincial hospitals.

III. Business Sector - includes the following subsectors:

- 1) Government Corporations - includes all government owned or government controlled business corporations;
- 2) Private Corporations - includes commerce and trade, mining, manufacturing, public utilities (transportation, ecommunication, electric and power, ice and storage services, private hospitals, hotels, and private schools), and construction;
- 3) Farm Corporate - includes corporate farming, fishing, pearl culture, and forestry.
- 4) Non-corporate business

IV. Rest of the World Sector - includes all external transactions.

V. Household Sector

There are some unusual features in this sectoring scheme. We treat government corporations separately from private corporations because in this country government-controlled firms have different canons of behavior from private firms. At the very least we can assert that the former are not profit maximizers. Just what constitutes the goal structure and accepted canons of conduct for government firms will become clearer in subsequent chapters. We also separate agricul-

tural corporations from the rest of business because we think that a study of the behavior of these giants of the agricultural sector holds special interest for development economists. They account for a significant portion of agricultural output. Their organization, financing and capital-intensive input structure (and typically, their agricultural performance) provide a sharp contrast to the remainder of agriculture.

We have drawn the line between households and business (corporate and non-corporate) at a different point than other studies, and this is one of the most unique aspects of our sectoring scheme. In the U.S. and elsewhere the consumer sector (households) is separated from producing firms (business). We take the position that the sharp bifurcation between producing and consuming activities does not reflect reality in Philippine society where households often engage in an array of productive activities from farming to small commercial and handicraft activities. We feel that it would be fictitious to treat these latter activities as if they were undertaken by business firms. The household goal structure and decision-making apparatus are obviously worlds apart from the unconstrained profit (and/or sales) maximization behavior of modern business. In the traditional household, consumption and production decisions are interdependent and saving and investment activities are best viewed from the standpoint of a total portfolio approach, which considers the assets (and equity) of the household as the pivot of the

household's total wealth accumulation activities. That is to say, in contrast to the household in an industrialized society which provides for saving, deposits, claims on insurance, durable goods, etc. out of income received, the traditional household regulates labor inputs with a view towards accumulating land, inventory and similar assets of a business nature which will serve as a wealth stock tailored along the lines of the household's portfolio preference. The important point is that the household's configuration of portfolio preference is not that of a consumption unit, but of a combined wealth-producing-consuming unit.

How does one deal with this problem? One way is to fabricate an exclusively consumption-oriented household sector by separating household consumption activities from household production activities, and putting the latter into the non-incorporated business sector. An alternative approach is to leave small producing units in the household sector and shift into the business sector only those units above a certain size. ✓ We have chosen the latter alternative because it produces a household sector with a behavior configuration closer to our perception of reality. There are also strong statistical reasons for choosing this method. We have defined a household firm as one employing 5 workers or less,^{6/} and these are in-

^{6/} This corresponds to a firm with assets of about 25,000 pesos in 1961.

cluded in the household sector. All firms with a labor force of over 5 workers go into the business sector. In agriculture, as was already pointed out, all corporations go into the business sector. Most of the remaining non-corporate farms are small holdings, and are included in the household sector.

2. Data Framework: The Definition of Accounts

The framework of our system of financial flows consists of a set of standardized interlocking accounts organized by sector and subsector. Transactions are grouped according to types of goods and services involved. Two broad classification stand out: financial and non-financial.

Non-financial fund flows arise from receipts or payments in the following transactions:

- 1) Payroll - includes wages, salaries, and bonuses;
- 2) Interest - on bonds, loans, mortgages and other lendings and borrowings;
- 3) Dividends - on stocks and other investments;
- 4) Rents and royalties - on properties and rights;
- 5) Net withdrawals by proprietors - refers to non-corporate business and the household sector;
- 6) Insurance premiums - includes life and non-life insurance premiums, contributions to mutual funds and pension plans or retirement schemes, and contributions to social security systems;
- 7) Insurance benefits - includes benefits received from and paid to life and non-life insurance companies, mutual funds, pension plans or other retirement schemes, and social security;
- 8) Grants and donations - includes grants-in-aid, charity contributions, and other voluntary contributions;

- 9) Taxes - includes corporate and income taxes, property taxes, sales taxes, excises, licenses, and penalties;
- 10) Tax refunds - includes refunds of any of the taxes mentioned under no 9;
- 11) Real estate transfers - transfers due to sales or foreclosure proceedings; and
- 12) Other goods and services - includes all goods and services not elsewhere classified.

Financial sources arise from changes which occur in the following financial variables:

- 1) Currency and deposits - includes cash and deposits such as demand, time savings, and foreign deposits;
- 2) Gold and treasury currency;
- 3) Bank loans other than mortgages-divided into short-term and long-term loans;
- 4) National government obligations - includes only government bond issues;
- 5) Local government obligations;
- 6) Corporate securities - includes changes of holdings in and new issues of stocks and securities;
- 7) Mortgages - includes mortgages arising from real estate and plant and equipment as securities;
- 8) Trade accounts - receivables and payables arising from the ordinary course of business;
- 9) Miscellaneous assets and liabilities - all other assets and liabilities not elsewhere classified. This account is a residual formed by subtracting accounts 1 through 8 from total assets and liabilities.

The above accounts give the general framework of the system. The specific accounts vary slightly from subsector to subsector however, depending on the nature of transactions included, and for which adjustments in account nomenclature are obviously necessary.

Non-financial flows are derived directly from the basic flow records, such as the income statements of firms or the record of government receipts and expenditures contained in the Auditor's Report. Financial flows are derived from stock records, such as the balance sheets of firms or the balance sheet of the national government, by taking the first difference of opening and closing entries. This last requirement sets up one of the most difficult estimation problems, because it requires that balance sheets of micro units be aggregated and scaled-up into sectoral balance sheets. On the whole, micro-data are more plentiful on flow variables-such as sales, taxes and the like. Furthermore, benchmark population parameters of flows are readily available from the census, national income accounts, etc., whereas the same sources are likely to give scanty data, if any at all, on stocks. We felt compelled to exert every effort to construct sectoral balance sheets on a solid foundation, often utilizing micro-data in ways that will be further explained below. In this effort we were motivated by a desire to greatly strengthen the uses side of the accounts. This is important because only with a detailed and accurate uses side can the financial flow accounts make the unique contribution to the tools of monetary and fiscal analysis that they were designed for.

C. SOURCES OF DATA

Governmental Units

Governmental units or instrumentalities (bureaus, commissions, and special offices) collecting statistical data as part of their administrative or regulatory functions were among the most important sources of data. The units included were the Central Bank of the Philippines, the Office of the Insurance Commissioner, the Offices of the Government Service Insurance System and the Social Security System, the General Auditing Office, the Office of the Securities and Exchange Commissioner, the Office of the Land Registration Commissioner, the Bureau of Mines, the Economic Research Division of the Department of Agriculture and Natural Resources, and the Office of the Public Service Commissioner. The Bureau of Census and Statistics also provided us with valuable benchmark data.

The Central Bank of the Philippines furnished the accounting data for the Financial Sector (except Insurance) and the Rest of the World Sector. The Office of the Insurance Commissioner furnished the accounting data for all private life and non-life insurance companies and for non-profit pension plans and mutual funds. Data for the Government Service Insurance System and the Social Security System were derived from their published annual reports; other details were furnished by

their offices.

The General Auditing Office publishes annual reports of the transactions of both the national and local governments, but the more detailed phases of such transactions were furnished directly by the GAO office.

The Office of the Securities and Exchange Commissioner made available its files of financial statements of firms and enterprises included in our samples for commerce and trade, manufacturing, services, construction, and corporate farms.

Transactions in real estate and chattel were furnished by the Office of the Land Registration Commissioner, from annual reports submitted by all provincial Register of Deeds to that office. The Bureau of Mines furnished most of the data on mining, part of the data having been furnished by the Office of the Securities and Exchange Commissioner and the Manila Stock Exchange. The Office of the Public Service Commissioner gave us access to its files of financial statements for enterprises engaged in communication, transportation, electricity and power, and ice and storage.

The publications of the Bureau of Census and Statistics were, of course, the major sources of data for parameters such as population aggregates and sales benchmarks.

Private Business Firms

The data base of the private business sectors consisted of the financial statements of a sample of approximately 1,000 small and large firms. The financial statements of many of the large corporations for earlier years were made available to us by the Manila Stock Exchange. From 1957 on, the financial statements of all corporations are available at the Securities and Exchange Commission. Records of all utility firms engaged in transport (bus, taxi, etc.) communications, ice and cold storage and electric power, both corporate and non-corporate, are available at the Office of the Utility Commission. All of these offices opened their files to us and made possible the construction of stratified sample of small and large units in each major sector. For small corporations in manufacturing and commerce prior to 1957, and for nonincorporated enterprises in both these sub-sectors, however, we had to contact a sample of firms directly.

D. DATA COLLECTION

Sampling Methods

Some of the subsectors, such as government, the Central Bank, commercial banks and insurance, represent 100 percent coverage. These are sectors which either contain only one or a few units, or where micro-unit data are already aggregated

by regulatory authorities (e.g. commercial banks). But for a number of sub-sectors this is not the case, and for these we developed methods of estimating population from samples. We used sampling techniques for the following subsectors:

Other Financial - investment and finance companies;

Private Corporate Business - commerce and trade, manufacturing public utilities, and services;

Farm Corporate;

Non-corporate, non-financial business.

Except for corporate farms, the sampling method used was the same for all these subsectors. The population was first classified according to size of total assets and/or number of workers. In this way large and small enterprises were separated. All the largest enterprises were automatically included in the samples. About a half of the number of enterprises in each sample consisted of large enterprises while the other half was made up of small enterprises chosen at random.

Much has been written about the unequal distribution of wealth in the Philippines. To our knowledge, however, no measurements of wealth distribution have been undertaken.^{7/} While this is an unfortunate situation which we cannot remedy here, we do find it necessary to substantiate some earlier

^{7/} Surveys of income and expenditures are available from the Philippine Statistical Survey of Households.

statements concerning the nature of wealth distribution and its significance for sampling methods.

Let us turn to the manufacturing sub-sector and ask the question: what is the distribution of assets among firms? To answer this question we constructed a Lorenz curve of manufacturing firms in terms of total assets. The basic data came from our sample of 224 manufacturing firms, which we combined with data from the Bureau of Census Survey of Manufactures. The latter gives information on fixed assets of all (approximately 7,000) manufacturing firms, and also on the largest 1,000. We combined these data to derive the Lorenz curve shown below. The striking inequality of asset ownership is revealed by Figure 1. Less than 10 percent of manufacturing firms control ninety percent of all the assets. Our worksheets show the extraordinary fact that the largest thirty firms account for approximately 25 percent of total manufacturing assets. Figure 1 indicates that about two percent of firms (approximately 140 firms) account for 60 percent of manufacturing assets.^{8/} This is highly significant from a statistical standpoint. The implication is that if we cover the largest two percent of firms by a full count we have accounted for 60 percent of our population parameter. This can be achieved with a sample of about 140 large firms. For this

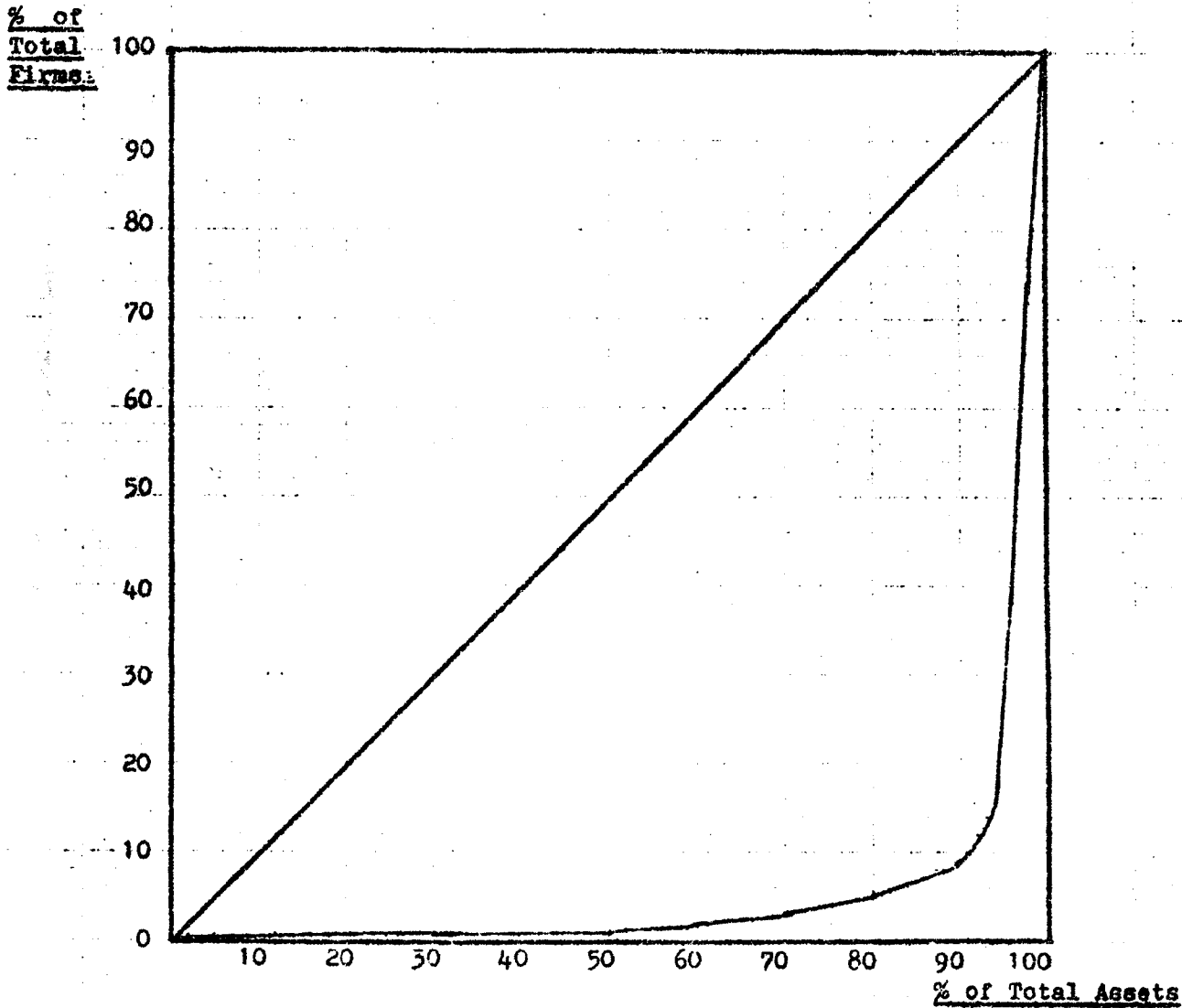
^{8/} None of these statements would be materially changed if we had used sales instead of assets to measure size.

reason we decided to obtain information on the largest 100 manufacturing firms, which gave us coverage of about 50 percent of assets. We then sampled an additional 124 smaller firms to obtain information on the 50 percent uncovered portion of the population. This sample was stratified both by product classification as well as by size. This procedure reduces all sampling errors by 50 percent since the upper part of the size distribution is fully enumerated.

The size concentration of firms that we have demonstrated for manufacturing is more or less typical of other branches of industry. In electric utilities the concentration is greater: the National Power Corporation and Manila Electric Corporation together control over two-thirds of electric utility assets. In communications one firm - the Philippine Long Distance Telephone Co. - accounts for more than three-fourths of industry assets; in transport the Manila Railroad and Philippine Airlines together account for almost one-third of assets. Concentration in commerce and services is lower than in manufacturing, but still substantial. On balance, therefore, it is possible in most cases to account for at least one-third and possibly as much as two-thirds of the total assets of any industry group by making a full count of the largest 50 to 100 firms and in a number of cases this can be achieved by enumerating only a handful of firms. The remainder can be covered by traditional sampling techniques. This method of obtaining information has three important advantages: (1) it

FIGURE 1

Lorenz Curve of the Distribution of Assets
Among Manufacturing Firms, 1961



Source: Financial Statements of 224 Manufacturing Firms and Republic of the Philippines, Bureau of Census and Statistics, Economic Census of the Philippines, 1961, Vol III.

reduces by about one-half the size of the standard error for estimated parameters; (2) it increases accuracy of recorded information by greatly lightening the clerical burden and re-focusing it on highly relevant material; and (3) it decreases the cost of gathering information and consequently increases the number of variables that can be covered.

We were also able to apply these estimating techniques to the agricultural sector in spite of the fact that concentration ratios in this sector are not as high as in industry.^{9/} A number of the larger agricultural operations have incorporated. We found that by taking all agricultural corporations as a group, we were able to cast a statistical net over a significant portion of agricultural assets-we estimate the percentage at 20 percent.

The significance of our method is not limited to the statistical advantages of accuracy and economy. An investigation of Philippine data for large and small firms indicates that large and small firms are heterogeneous in terms of production behavior. To show why this is so, suppose we had data on assets and number of workers employed for a random

^{9/}The Philippine is often called a "feudal" society, and this would imply very high concentrations of wealth in agriculture. While this is true for parts of Luzon (e.g. Pampanga and Tarlac), it is not a faithful picture of land ownership in areas such as Ilocos or Cotabato. The latter regions reduce the high concentration ratios in agriculture substantially.

sample of large and small firms. On the plausible view that a larger firm (in terms of assets) would employ a larger work force, we could write the expression

$$A = N^x$$

where A is value of assets, N the number of workers employed in each firm, and x an exponent measuring the relationship where $0 < x < \infty$.^{10/} The capital-labor ratio is then derived as

$$\frac{A}{N} = N^{(x-1)}$$

We are under the impression that $x \approx 1$, and therefore $A/N \approx 1$ over all values of N. However, data derived from the 1961 Census of Manufactures suggest otherwise. In figure 2, below, we present data on gross receipts and employment for different size firms in 1961. We have derived these data from the 1961 census by computing the average receipts and average number of employees per firm for all three-digit classifications in manufacturing. From our worksheets of financial data for a sample of 225 manufacturing firms, we know that there is a simple linear relationship between gross receipts and assets. We are therefore entitled to establish the following relationships. From Chart 2, we have

$$\log GR = 1.5 \log N$$

^{10/} This expression implies an intercept of zero, which is justified by the fact that when assets are zero the required workforce is likewise zero.

or

$$GR = (N)^{1.5}$$

where GR is gross receipts per firm in thousand pesos and N is employees per firm. We also know from the financial data in our worksheets that the size of assets per firm is a simple linear function of sales (or gross receipts). We can express this as

$$GR = A\alpha \quad (2)$$

where A denotes tangible assets and α is a constant. Then substituting equation (2) into (1) we get

$$\alpha A = (N)^{1.5} \quad (3)$$

But since we are looking for the relationship of size of firm to the capital/labor ratio we divide both sides of the equation by N and obtain

$$\alpha \frac{A}{N} = N^{\frac{1}{2}} = \sqrt{N} \quad (4)$$

The above expression indicates that the capital-labor ratio rises as firm size (measured by asset size) increases. For example, suppose for simplicity that $\alpha = 1$. Then when (N) size of workforce is 9, the capital-labor ratio ($\frac{A}{N}$) is 3. However, when the work force is 100, the capital-labor ratio is 10--

an increase of more than threefold.^{11/}

We believe that the changing capital-labor ratio as one moves from smaller to larger firms is highly significant, particularly from the standpoint of employment generation, and we will investigate this further in a later section of this monograph. It reflects differences in behavior patterns among firms, since firms with markedly different factor composition may be expected to react to economic phenomena in different ways. For example, a rise in the wage rate should raise costs more for small than for large firms; and a rise in the peso cost of imports would affect the small, labor intensive firms less than the large ones. Presumably the large firms would be more dependent on imported capital equipment.

The importance of this to a study of financial flows should be obvious. Any economic study, insofar as it attempts to utilize aggregate quantitative data, must organize them into classifications which reveal uniformities of behavior among economic units. It is clear that at least one of the relevant classificatory categories is firm size. We will show later that large firms differ in significant respects in

^{11/} The capital-labor ratio is usually thought of as the ratio of fixed capital to labor - that is, the ratio of buildings and equipment to labor. Of course, for any sample of firms in the same industry it is true that $F = aT$, where F is fixed assets, T total assets and a , a constant. We might add, however, that it would also make sense to measure capital as fixed capital plus inventories (but excluding financial assets), since the size of inventory stocks will constitute an important component of tangible capital in a number of cases.

FIGURE 2

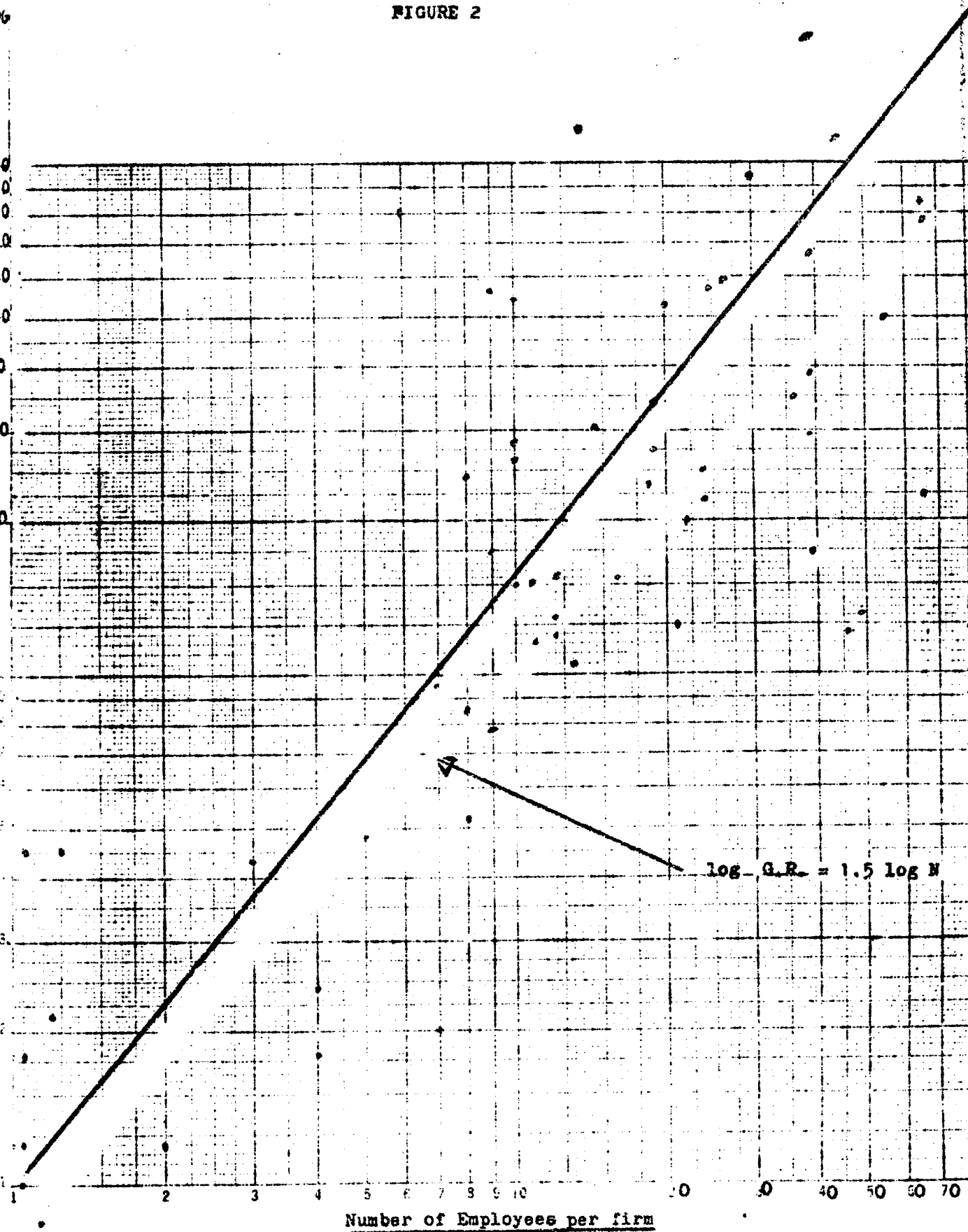


Figure 2: RELATIONSHIP BETWEEN GROSS RECEIPTS AND EMPLOYMENT
FOR MANUFACTURING FIRMS IN 1961

terms of such financial behavior such as the proportion of earnings paid out in dividends, the proportion of new capital raised by equity issues as opposed to loans, etc. Therefore we conclude that for the Philippines, and possibly for other LDC's as well, classification of firms by asset size as well as industry group confers important analytical as well as statistical advantages on the investigators.

Methods of Data Collection

A standard accounting form was constructed for each subsector and/or type of industry. This was done to distinguish the different kinds of transactions characteristic of each subsector, and to facilitate the recording of accounting data. The resulting accounts contained detailed information on receipts, expenses, profits and dividends, types of assets and liabilities, kinds of loans, paid-in-capital, and retained earnings. The standard accounting form used for manufacturing and commerce is reproduced in Figure 3.

For some subsectors, a more detailed form was prepared to accomodate intangible assets (such as goodwill and rights), kinds of inventories (such as crops, fertilizers and work animals in agriculture), kinds of deposits, kinds of loans (whether short-term or long-term), and other financial details depending on the activities of the subsectors.

These forms were completed by a team of research assist-

ants who went personally to the government offices and/or private enterprises. Data for the years 1957 to 1965 were collected for commerce and trade, manufacturing, mining, and farm corporations from the Securities and Exchange Commission. Data for prior years were secured directly from the firms by questionnaires and a follow-up where necessary. Data for public utilities were secured from the Public Service Commission for all years, 1948 to 1965. The Central Bank of the Philippines requested data from the finance and investment companies included in the sample accounting forms. Data for mining for the years earlier than 1957 were secured from the Bureau of Mines and the Manila Stock Exchange.

Methods of Data Processing

After the micro-data were recorded on standardized forms (see Figure 3), it was found that for about 15 percent of the returns data were incomplete for some account items. These gaps were completed individually for each of the reporting units. That is, the gaps were filled for each firm before aggregating. The procedure used was to interpolate the missing data for each account from the data available years. This involved estimating the average change. For example

$$\overline{\Delta A_j} = \frac{A_{j_t} - A_{j_o}}{n}$$

where A_j is the value of the j th asset account and $\overline{\Delta A_j}$ is

FIGURE 3

Standard Accounting Form Used for Recording Data on

Manufacturing and Commercial Firms

Financial Variables

Income Statement

1950 1951 1952 1953 ...1965

Sales
Cost of Goods Sold
Selling and Administrative Expenses
Other income and credits
Income tax
Net Income after tax
Depreciation and depletion
Interest expenses

Balance Sheet

Cash
Accounts receivable
Inventories
Total current assets
Corporate investments
Fixed assets - cost
Fixed assets - book
Land and improvements
Total Assets
Bank borrowing (short-term)
Accounts payable - trade
Total current liabilities
Long-term Liabilities
Paid-in capital
Earned surplus

the arithmetic mean of annual changes in that account. n is the number of years of available data, and therefore the years on which the mean value is based. Suppose, for example, that we have data on the value of A_j in periods t_1 through t_4 but not for periods t_5 and t_6 . First compute

$$\overline{\Delta A}_j = \frac{A_{j,t_4} - A_{j,t_1}}{3}$$

Then estimate t_5 and t_6 directly,

$$t_5 = t_4 + \overline{\Delta A}_j$$

$$t_6 = t_5 + \overline{\Delta A}_j$$

In the event that the unknown values are between two sets of known values, only a small change is required. Suppose A_j is known for the periods t_1 to t_3 and t_6 to t_8 and we wish to estimate it for the years t_4 and t_5 . Then the value of $\overline{\Delta A}_j$ becomes

$$\overline{A}_j = \frac{A_{j,t_1} - A_{j,t_3}}{3}$$

and t_4 and t_5 are then

$$t_4 = t_3 + \overline{\Delta A}_j$$

$$t_5 = t_4 + \overline{\Delta A}_j$$

Obviously one can interpolate backwards in the same fashion.

Not all accounts in the balance sheet were included in the standard forms. All the excluded accounts were later grouped into a single account called "other assets" on the asset side and "other liabilities" on the liability side. When all the accounts were combined, the difference between total assets and the sum of all the defined asset accounts was entered into "other assets", and the differences between total liabilities and the defined liability accounts were entered as "other liabilities". In other words, other assets and other liabilities are residual accounts, while total assets and total liabilities and capital were both observed variables.

It should be clear that this editing has to take place before any aggregation of accounts is undertaken. Otherwise the missing data will be aggregated as zeros. Clearly it is far better to add in values interpolated on the basis of averages than to aggregate zeros.

In some cases, an entire financial statement might be missing for a particular year. In that event we have the problem of estimating A_j , A_k , ... and also F_j , F_k , ... where the A and F indicate asset and flow accounts respectively, and j, k, ... are the different accounts. In such a case we would first estimate the balance sheet accounts in the manner described above. Then we proceeded to estimate the income accounts in the following manner. For the years

in which data are available we derive a coefficient.

$$\beta = \frac{\sum_{t=1}^n S_t}{\sum_{t=1}^n A_t}$$

where n is the number of time periods for which data are available ($t_1, t_2, t_n, \dots$) and S and A are sales and total assets, respectively. Assuming we know A_t and wish to estimate S_t we proceed as follows:

$$S_{t_1} = \beta_1 A_{t_1}, S_{t_2} = \beta_2 A_{t_2}, \dots, S_{t_n} = \beta_n A_{t_n}$$

We estimated each of the remaining flow variables in the same way. We finally arrived, therefore at a series of coefficients equal to the number of flow variables to be estimated.

The importance of the procedure utilized here is that the relationships between accounts within the financial statement are preserved. We feel that it is better to preserve structure within the financial statement rather than to let it change in wholly arbitrary ways. When one utilizes the aggregate financial data, one can be sure that any changes that are reflected in the composition of accounts are observed changes. We also observed that the ratio of sales and other flows to assets is fairly stable for a sample of firms, in spite of the fact that it may change sharply from year-to-year for individual firms.

Another adjustment that must be made to the data concerns the elimination of arbitrary valuations of assets. Asset values as recorded in the standard accounting form (Figure 3) are supposed to be recorded at cost. This is the usual basis for valuation in the context of business accounting. However, sometimes arbitrary revaluations of assets occur, either in an effort to increase the capital surplus (equity) of a firm, or in connection with the merger or consolidation of two firms. These arbitrary revaluations of assets are removed for each firm. The amount of the arbitrary surplus write-up can be determined by an analysis of the equity and profit accounts. It is an accounting definition that

$$\Delta E_t = (P_t - D_t) + \Delta C_t$$

where ΔE_t is the change in the equity account, P_t is net profit after taxes and D_t is cash dividends paid and ΔC_t is the addition to paid-in capital, all during time period t . In practice it is generally possible to reconcile the change in equity with retained earnings. Small gaps in the equality may appear because of statistical errors but large gaps between the two sides of the equation are invariably a warning flag to the researcher that 'paper' revaluations are present. Whenever $\Delta E_t > (P_t - D_t + \Delta C_t)$, the excess is taken as a measure of the amount of surplus write-up. This process is also useful in tracking down mergers. Knowledge of the merger of two or more companies is important because this

can be utilized in monitoring coverage of the sample.

*Scaling Procedures and Adjustments in Timing

When the above procedures are completed we have a consistent record of flows and stocks for each micro-unit. For a number of sectors it was then simply a matter of summing the information for each account for each year over the total number of units. This was true for commercial banks, life insurance companies and government corporation sub-sectors. For some subsectors, however, we had only samples, and it was necessary to scale-up the aggregate values in order to arrive at population estimates.

For those sectors for which we did not have 100 percent coverage, we obtained information on at least one population variable each year for each sector. For example, for manufacturing we had the annual census data giving the population totals for manufacturing sales, fixed assets, and inventories. We then computed the ratio of sales in our sample to sales of all manufacturing firms and used this ratio to blow up our manufacturing sample income statements.

We then obtained the ratio of sales to total assets for each strata of our sample and used this as an estimate of the ratio of sales to total assets in the population. This ratio, together with the population sales, is then the basis for scaling up our sample data to arrive at estimates of popula-

tion assets. This procedure assumes that the structure of financial statements in the sample is a genuine reflection of the same structure in the population - which shows the importance of proper stratification, both by industry and size of firms.^{12/}

The approximate percentage coverage of sales for our samples for the major sectors was as follows:

Non-financial corporations, 76%

Non-incorporated, non-financial firms, 41%

Farm Corporate, 21%

A statistical model for estimating the degree of variance of these estimates has been constructed and is shown as an appendix to this chapter. We ran the model through once for manufacturing corporations (where coverage was approximately 50 percent) and we found the standard error for sales to be 9 percent while that for total assets is 12 percent.^{13/}

^{12/} In particular, it avoids scaling-up on assets. There is no information on age of fixed assets in both population and sample is unknown, and since Census data show assets net of depreciation, there is no way to check for differences in age of assets between sample firms and the population.

^{13/} The percentage for other sectors where the coverage is greater than in manufacturing will be correspondingly smaller.

The reader who is interested in calculating the corresponding standard errors for other variables may do so by substituting the appropriate data into the equations shown in the model in the appendix.

> The last adjustment that must be made is for differences in timing. We have constructed the financial flows on the basis of a calendar year, so that all flows are for a twelve-month period ending December 31. All sectors which are not on a calendar year basis must be adjusted. This is true for the government sector and government corporate sub sector.^{14/} Data for a small minority of business firms are also on a year ending other than December 31. In these cases we adjusted the data for timing for each firm individually before combining them into sectoral aggregates.

Thus far we have described the derivation of each sector and sub-sector's financial statements, and the methods used to combine the financial statements of individual micro-units into sectoral statements. There are two additional steps necessary to derive the traditional flow-of-funds statement. First, the sectoral financial statements must be re-cast into sources and uses statements. Essentially this consists in combining selected flow transactions from the sectoral income statement with the first differences of

^{14/} The adjustment is made in the usual way - of averaging two fiscal years to obtain a calendar year.

selected asset changes from the sectoral balance sheets. For many purposes these are the most useful collections of data because they give vast detail on the sources of financing for each sector. The traditional "flow of funds" tables are highly compressed summaries of sources and uses by sector derived from the basic sources and uses tables. Everything that is in the flow-of-funds tables is in the sources and uses tables, but all the details in the sources and uses tables are not in the flow-of-funds tables.

The flows shown for each sector represent direct estimates. In the household sector, however, some transactions are direct estimates while some are estimated as residuals. All the household capital expenditure items are direct estimates, some made for the first time as a part of this study. We chose to estimate these transactions directly because of the importance we attach to sectoral investment expenditure activities. Some other non-financial flows, such as household wage income, property and entrepreneurial income and consumption expenditures, were taken directly from the national income accounts. Most of the purely financial flows however, were estimated as residuals. For example, the change in currency in the hands of households is estimated as a residual as follows:

$$C^{CB} = C^F + C_u^B + C_u^H$$

therefore,

$$C_u^H = C_s^{CB} - (C_u^F + C_u^B)$$

where C stands for changes in currency, the subscripts s and u denote sources and uses, respectively, and the superscripts CB, F, B, and H denote the Central Bank, financial, business and household sectors, respectively. The reason why it is necessary to estimate household financial flows as a residual is because we do not have access to reliable surveys of household assets.^{15/} We therefore are unable to estimate the magnitude of estimating errors directly for this sector, but we have computed derived errors of estimate by combining errors of the other sectors.

The rest of the world sector accounts were constructed from data taken from the balance of payments as prepared by the Central Bank. Accounts were regrouped to coincide with the concepts of the financial flows study.

^{15/} Surveys of household assets are difficult everywhere, but are particularly difficult in LDC's. For an experiment in surveying household assets in the Philippines, see Philippine Statistical Survey of Households, 1965.

Summary

We have approached the measurement of financial flows in this country with the conviction that less developed countries do not present insuperable problems of estimation simply because they are less developed. We have endeavored to show that certain peculiarities of LDC's - such as the unequal distribution of wealth - present the statistician with rich opportunities to improve measurement accuracy. In order to grasp these opportunities, however, the investigation has to be conducted with sufficient flexibility to make possible departing from conventional estimation methods and employing substitutes when circumstances require it. We have included a model for estimating the sampling error for those sectors where sampling methods were utilized, and we think this aspect of the measurement procedure is unique. Equally important, we have changed somewhat the conventional meaning of concepts when the character of economic activity here served to require it. An example of this is the separate estimate of capital formation expenditures in kind which is shown alongside the usual (monetary) expenditure estimates. We did this to make it easier to utilize the financial data in analyses of capital formation, which is one of the main purposes of this data system. Finally, we have described in complete detail all sources of information as well as all data processing procedures, so that others may be in a position to reproduce our results and extend them in any direction they wish.

III

Financial Flows in the Philippines 1949-1962

Introduction

In this chapter we analyze the size and structure of financial flows in the Philippines during the period following World War II. Since the major function of a financial system is to convert saving into investment, the most reasonable procedure is to start with an analysis of the aggregate financial flows for the economy as a whole. Then we move to an analysis of saving behavior, which is equivalent to analysing the supply side of financial flows. We then shift our attention to the volume and composition of capital expenditures, the major item on the demand side of financial flows. In a final section we focus attention on those institutions which are the intermediaries of the system, in an attempt to explain the present structure of flows and observed changes by reference to changes in the behaviour of these institutions as well as other relevant dimensions of the financial system. We will also attempt to indicate in a rough way how changes in the financial system have been related to known shifts in some major economic parameters, and to comment on some major policy directions.

It is not possible to obtain a clear perspective on the character of this financial system by analyzing

Philippine data alone. Throughout the paper we therefore make continual inter-country comparisons between this financial system and those of Japan and the United States. We have chosen these two countries so that we can get a sharper contrast by comparing the Philippine financial system with that of a highly developed country, and another which is developing rapidly.

Changes in Size and Structure of Financial Flows

A cursory inspection of Philippine financial flows as shown in Appendix Table 1 shows substantial growth since World War II. In the early years of the period (1949 to 1951), financial flows were averaging in the neighborhood of five to six hundred million pesos annually, as contrasted with about 3 1/2 billion pesos by the end of the period.¹⁶ When the size of financial flows is related to income, then in the earlier years of the period aggregate financial flows amounted to approximately 10 per cent of national income, whereas towards the end of the period they amounted to about 30 per cent of national income. While the nominal increase in aggregate flows is about six-fold, the real increase (found by relating

¹⁶The size of financial flows is measured by summing the net change in financial assets over all sectors.

aggregate flows to the change in the wholesale price index) is a little more than four-fold.

It is tempting to explain this increase in aggregate financial activity by referring to increases in the size of capital expenditures. Unfortunately the facts do not support such a simple explanation. For example, in the early years aggregate capital expenditures were about three times the volume of aggregate financial flows. By the end of the period, capital expenditures were approximately the same size as financial flows. The implication is that the proportion of investment activity coursed through the financial system increased significantly between 1949 and 1965. Just what changes in behavior and in institutional structure made this possible must be temporarily deferred, until we come to a discussion of changes in sectoral behavior later in the paper.

A further inspection of the table on financial flows (Appendix 1) will indicate which financial instruments accounted for the major share of this increase in financial activity. There were substantial increases in the use of currency and demand deposits but a much larger share of the responsibility for the increase in financial flows must go to "other deposits." These other deposits include mainly savings and time deposits as well as marginal deposits which from time to time were required by Central Bank regulations. A still more important

instrument, however, was short-term liabilities. Short-term loans increased by 4 to 5 times over the period in question. Long-term liabilities also increased dramatically. By the end of the period they were making a very substantial contribution to total financial activity. But the most outstanding increase was registered by trade credit which, particularly towards the end of the period, became one of the most important instruments in total financial activity. In a later section we will analyze the structure of trade credit and show how it is used to distribute bank credit throughout the economy. On the whole, it appears that the important role of trade credit in the Philippine financial system is similar to the role of trade credit in the financial system of Japan; and both of these cases contrast sharply with the relatively unimportant role played by trade credit in the financial system of the United States.

Let us turn now to the question of the structure of financial flows in the Philippines in contrast with that of other countries. The data in Table 1, below, show the size of financial flows in relation to national income, and also to capital expenditures for the Philippines, Japan and the United States.¹⁷ It is clear from these

¹⁷ In making intercountry comparisons here as elsewhere, the years 1958-1962 have been used. These particular years were selected for reasons of data comparability and availability.

TABLE 1

Aggregate Financial Fund Flows and Their Relationship to National Income in the Philippines, Japan and the United States*

Philippines:
(mill pesos)

	<u>Fin. Flow+</u>	<u>N.I.</u>	<u>F. Flows/N.I.</u>	<u>Capital Expenditures</u>	<u>F. Flow C. Exp</u>
1958	1,421	9,837	14.4%	1711	83.2
1959	2,714	10,709	25.3%	1982	136.9
1960	2,683	11,370	23.6%	2322	115.5
1961	5,496	12,334	44.6%	3124	175.9
1962	3,648	13,477	27.1%	3678	99.1
AV. 58-62			27.0%		122.1

Japan: (bill yen)

1958	4,676	9,561	48.9%	2469	189.3
1959	7,472	10,539	70.9%	4041	184.9
1960	8,701	12,816	67.9%	5126	169.7
1961	12,995	15,156	85.7%	7475	173.8
1962	12,006	17,348	69.2%	7295	164.6
AV. 58-62			68.5%		176.5

United States: (bill. dollars)

1958	76.	370	20.5%	93.	81.7
1959	98.	402	24.4%	120.	81.6
1960	69.	417	16.5%	114.	60.5
1961	98.	430	22.8%	112.	87.5
1962	123.	460	26.7%	126.	97.6
AV. 58-62			22.2%		81.8

+Represents total funds raised (i.e. net acquisition of financial assets) by all sectors.

* In this and the following tables, the data on currency amount are given in millions of Philippine pesos, billions of Japanese yen and billions of U.S. dollars.

Source: Appendix Table 1 Bank of Japan, A Study on Flow of Funds in Japan; Federal Reserve Board, Federal Reserve Bulletin, various issues; U.N. Yearbook of National Accounts.

data that the ratio of financial flows to national income is roughly the same for the Philippines and the United States but very much greater for Japan. The ratio is about one-fourth for both United States and the Philippines; but for Japan it is about two-thirds. Measured in this way, financial intermediation is very much higher in Japan than either the Philippines or the United States.¹⁸ Turning to the ratio of aggregate financial flows to total capital expenditures, the United States has the lowest ratio--82 percent average for the period--the Philippines the next highest (122 percent) and Japan the highest (177 percent). We have here an indication that the financial system is used more extensively both in the Philippines and Japan to finance capital expenditures, and that it is used much more extensively in Japan than in either the Philippines or the United States. Later, when we come to an analysis of capital expenditures by sector, particularly the private corporate and household sector, we will discuss some of the major factors at work here. In conclusion then, we can say that the Philippine financial system is relatively large by the comparison with the U.S., and a substantial volume of capital expenditures is now financed by that system. It is however very much smaller on any comparative basis than the Japanese financial system.

¹⁸As we shall see later on, however, the reasons for the lower levels in the case of the Philippines and the United States are quite different.

The Rate of Saving

In the discussion that follows we will focus on the rate of gross national saving. The preference for gross over net saving arises out of two considerations. First, gross saving which includes an allowance for capital replacement has a special meaning for developing countries where technology in use is changing rapidly. Secondly, in making comparisons among countries, variations in methods of estimating the share of saving devoted to capital consumption and replacement are likely to give particular difficulties where different estimating conventions are in force.¹⁹

The data in Table 2, below, show the volume and the rate of gross saving in the Philippines from 1950 to 1962. For the period as a whole, gross saving has been 18.2 per cent of income--making net saving roughly 14 per cent of income. These are reasonable rates for an LDC but certainly not extraordinarily high for a growing economy. For most of the years in question, households have contributed a little over one-half of total gross saving while business corporations have contributed another one-fourth. The remainder has been contributed by government and other sectors--primarily non-incorporated business enterprises.

¹⁹ Variation in tax laws are a major reason for these variations in estimating methods.

Table 2

Rates of Savings 1950 - 1962
(Bill. Peso)

Year	Household Saving	Household Financial Saving	Household Fin. as % Household Total	Gross National Saving	GNP	GNS/GNP (%)
1965			50			
1964	-		50			
1963			40			
1962	2.3	0.9	39	3.8	15.7	24.2
1961	1.8	0.7	39	3.2	14.2	22.5
1960	1.5	0.2	13	2.4	13.0	18.5
1959	1.0	0.05	5	2.1	12.2	17.2
1958	1.1	0.05	5	1.8	11.2	16.1
1957	1.1	(0.1)	9	1.9	10.5	18.1
1956	0.8	0.05	6	1.3	9.6	13.5
1955	0.7	0.4	57	1.1	8.8	12.5
1954	0.7	0.5	71	1.1	8.2	13.4
1953	0.8	(0.2)	(25)	1.4	7.9	17.7
1952	0.7	0.1	14	1.6	7.4	21.6
1951	0.8	0.2	25	1.5	7.0	20.3
1950	1.0	0.7	70	1.3	6.4	20.3

Average: 1950-62

18.2

Source: Appendix Table 1

This estimate of saving differs in several respects from estimates which have been published previously.²⁰

One difference is that non-monetary saving is included here. That is to say, that part of owner/investor saving (primarily in the agricultural sector) which is not monetized has been included. This consists of irrigation construction such as the digging of canals on farms which has been undertaken without the use of monetized inputs, the planting and development of perennial crops utilizing non-wage labor, and other improvements such as land clearing. In all of these cases, non-monetary investment and non-monetary saving are distinguishable while also being identically equal and inseparable.

About one-half of the household sector's saving takes the form of residential construction and the acquisition of other consumer durables, while the remainder is used for the acquisition of financial assets. Moreover, the data in Table 2 show that while household saving was devoted primarily to the acquisition of tangible assets in the early years of the period, it has recently shifted towards the acquisition of financial assets. In quantitative terms, about one-fourth of household saving was in the form of financial saving in the early 1950's whereas about one-half

²⁰See R. Hooley, *Saving in the Philippines*, (Quezon City: University of the Philippines, 1963).

was directed toward financial assets in the early 1960's (see table 2).²¹ We note that this shift in the composition of household saving, while apparent during the entire period, took a decisive turn in the later 1950's. The likely causative factor in that shift was the change in interest rate policy which began in 1960. The rise in interest rates was not only on the lending but also on the borrowing side. Deposit rates of interest, which had hovered between 2-3/4 and 3 per cent during the previous years rose to at least 6 to 7 percent. A number of non-banking institutions issued short-term notes at 12 percent which were successfully floated in large volumes.

If one looks at the data in Table 2 quickly, it does not appear that there was any sharp increase in the nation's rate of saving over the entire period. But this impression may be somewhat misleading. The rate of gross saving for the nation as a whole was in the neighborhood of 20 percent for the period from 1950 to 1953. Thereafter, from 1954 to 1956, it dropped to about 13 percent and did not pass 20 percent again until 1961. As previously pointed out, we should view the early 1950's as an unusual period, because these were the years in which the economy was still rebuilding its capital stock from the destructive effects of the War. The Philippines as a country received more war damage than any other country in Asia during World War II. Reconstruction of the productive (business & gov't.)

²¹ These percentages are averages for the first and last 4 years of the period. We have to discount the high percentages shown for 1950 and 1954 because there were years in which the statistical discrepancy was particularly large (see Appendix, T.1)

capital stock was not completed until about 1952. This means that reconstruction of the stock of residential housing as well as its expansion to meet the needs of the greatly expanded population (which grew rapidly during the war) augmented the rate of household investment and saving to abnormally high, temporary levels.

We feel, therefore, that the national saving levels of the mid-50's are the normal levels for that decade. On that basis, we view the rate of gross saving as increasing from something around 15 percent in the early years of the period to a little under 25 percent at the end. This is a respectable, although not an extraordinary increase for an LDC over a period of about 17 years.

In order to get a better perspective on Philippine saving behavior, we present in Table 3 rates of saving for this country, Japan and the United States. The nationwide rate of gross saving in the Philippines of 20 percent is somewhat lower than the U.S. rate of 22 percent. Both countries lag Japan's 34 percent by a wide margin. The rates of saving by sector differ even more. The contribution of Philippine households to the national saving rate is about 12 percent, which is somewhat less than that of households in the United States and Japan. Similarly, the rate of household saving out of income of 14 percent is substantially lower than the rates of 17 and 20 percent for the U.S. and Japan. However, these differences are

TABLE

Flow of Gross Saving in the Philippines, Japan and the United States
(1958 - 62)

holds	% of Household Income	% of GNP	Corp. Bus.	% of Corp. Income	% of GNP	Gov't	% of Current Revenues	% of GNP	GNP
22	17.1	14.1	811	69.3	5.1	164	9.3	1.0	15,615
11	14.8	12.1	514	59.8	3.4	169	11.2	1.3	14,912
98	13.6	11.9	295	52.4	2.2	135	9.5	1.0	13,390
0	13.3	11.0	380	59.1	3.6	161	13.3	1.3	12,430
5	11.6	9.5	363	63.7	3.1	142	12.9	1.2	11,738
	14.1	11.72		60.9	3.5		11.2	1.2	
2	21.7	16.1	2365	87.2	11.3	1830	41.0	8.8	20,863
	23.1	16.7	2421	89.9	13.0	1688	42.9	9.1	18,596
	21.2	15.7	1861	89.7	12.2	1149	36.7	7.5	15,308
	19.8	15.2	1329	89.3	10.4	886	35.2	6.8	12,794
	16.8	13.1	846	86.5	7.5	651	28.7	5.7	11,342
	20.5	15.4		88.5	10.9		36.9	9.1	
18.1	14.5	43	74.1	7.3	7.3	-12	-19.6	-2.1	569
17.4	14.1	35	51.0	6.6	6.6	-13	-22.8	-2.4	529
18.4	14.8	30	69.8	5.8	5.8	-3	-5.7	-0.1	511
16.5	13.2	36	73.5	7.3	7.3	-7	-14.3	-0.2	491
18.1	14.7	24	66.7	5.2	5.2	-13	-27.6	-3.5	455
17.7	14.3		67.0	6.4	6.4			-1.7	

are taken from Flow of Funds Statements for U.S. and Japan, and
Appendix Table 1; Income by Sector is from U.N., Yearbook of
nt Sector includes federal and local units on a consolidated

small in relation to income differentials in the three countries which range from approximately \$6,000 per capita for the U.S. to \$200 for the Philippines. The results suggest that the household rate of saving has little relationship to income.²²

The rate of saving for Philippine corporations is 3-1/2 percent of GNP as contrasted to 6-1/2 percent for the United States and 15-1/2 percent for Japan. These wide differences in the rate of corporate saving partly reflect the differing size of the corporate sector in the three countries which is obviously relatively larger in Japan and the U.S. than it is in the Philippines. However, in the same table there is also evidence to indicate that the rate of retained earnings in Philippine corporations is less than in U.S. corporations, and substantially less than in Japanese corporations. Philippine corporations retain about 60 percent of their income while their Japanese counterparts retain almost 90 percent.

Perhaps the sharpest contrast, however, is with respect to the government sector. The Philippine government sector contributes a volume of saving equivalent to little over 1 percent of GNP whereas the Japanese government contributes saving equal to 9 percent of GNP (We

²²Differences in income distribution could be introduced as an additional explanatory factor.

cannot make the same comparison for the United States because of the absence of a government capital account in the U.S. system of national accounts). If the contribution of the Philippine government was anywhere near as large as that of the Japanese government, Philippine national saving rates would be very much higher than they are at present.

If we look at the contribution of the major sectors over time, it is clear that Philippine households have increased their contribution to national saving considerably. The same can be said with respect to corporations-- which have nearly doubled their contribution in the five-year period 1958-1962. The government contribution, however, has remained static. Substantial upward shifts in household saving rates are shown for both the Philippines and Japan. When one turns to the U.S. one does not find the same changes in national or household saving rates. These disparities in the degree of shift in saving rates seems to correlate with the earlier observed tendency of the Japanese and Philippine financial systems to grow faster than that of the United States.

✓ We can conclude this cursory analysis of saving behavior in the post-war period by observing that changes in the national saving rate may have had some effect on the increase in financial intermediation. ✓ The national

saving rate has risen because Philippine households have increased their saving rates substantially. Private corporations continue to account for a much smaller share of national saving, partly due to the small size of their sector and partly due to the relatively modest rate of retained earnings. This has set the stage for a steadily growing household-corporate intersector transfer. Even more significant has been the shift in the composition of saving. Over the past decade and a half, the composition of household saving has changed from being predominantly in tangible form to the present situation where approximately one-half is in financial form. The impact on the financial system has been to substantially increase the volume of resources flowing into it. In subsequent sections of this paper we will attempt to trace in greater detail the factors responsible for this shift in composition in terms of the financial history of the period.

Capital Expenditures

The total of capital expenditures, by sector, are shown in Appendix Table 1. These estimates represent total expenditures on new equipment and durables of all kinds. The data on capital expenditures are more inclusive than capital formation as traditionally defined due to the inclusion of expenditures on consumer durables in our figure.

The data in Table 4 indicate that for the country as a whole capital expenditures have been approximately 18 percent of GNP during the period 1958 to 1962. This contrasts with rates of 22 and 32 percent for the same period for the United States and Japan, respectively. Thus the rate for the Philippines is substantially lower than that for the other two countries.²³ But in recent years--e.g. 1961-62--the rate has been in the neighborhood of 20 to 23 percent, tending to close the gap between the Philippines and the U.S. In no event, however, is the rate in the Philippines anywhere near that prevailing in Japan.

There are also interesting differences in the sectoral distribution of capital expenditures. The United States has the highest rate of expenditures in the household sector--12 percent. This is followed by 8 percent for the Philippines and only 5 percent for Japan. The higher rate of household expenditures on durables for the United States is understandable in view of the high level of consumer income there, leading to what Oshima has called high levels of consumer asset formation.²⁴ The rather high rate of

²³The difference between the rates for the Philippines and the U.S. is greater than it appears because of the omission from the U.S. estimates of government sector investment expenditures.

²⁴Harry Oshima, "The International Comparison of Size, Distribution of Family Income with Special Reference to Asia," Review of Economics and Statistics, November, 1962.

Table 4

Capital Expenditures+ and Their Relation to Gross National Product, by Sector

<u>Philippines:</u> (mill pesos)	<u>Country-Wide</u>	<u>%</u> <u>GNP</u>	<u>Household</u>	<u>%</u> <u>GNP</u>	<u>Corp.</u> <u>Bus.</u>	<u>%</u> <u>GNP</u>	<u>Gov't</u>	
1962	3678	23.0	1367	8.9	1597	10.2	273	1
1961	3124	20.8	1209	8.0	1282	8.7	286	1
1960	2322	17.3	1025	7.6	900	6.7	195	1
1959	1982	15.9	991	8.0	535	4.3	173	1
1958	1711	14.6	1029	8.7	372	3.2	242	2
AV. 58 - 62		18.3		8.2		6.6		1

<u>Japan:</u> (bill. yen)								
1962	7295	35.0	1212	5.8	3949	18.7	2129	10
1961	7475	36.0	1017	4.9	4894	23.5	1564	7
1960	5126	33.4	804	5.2	3059	19.6	1262	8
1959	4041	31.8	653	5.1	2272	17.8	1116	8
1958	2469	21.7	442	3.9	1196	10.5	831	7
AV. 58 - 62		31.6		5.0		18.0		8

<u>United States:</u> (bill. dollars)								
1962	126	22.1	72	12.6	34	5.9	#	
1961	113	21.3	63	11.9	33	6.2	#	
1960	113	22.1	65	12.7	31	6.0	#	
1959	120	24.0	74	15.0	32	6.5	#	
1958	93	20.4	56	12.3	21	4.6	#	
AV. 58 - 62		21.9		12.9		5.8		

+For the Philippines, capital expenditures are less than capital formation by the amount of non-monetary capital formation, which ranges from 5-10 per cent of total capital formation.

#Zero by definition.

household investment expenditures in the Philippines contrasts sharply with the low rate in Japan. The Japanese level of household expenditures here is certainly influenced by the style of Japanese housing construction which is not capital intensive.²⁵ In the Philippines, expenditures for housing represent a very large part of total household capital expenditures. A rough estimate of the distribution of capital expenditures by household would undoubtedly show a very high concentration of such expenditures. In fact, it seems probably that a Lorenz curve constructed of household capital expenditures would show a greater curvature than Lorenz curve constructed for income distribution by households.

Turning now to capital expenditures by corporate business, roughly 7 percent of GNP is accounted for by that sector in the Philippines and 6 percent in the United States. These rates contrast sharply with the rate of 18 percent for Japan. This contrast is partly due to the low level of capital expenditures in the Japanese household sector which has freed capital resources for accumulation in other sectors. It is partly a function of the large size of the corporate sector in Japan. Actually, the level of capital expenditures in the Philippine corporate sector is somewhat

²⁵This point is emphasized by Henry Rossofsky, Capital Formation in Japan (New York: Free Press of Glencoe, 1961).

higher than might have been anticipated. That the rate of corporate capital expenditures should in fact equal that of the U.S. demonstrates that the Philippine rate has been high in recent years. Indeed, if the trend shown in the data is a faithful representation of longer term trends, then the rate of capital expenditures in the Philippine corporate sector will soon be higher than the corresponding rate in the U.S.

When one turns to the government sector, the difference in behavior between Japan and the Philippines again becomes very marked. The extremely low level of capital expenditures as a percent of national income--approximately 2 percent--is in marked contrast with the 11 percent for Japan. Unfortunately, it is not possible to calculate the same percentage for the United States. However, it is clear that on any basis the Philippine government sector is extremely low, and that if that sector's rate were higher, it would substantially raise the country's overall rate of investment expenditures.

Inter-Sectoral Financial Flows

The material presented thus far on the distribution of saving and capital expenditures by sector implies growing intersectoral flows of financial resources. The direction and magnitude of these flows are shown in Table 5. The

Table 5

Financial Surplus (deficit) by Sector⁺

Philippines: (l. pesos)	Household Surplus	% Cap. Exp.	Corp. Bus. Surplus	% Cap. Exp.	Gov't Surplus	% Cap. Exp.
1962	855	62.4	(786)	49.3	(99)	36.3
1961	602	49.8	(768)	49.9	(117)	40.9
1960	473	40.6	(605)	67.2	(60)	30.8
1959	379	34.3	9	29.0	(12)	6.9
1958	86	8.8	(461)	2.4	(100)	41.3
1957	160	17.5	(78)	21.4	(120)	44.4
1956	195	31.8	(68)	21.7	(144)	143.0
1955	68	10.5	43	35.2	(171)	99.1
1954	(120)	15.5	(18)	9.4	(167)	219.7
1953	(112)	12.4	(93)	33.2	87	142.7
1952	(180)	20.1	(160)	49.4	(58)	65.2
1951	(108)	12.1	(210)	67.7	74	132.1
1950	252	33.4	(80)	39.4	(173)	133.1
1949	212	25.1	(154)	55.1	(47)	62.6
58 - 62	479	39.1	(461)	(41.5)	(78)	(31.2)
Japan: (bill. yen)						
1962	2155	177.0	(1548)	40.1	(299)	14.0
1961	2084	204.9	(2473)	50.1	124	7.9
1960	1601	199.1	(1198)	39.2	(113)	9.0
1959	1293	198.0	(943)	41.5	(240)	21.5
1958	1043	235.9	(300)	25.1	(80)	9.6
58 - 62	1635	202.9	(1299)	(39.3)	(122)	(9.2)
U.S.: (bill. dollars)						
1962	11	15.2	9	26.4	#	-
1961	12	19.0	2	5.7	#	-
1960	11	16.9	(1)	3.2	#	-
1959	(9)	12.2	4	12.5	#	-
1958	11	19.6	3	14.3	#	-
58 - 62	7	16.5	3	11.1		

⁺A financial surplus is an excess of gross sector saving over capital expenditures. Sector deficits are shown by parentheses.

#Government saving and investment are both zero by definition.

household sector in the Philippines registered a financial surplus which was approximately 40 percent of the size of its aggregate capital expenditures. This contrasts with a figure of 200 percent for Japan. Obviously, Japanese households shift a far larger fraction of resources to other sectors than do Philippine households. However, Philippine households shift a larger fraction of investible resources to other sectors than do American households where the comparable figure is only 16 percent. The extraordinary volume of resources shifted by Japanese households is essentially a product of the low level of household capital expenditures, particularly on residential housing, and the high rate of household saving. In contrast, United States households have high rates of saving but high rates of capital expenditures as well, and this tends to keep the surplus transferred from the U.S. household sector at relatively modest levels.

Turning now to behavior of business firms, the deficit in the Philippine corporate sector averages approximately four-tenths of total capital expenditures which is almost the identical percentage for Japan. In this respect corporate financial behavior is the same in the two countries. In contrast, the corporate sector in the United States has a small surplus, implying that they save more than they spend for capital expansion. The size of this surplus is

small however, being only about one-tenth of total corporate capital expenditures.

This broad contrast in corporate financial behavior between the two LDC's and the U.S. is to be expected. As Domar has shown,²⁶ given conventional depreciation practices based on original cost, and assuming a constant ratio of capital investment to output, the share of capital expenditures covered by the depreciation allowances will vary inversely with the rate of growth of output. The rate of growth of corporate sector output will often be higher in an LDC because this is a sector that is expanding its share of activities rapidly in those countries. For example, corporate sector output between 1958 and 1962 grew by 177 percent, 105 percent and 61 percent respectively for Japan, the Philippines and the United States. Finally, in LDC's the ratio of fixed to working capital is generally lower than in developed countries, and this is an additional factor tending to minimize the size of capital consumption allowances there and favor reliance on outside financing. For example, capital consumption allowances account for approximately 33 percent of corporate savings in the Philippines in contrast to 50 and 65 percent in Japan and the United States.

²⁶ Evsey Domar, "Depreciation, Replacement and Growth," reprinted in Essays in the Theory of Economic Growth, (N.Y.: Oxford Univ. Press, 1975).

The deficit of the Philippine government was approximately one-third of its capital expenditures during the period, whereas the deficit of the Japanese government was only one-tenth of its capital expenditures. We are not able to make the same calculations for the American government since as previously pointed out, the U.S. government accounts do not have a capital dimension to them.

The overall impression that one gets from these data is that sectoral budgets are more in balance in the U.S. than they are in either the Philippines or in Japan. It is not difficult to explain this with respect to households, and we have mentioned several factors accounting for the size and trend of deficits in this sector. In the case of the corporate sector other forces are at work, and we have outlined what appear to us to be the main ones. Finally, we noted the small size of deficits in the Philippine government sector. We can only suggest that this is a reflection of the stultification of political development in the past, without going further at this time into this fascinating but complex dimension of national development.

There are some interesting trends in the growth of intersectoral financing in the Philippines during the post war period. In 1949 and 1950 households had large surplus

while the corporate and government sectors had large deficits. These deficits represented the reconstruction of corporate and government capital facilities which were destroyed during World War II. In the beginning of 1951, however, retail construction prices began to decline, and households were induced to undertake reconstruction of their capital stocks. This was reflected in the high level of residential construction and corresponding household budget deficits through 1954. When this household reconstruction activity was completed, household budget deficits declined, and by 1955 had turned back into a surplus position. Thereafter the household surplus increased steadily, reaching a peak of almost a billion pesos in 1962, which amounted to about two-thirds of household capital expenditure. In other words, from 1955 onward the Philippine household sector was becoming a steady and ever growing source of surplus funds for intersectoral transfer. These funds were absorbed by the corporate sector where deficits, reflecting sharply rising investment expenditures, rose from a negligible figure in 1954 to very substantial amounts in 1960, 1961 and 1962. Indeed, by the end of the period Philippine corporations were financing more than half of their capital expenditures from intersectoral flows--mainly from the household sector.

In the gov't. sector, surpluses have been marked by an erratic pattern, but averaging in the neighborhood of 100

million pesos a year throughout the entire period. That is to say, in contrast to the household and the corporate sectors which were tending to increase the intersectoral flow of funds, the government sector maintained approximately the same absolute size of deficit and intersectoral transfers throughout the period. This means that the percent of government capital expenditures covered by intersectoral flows actually declined during the period.²⁷

✓ Thus the government sector in the Philippines has actually exerted a negative effect on financial development. The entire impetus for financial development came from the household and corporate sectors.

What kind of securities were used to effect this growing intersectoral flow of funds? In the previous section we have pointed out that trade credit and bank loans were particularly important. But let us look also at the total maturity structure of financial flows in the three countries. This is done in Table 6. It is clear that the maturity structure of financial flows in the Philippines represents an approximately even division between short and long-term instruments. This contrasts sharply with the United States, where short-term instruments account for approximately one-fifth of intersectoral financial flows while the remainder is accounted for by

²⁷ That is, when expressed as a ratio to national income they reflect a declining trend.

Table 6

Maturity Structure of Financial Flows

<u>Phil.:</u>	<u>Tot. Fin. Flows #</u>	<u>Sht. term Fin. Flows+</u>	<u>Long Term Fin. Flows</u>	<u>Sht. term as % total</u>	<u>Long term as % total</u>
1962	3648	2252	1396	63.5	36.5
61	5496	2617	2879	47.6	52.4
60	2683	800	1883	29.8	70.2
59	2714	1453	1261	53.5	46.5
58	1421	1002	419	70.5	29.5
Av.				53.0	47.0
<u>U.S.:</u>					
1962	123	28	95	22.8	77.2
61	98	23	75	23.5	76.5
60	69	18	51	26.1	73.9
59	98	9	89	9.1	90.9
58	76	14	62	18.4	81.6
Av.				19.9	80.1
<u>Japan:</u>					
1962	12006	7202	4804	65.4	34.6
61	12995	8204	4791	63.1	36.9
60	8701	5194	3507	59.7	40.3
59	7472	4630	2842	61.9	38.1
58	4676	2475	2201	52.9	47.1
Av.				60.6	39.4

defined as the total net acquisition of financial liabilities for all sectors.

+ Short-term defined as change in gold and treasury currency, currency and bank deposits, consumer credit, security credit, bank loans and other loans (one year or less), and trade credit.

long-term debt. The situation in Japan is closer to that of the Philippines than the U.S., where 60 percent of financial flows are long term. These differences in the maturity structure of financial flows among countries are reflected in the different institutional configuration among countries and in the prominence of trade credit and bank loans, as was pointed out earlier. However, no trend is evident with respect to maturity structure over time so far as the Philippines is concerned. That is to say, we see no tendency to switch either toward or away from these short-term instruments in their important role as facilitating devices for intersectoral flows. It is possible, however, that if the issue of government securities becomes more important in the future, the proportion of long-term instruments would increase.

Analysis of Sources and Uses by Sector

We now turn to sources and uses of funds for the major financial and operating sectors. In previous sections we have looked at the system of financial flows in its broad outline, noted changes in trends and contrasted structural features between the Philippines and other countries. In this section we look at the sources of funds for each of the major sectors and the uses to which each sector puts those funds. While the

data permit us to investigate sources and uses for all transactions-operating and financial-our attention will focus primarily on sources and uses in the sectoral investment accounts. This is really a way of looking at types of financial institutional behavior, where each of the sectors to be studied expresses itself in terms of one or more unique institutional and behavioral characteristics.

The center of the financial system is the Central Bank. The increase in Philippine Central Bank sources of funds was derived largely from the issue of currency and demand deposits. A substantial share of increased sources was also accounted for by other types of liabilities--e.g. margin deposits, and gain and losses from devaluation (in 1961-62). On the uses side, the development which immediately grips one's attention is the relatively large share of the increase in financial assets of the Bank represented by direct loans to the national and local government agencies. The other important item is, of course, the extension of credit to the commercial banking system.

A remarkable feature of the Philippine commercial banking system is the extent to which non-financial sources contribute to the augmentation of financial resources. About one-third of the total commercial bank source of funds comes from operations. This contrasts with far lower ratios in

more developed countries. The reason seems clear:

✓ lending rates of interest are relatively high, borrowing (or deposit) rates are low, therefore the interest spread is large. This may be a rather useful device for developing the financial system quickly, provided of course that the larger earnings are retained in the financial system for expansion, and not used to pay out dividends to stockholders. But even if these assumptions are satisfied, is it the most effective method of bank resource expansion?

Suppose that deposit rates were allowed to rise. Then, presumably deposits of households would also have risen.

Is it possible that the increase in deposits thus obtained would augment commercial bank resources more than the corresponding loss of retained earnings occasioned by the deposit rate increase?

This question has important implications for both theory and policy, and it may be useful to restate it in a more rigorous form. Let bank resources (R) be defined as the sum of retained earnings (P) and deposits (D).

Then we have

$$R = D + P \quad (1)$$

Let us assume that deposits are a function of the level of the deposit rate of interest (r_d), while profits are dependent on the difference between r_d and lending (r_l).

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We have

$$D = f(r_d)$$

$$P = g(r_1 - r_d)$$

Differentiating (1) with respect to itself and substituting,

we have

$$\frac{dR}{R} = \frac{f'(r_d)}{f(r_d)} + \frac{g'(r_1 - r_d)}{g(r_1 - r_d)} \quad (2)$$

or,

$$\dot{R} = f \left[\dot{r}_d + \frac{\dot{(r_1 - r_d)}}{(r_1 - r_d)} \right]$$

We made a test of the relative importance of the two elements on the right hand side of equation (3) by regressing the rate of change of commercial bank assets on the rate of change of the two explanatory interest variables.

The fitted regression line is

$$\lg R = 1.25 \lg r_d - .14 \lg (r_1 - r_d) \quad \bar{R}^2 = .88$$

(7.86) (1.11)

Note that the coefficient of r_d is highly significant-- in fact almost sufficient by itself to explain growth in bank assets--while the coefficient of $(r_1 - r_d)$ is not significantly different from zero. (Numbers in parentheses are t-values). Since the coefficient of r_d exceeds that of $(r_1 - r_d)$, we conclude that the elasticity of the commercial bank industry's resources with respect to deposit rates of interest is greater than with respect to the

deposit rate - lending rate spread. The policy conclusion is that although individual banks think they are acting rationally by trying to maximize the lending-borrowing interest rate spread by holding down the deposit rate, this action is really irrational. From the standpoint of the entire commercial bank industry, bank resources will be increased more by raising the deposit rate of interest. ²⁸

On the user side, the main outlet for commercial bank funds consists of short-term loans to business firms. Some of these loans are renegotiated at maturity, and therefore cannot really be considered as short-term. Nevertheless, a high proportion is represented by genuine short-term financing for working capital in manufacturing and commercial enterprises. There is nothing surprising about this. The working capital requirements of a "representative" Philippine business establishment (including manufacturing) is at least as large as the

²⁸ These conclusions are provisional in that they are based on an annual time series of 17 years. Bank resources are taken as total assets of commercial banks. Deposit rates are an average of maximum rates on savings and time deposits as shown on Central Bank records. Lending rates were found by dividing interest earned as reported by all commercial banks by the volume of bank loans and investments. A more sophisticated model could test cross-section data, introduce a variety of effective rates of interest and also a savings function for the firm.

fixed capital requirements.²⁹ [There has been a tendency throughout the period, especially since decontrol in 1961, for the fixed capital requirement to rise relative to working capital needs. This has been met by the growth of non-banking institutions such as investment banks (e.g. Private Development Corporation of the Philippines, Bancom) and the expansion of financier-type companies such as First Acceptance and Investment Corp., Merchants Credit Corp., and similar institutions.] But without any doubt commercial banks still represent the cornerstone of private business sector financing.

Another major financial subsector is insurance. Like the commercial banking sector, insurance companies obtain the bulk of their funds by issue of liabilities (policies) primarily to the household sector. An unusual feature of the insurance subsector, however, is the relatively small share of total fund sources represented by the accumulation of financial assets. Only about one-fourth to one-third of non-financial sources find their way into financial asset accumulation.³⁰ The reasons for this

²⁹ Judging by the ratio of the size of (undepreciated) fixed to current assets in the firms' balance sheets which for manufacturing firms is about 1:1 and for commercial firms is 1:3.

³⁰ See Appendix Table 2. We omit from consideration 1959 and 1960, years in which there were charges to reserves and miscellaneous assets.

relatively low financial accumulation ratio appear to be first, that insurance companies are devoting a substantial portion of resources to the erection of home office structures and the acquisition of other tangible assets, and second, that a considerable outlay in the form of re-insurance premiums (which are part of domestically collected premiums) are remitted overseas in connection with non-life types of insurance. On the investment side, the outstanding feature of insurance company behavior is the large share of financial assets represented by salary and policy loans. This form of investment represents at least 10 percent of financial accumulation annually, and in some years is as high as one-third of total financial accumulation. For the rest, investments are largely in the form of household mortgages and corporate securities with emphasis on the former. Very little is represented by investment in government securities.

Therefore with respect to the entire insurance subsector (life and non-life) although relatively large when looked at from the standpoint of premium income, it is less imposing when viewed as an intersectoral financial device. A substantial amount of its collections are spent either for re-insurance or for home office expansion, and of the remainder a surprisingly large portion flows back into the household sector in the form of policy and salary

loans and for home mortgage financing. Very little of funds goes into the government sector but corporate business financing is considerable and growing slowly.

These observations are somewhat altered when one turns to the government insurance companies which are shown in a separate subsector. Here only about one-half of insurance collections are utilized for non-financial purposes, leaving the remainder for financial accumulation. But on the investment side, government insurance carriers are similar to private carriers in that a substantial portion of financial investment goes into policy and salary loans and home mortgage financing, and relatively little is represented by investment in government securities and corporate business.³¹

The sources and uses statement of self-administered pension funds and personal trusts is shown in Appendix Table 2. It reveals a similarity to the insurance subsector. That is, only about one-half of total fund sources goes into financial accumulation. This is a little higher than for the insurance subsector, to be sure, but it is still low for this type of investment fund.

³¹The reader will recall our earlier discussion in Chapter III of household saving, and the proportion devoted to accumulation of household durables.

Sources and Uses for Operating Businesses

The major source of funds for private business is from operations. The remainder is obtained from security issues, of which the major items are bank loans and equity issues. The largest recipient of funds from the commercial banks and from the insurance companies is the private corporate sub-sector. A unique feature of Philippine corporate behavior is that the share of outside capital raised by bank loans has expanded more rapidly than that raised by the issue of equity. This seems to be connected with the tight control of corporations which is characteristic of this society and which we will discuss further at a later point. About one-tenth of total uses consists of wages and salaries, while six-tenths consists of expenses connected with the purchases of intermediate goods and services.

TABLE 6a

Proportion of Payroll Expenses to Total Nonfinancial Uses of Funds, Operating Business Concerns, 1949-1965

YEAR	PERCENT	YEAR	PERCENT
1949	17.7	1957	24.7
1950	19.4	1958	21.5
1951	19.1	1959	19.9
1952	20.1	1960	17.0
1953	20.2	1961	14.2
1954	22.4	1962	10.7
1955	23.5	1963	12.2
1956	24.5	1964	11.5
		1965	11.7

Source: Appendix Table

There has, however, been a marked change in the use of funds. As Table 6 above shows, payroll expenses were nearly 20 percent of total outlays in 1950 and rose to about 25 percent in 1957. After that date the share of outlays represented by payroll began a sharp decline, apparently stabilizing at a level of 10-12 percent by the middle of the 1960's. Is this reduction in the ratio of payroll expenses the effect of a declining real wage rate (in terms of other factor prices) or is it the effect of increasing capital intensity? Preliminary investigation suggests that both of these factors have been operating. We will return to the capital-labor problem later in this chapter.

Government corporate behavior contrasts in several important ways with that of private corporations. This sector is small--only about one-twentieth the size of the private corporate sector. Government corporations obtained almost one-half of total sources from the issuance of financial instruments compared to the much lower ratio (one tenth) for private corporations. The favorite instrument for external financing is long-term bank loans. Government corporations generally have relied even less on the issue of equities as a source of external finance than private corporations. On the operating side, payroll expenses now account for about 15 percent of total uses--which is higher

than for private sector corporations. Capital expenditures account for barely one-tenth the total uses--which is a rather low fraction by any standard, especially considering the kinds of heavy manufacturing industries represented by this sector. The accumulation of financial assets now accounts for an astonishingly high level of total uses -- approximately 20-25 percent³² which is an increase of about 10 percent from the early years of the period.

What are some possible explanations for these peculiar features? One type of explanation emphasizes that government corporations have been operated for essentially political ends. { That is to say, these firms have been used as devices through which to borrow from banks and then to channel the funds thus obtained into the operating businesses in which those who control the political process have an interest. } A second line of explanation would focus on government corporations as vehicles to provide employment, and for this reason the share of payroll uses must be higher than in private corporations.

But this "inefficiency" of government corporations can be considered as the visible part of the social cost of

³²When one considers that even in the case of bona fide financial institutions such as life insurance companies, only about one-half of total uses is represented by financial accumulation, the unique character of the government corporate financial flow structure becomes even more apparent.

unemployment traceable to the capital-intensive structure of private corporate production. Perhaps a good social accounting system could link this inefficiency to the private corporate sector, which is no doubt one of its sources.

The net upshot of this entire body of evidence is that the goals of government corporations are quite different from private corporate business, the availability of financial sources is different, and consequently their operating behavior is in sharp contrast to the canons of behavior of ordinary businesses.

Turning attention for a moment to non-corporate business (five or more employees) we find that this sector is only four-tenths the size as the private corporate sector (based on size of total sources). In this sector a smaller share of funds is raised by external financing--only about 5-6 percent compared with 10-12 percent for corporations. On the uses side, payroll expenses are significantly higher than for corporations, suggesting that labor is a more important input here.³³ Capital expenditures

³³ Since non-corporate business is probably more concentrated in rural areas than corporations, the average wage rate is probably lower than for corporations and therefore the difference in the share of "real" payroll expenses probably is greater than it appears from the above.

tend to be small for non-corporate enterprises, and the ratio of inventory accumulation to fixed capital expenditures high. The increase in financial assets is about one-tenth of total uses, significantly higher than the 4 percent for private corporations.³⁴ In this subsector, trade credit constitutes a very large source of funds. Judging by the large trade credit item in the corporate uses side it appears that the private corporate sector is using trade credit to finance expansion in this non-corporate sector. The reason why we infer that non-corporate business is deriving funds from the corporate sector is that we know that the purchase of inputs by smaller enterprises in this subsector is from the larger enterprises; and it is reasonable to suppose these trade credits are financing this flow of intermediate goods. Of course, the non-corporate sector includes many small household-type industries so that part of this trade credit might be considered as financing purchases by a kind of semi-household manufacturing subsector.

³⁴This may be related to the tendency of some households to use the 'family business' as a vehicle for accumulating household financial assets.

A Digression on Capital-Labor Proportions

There is some information on capital-labor proportions available from census data for manufacturing establishments. These data suggest that the technology employed in Philippine manufacturing is highly capital intensive. The implication is that the expansion of industry has provided a large demand for foreign exchange but only a minor impetus for the growth of employment. The main factors which have been mentioned to explain this situation are first, the presence of an overvalued exchange rate resulting in under-evaluation of capital inputs; second, the existence of subsidized credit through government financial institutions for the purchase of capital equipment and, third, increases in the minimum wage rate.³⁵

Data from the financial flows can be utilized to throw additional light on this problem. The supporting schedules contain information on the size of the wage bill (payroll)

³⁵G.P. Sicat, "Labor Policies and Philippine Economic Development," School of Business Discussion Paper, 69-4, February, 1969. See also T. Ruprecht, "Labor Absorption Problems and Economic Development in the Philippines," Philippine Economic Journal, V. 5, No. 2, 1966. The rise in wage rates should, however, make the construction component of capital more expensive because of the well-known labor-intensive character of this industry in LDC's.

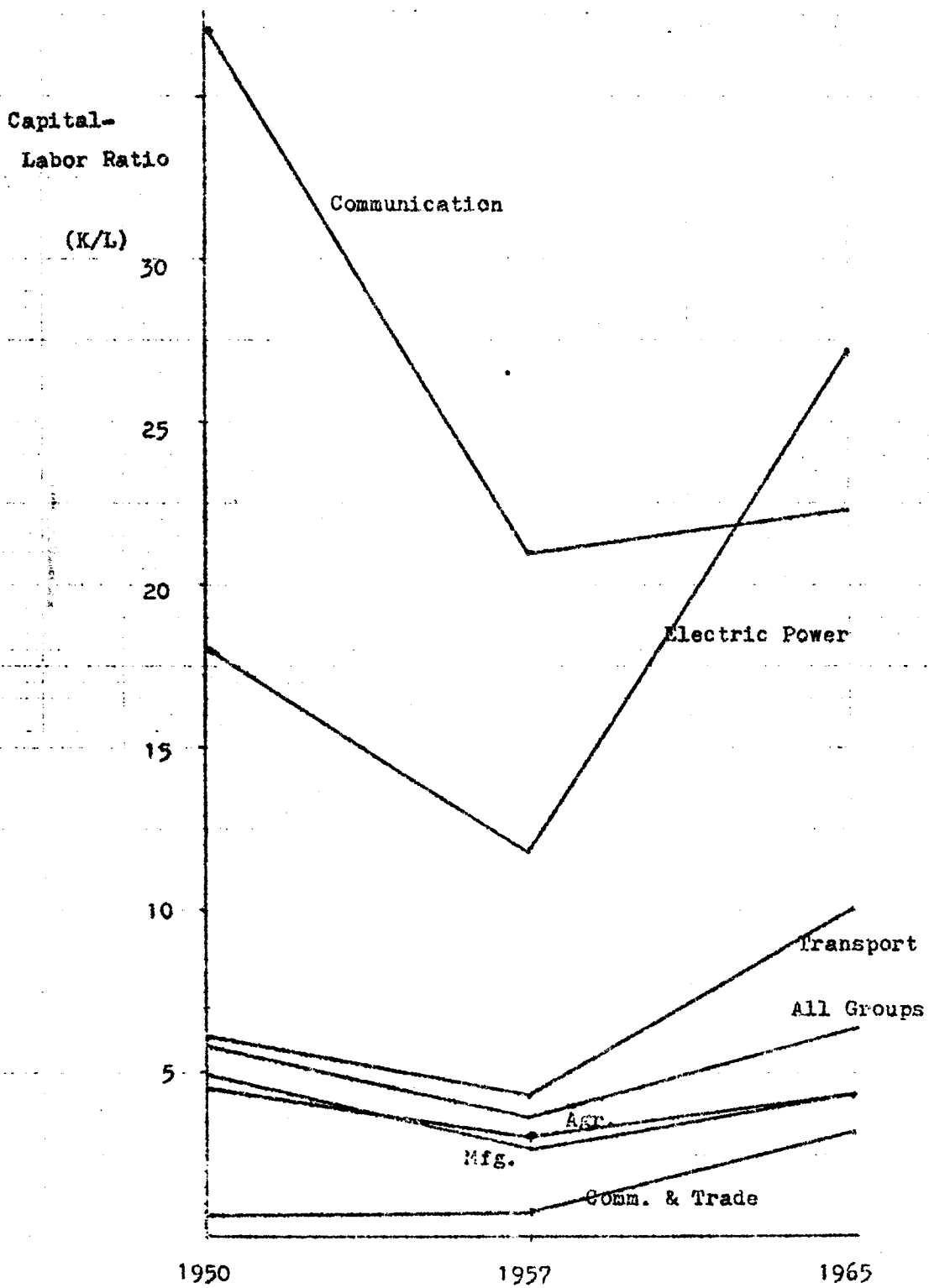
and on the capital stock. When both variables are deflated the movements in the ratio of the two reflect changes in the proportions in which the two factors are employed in covered firms. Figure 4 below, presents information on the K/L ratio for major industry groups for the years 1950, 1957 and 1965.

Between 1950 and 1957 the K/L ratio in all industries except one declined, while from 1957 to 1965 all the ratios rose. These findings are not inconsistent with the view that the overvalued peso of the late 50's and early 60's induced a movement along a production isoquant which produced capital-intensive production methods. Actually, it takes at least several years for investment decisions favoring capital to be translated into high K/L ratios, since the stock of capital is a function of past investment activity.³⁶ Thus the rise in the ratio in 1965 might legitimately be considered the product of investment behavior of the entire period 1955-1965.

The capital-labor ratio for all industry groups also shows a distinct rise between 1957 and 1965. In addition, the ratio for 1965 is somewhat higher than 1950. This is significant because wartime destruction to the capital

³⁶In the data presented here we have assumed a ten-year life of capital for purposes of deflating K. The values of K in current prices, however, are taken directly from the industry financial statements.

Figure 4

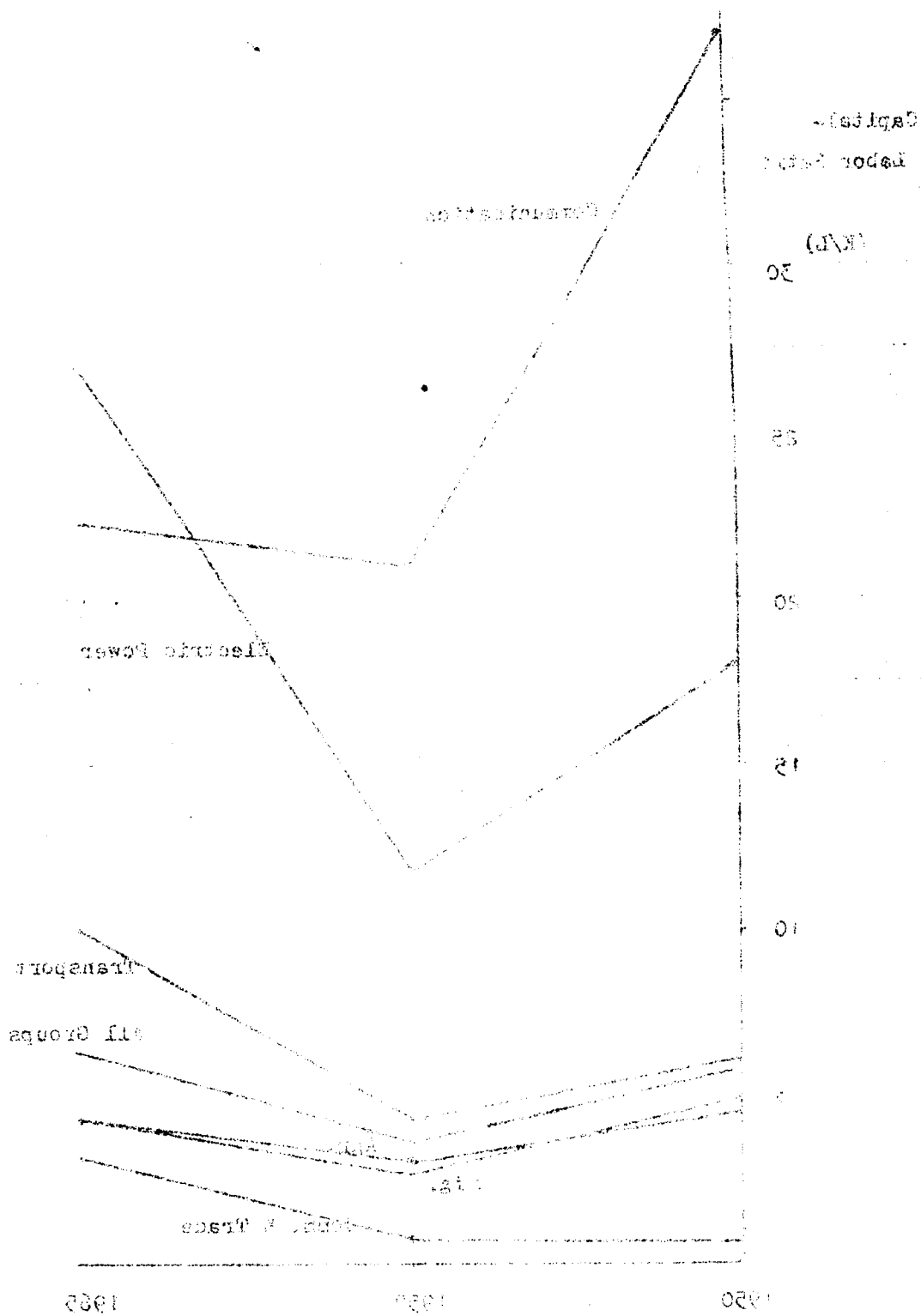


Capital-Labor Ratios by Industry for the Private
Corporate Subsector, 1950, 1957 and 1965

Source: Appendix tables on Private Corporate Financial Statements

Corporate Financial Statements, 1950, 1955, and 1965

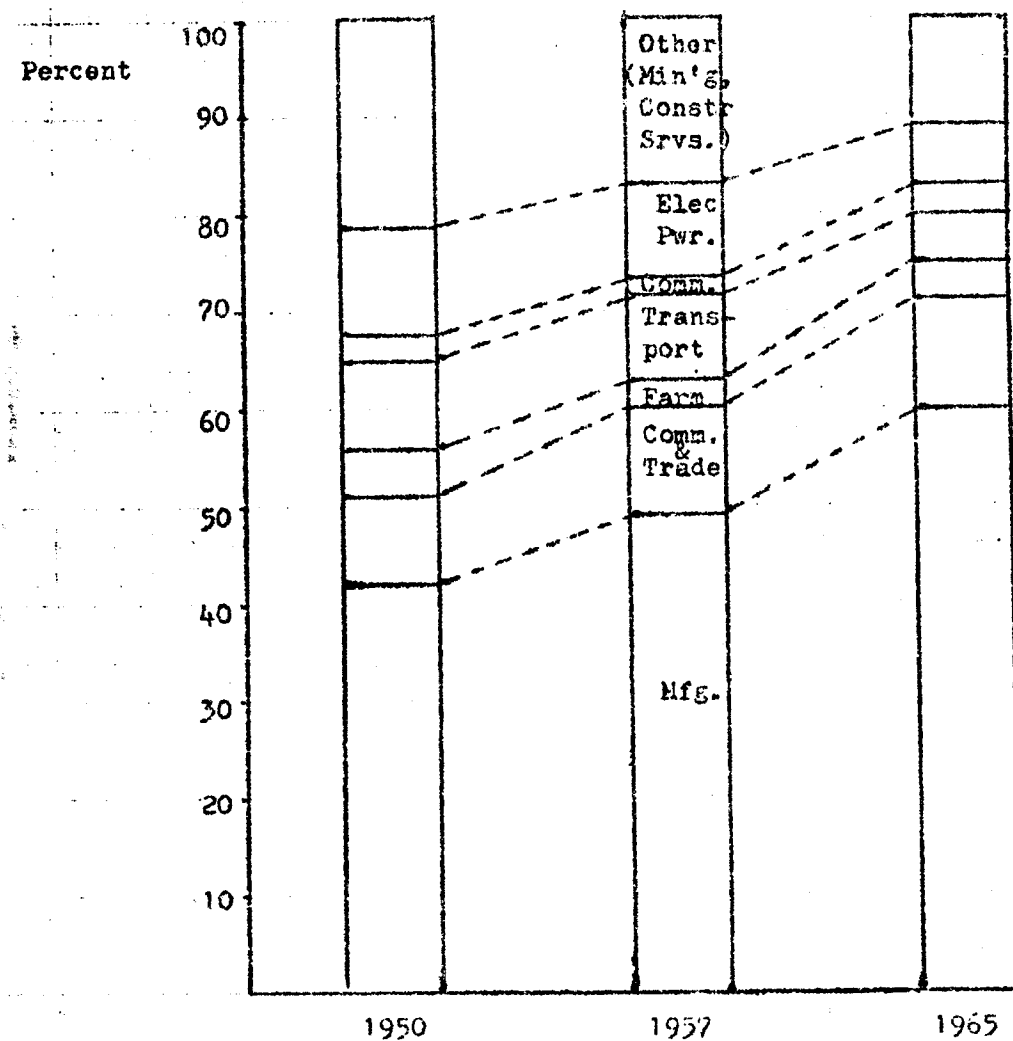
Capital-Intensive Industry for the Private



stock was extensive in the Philippines, and complete rebuilding was probably not completed as of 1950--signifying that the 1950 ratio was probably abnormally high.

In fact, the rise in the industry-wide K/L ratio would have been greater except for special trends in the composition change which tended to produce a lower K/L. This can be seen from Figure 5 below, which shows that the capital stock invested in manufacturing and commerce expanded (relatively) at the expense of the stock in transport, electric power, communication, mining, etc. It is precisely these latter industry groups where the ratio is high. In a sense, this situation produced a kind of a repressed unemployment", since the expansion of capital stock in manufacturing and commercial activities at the expense of overhead activities is a pattern of capital formation that is only temporarily viable. When the reverse took place after 1965, demand for labor dried up. Indeed, this drying up of demand for labor was already evident before 1965. Between 1963 and 1965, the payroll total for all private corporations increased by only 10.9 percent. This compares with a 8.0 percent increase in unskilled wage rates, implying a real growth in labor force here of about 1-1/2 percent per year. This contrasts with a rate of growth of (deflated) payroll of approximately 5 1/2% for the period 1950-1962. If we

Figure 5



Distribution of the Fixed Capital Stock of Private
Corporations, 1950, 1957 and 1965

Source: Appendix tables on Financial Statements of Private Corporations.

assume that the supply of industrial labor was growing somewhat faster than total population growth, than an annual growth rate of from 4-5% would be a reasonable estimate of required "full absorption" demand. The rate of growth of labor demand by private corporations up to 1962 equalled or exceeded this, but between 1963 and 1965--years of sharply increasing capital intensity in production--it fell far short of it.³⁷

A natural hypothesis to explain these facts--high capital intensity and low labor absorption--is the existence of factor-price disequilibrium in Philippine industry. As Power and Sicat see it, the undervaluation of capital costs associated with the overvalued peso of the 50's and early 60's and the availability of industrial capital at artificially low interest rates (from government financial institutions) induced the substitution of capital for labor in the industrial process.³⁸ To this must be added the upward push on labor costs by a doubling of the minimum wage rate in 1963. In light of the finding

³⁷ Figures on corporate payroll come from the Appendix Tables on Sources and Uses of Funds. The wage rate index used for deflation is from the Central Bank Statistical Bulletin.

³⁸ J. Power and G. Sicat, Industrialization in the Philippines (Quezon City: School of Economics Discussion Paper No. 70-11, April 24, 1970), pp. 123 ff.

of Sicat in an earlier study³⁹ that the elasticity of factor substitution between capital and labor is at least unity for much of domestic manufacturing, and considerably higher for some industry groups, these factor price distortions assume considerable importance.

If these factors have the expressed effect on capital intensity, then we ought to be able to explain observed changes in capital-labor ratios by reference to them. As an experiment, let us consider observed changes in the capital-labor ratio of the manufacturing subsector for the period 1950-1965. Following the hypotheses outlined above we then postulate a relationship as follows:

$$K/L = +B_1 \left[\frac{R_F}{R_O} \right] + B_2 C + B_3 W + B_4 A$$

We would prefer to think of (K/L) as referring to the ratio of capital to labor as embodied in additions to the stock of capital--i.e., new investment--rather than the whole stock of capital. We say this because once capital equipment is purchased, the potential for varying the ratio of capital to labor is greatly narrowed. However, correct measurements of ΔK and ΔL would require

³⁹G. Sicat, Industrial Production Function in the Philippines (Quezon City: School of Economics Discussion Paper No. 68-18, May 23, 1968), pp. 5-1 to 5-10.

information on the utilization of capital as well as on the average hourly work week which we do not have. Consequently, in our empirical fits we have measured capital intensity in terms of the existing stock of capital. The explanatory variable $\left[\frac{R_F}{R_O} \right]$ measures the relationship between the free market value of the peso and the official rate, or the degree of overvaluation. C is the volume of credit extended to industry for capital expenditures by government financial institutions on favorable terms. W is the wage rate of unskilled laborers as calculated by the Central Bank and A is a measure of the average size of manufacturing firms--i.e. total assets divided by number of firms. The last variable is included because of our finding, mentioned earlier, of a systematic relationship between size of firm and capital intensity of production.

The results of regressing the above formulation on annual time series of manufacturing from 1950-1965 are shown below in Table 7. The foreign exchange rate $\left(\frac{R_F}{R_O} \right)$ and the average size of firms (A) are always significant at the 99 percent confidence level. The volume of Development Bank lending takes the wrong sign in the first regression and is not significant in the other runs. The wage rate takes the wrong sign and is not significant when it appears alone, but when it is combined with $\left(\frac{R_F}{R_O} \right)$ the

Table 7

Determinants of the Capital-Labor Ratio
in Manufacturing for the Period 1950-1965

$$\frac{K}{L} = \frac{1.76}{(1.65)} + \frac{.028}{(2.56)} \frac{R_F}{R_O} - \frac{.008C_F}{(.30)} + \frac{.004A}{(4.13)} - \frac{.013}{(.81)} W$$

$$\bar{R}^2 = .79$$

$$DW = 2.38$$

$$\frac{K}{L} = \frac{-.71}{(.78)} + \frac{.007}{(.28)} C_F + \frac{.005}{(4.64)} A + \frac{.024}{(2.37)} \frac{R_F}{R_O} - W$$

$$\bar{R}^2 = .75$$

$$DW = 2.14$$

$$\frac{K}{L} = \frac{6.65}{(1.53)} - \frac{.006}{(.44)} \frac{R_F}{R_O} + \frac{32.7}{(.99)} C_F - \frac{.032}{(.74)} W$$

$$\bar{R}^2 = .53$$

$$DW = 1.92$$

results are significant at the 99 percent confidence level.

We note particularly that when average size of firm is omitted from the regression as in the third run, the precision of the fit and reliability of all the coefficients drops markedly. We might be tempted to explain this result as due to some spurious correlation between labor (L) and the number of enterprises, since the dependent variable is the ratio K/L and the independent variable A ($= K/\text{Number of firms}$). But we know from the cross-section data presented earlier that K/L and the average size of firms are related in a distinctly non-linear fashion. Moreover, we note that when A is inserted in the regression there is a decided improvement in other variables. The matrix of simple correlation coefficients indicates a very low degree of multicollinearity between A and the other independent variables. We are therefore inclined to view the coefficient of A in the regression shown as reflecting a genuine relationship between the capital-labor ratio and the size of firms.

The Government Sector

The government sector consists of national and local government units on a consolidated basis. Local

government includes provincial as well as municipal governments of major cities such as Manila and Cebu which have their own budgets. In addition there are government agencies--hospitals, etc.--, which produce services of a public nature and which are funded from general revenue. Most of these agencies derive only a small portion of revenues from operations.

The total of government sources of funds is about 12 percent of GNP. Of the total flow, about nine-tenths is derived from taxes and the remainder comes from other sources--e.g. fees and borrowing. Given that the fraction of taxes to GNP is so low, one might suppose that the other sources of funds, such as borrowing, would be correspondingly higher. But this is not so. The level of borrowing is relatively modest, and seldom exceeds one-half of 1 percent of GNP. Roughly half of this borrowing is long-term, with heavy reliance on the Central Bank of the Philippines and on the government-owned Philippine National Bank. In addition there is a very large item under miscellaneous liabilities. This item consists mainly of accounts payable by the various government sectors. Not only is it large but it fluctuates considerably. Its potential impact from a standpoint of monetary and fiscal policy is considerable. Obviously fluctuations in liabilities can change the cash position

of the other sectors of the economy substantially and, because of their size, may have over a short period even greater impact than changes in money supply.

On the outlay side of the government account, close to one-half of uses is accounted for by wage and salary payments. Another 12 percent is devoted to capital formation. A surprisingly large amount of funds--approximately 10 percent of total uses--is devoted to financial accumulation. These accumulations take the form of deposits with a variety of loan institutions. The reason for this high level of financial accumulation may be as a means of exercising influence over particular financial institutions. In other words, a large government deposit for a particular financial institution is virtually the same as a subsidy to that institution.⁴⁰ A relatively small amount of total uses--about one-fourth--is accounted for by purchases of intermediate goods.

The Household Sector

Wage and salary income accounts for somewhat less than one-half of total sources of household income; entrepreneurial income accounts for much of the remainder. As expected

⁴⁰ Actually, it may reflect the influence of a single businessman over the government.

consumption accounts for most of household sector uses. Note that the ratio of payroll to entrepreneurial income has fallen somewhat over the entire period. It is not clear however, whether this trend is significant.⁴¹ Note that receipts from the sale of real estate earlier in the period were running as about 4 percent of total non-financial sources, and at the later part of the period rose to about 6 percent. Personal taxes which in 1949 accounted for 3 1/2 percent of total non-financial outlay, rose to 4 1/2 percent in 1962, indicating that the tax system has not been used effectively as an intersectoral financial flow stimulant. Finally, notice that financial sources for the household sector are concentrated in the form of consumer credit.

Rest of World Sector

In the rest of the world sector roughly three-fourths of non-financial sources are derived from merchandise imports. The main item in the rest of world uses is exports from the Philippines. The balance of imports over exports plus the excess of the net increases of Philippine liabilities over the net increase in Philippine assets

⁴¹It is difficult to evaluate this trend until more is known about methods used for household income estimation.

yields a total which can be thought of as representing savings by the ROW sector. Alternatively, this can be represented as the Philippines' balance of payments with the rest of the world. In the table which follows - Table 8 - there is shown a change in ROW liabilities and assets over the entire period. Note that changes with a negative sign (which indicate an outflow of capital to the ROW sector from the Philippines) are registered for every year from 1953 through 1961. After 1961 the same figure becomes positive, indicating an inflow of capital from ROW to the Philippine economy. The significant event that occurred during 1961 to explain this change in the direction of foreign capital flows was of course the devaluation of the peso.⁴² That is to say, between 1953 and 1961 when the peso was overvalued there was a steady outflow of capital to the ROW sector from Philippine domestic sectors; after 1961 there was a steady inflow of capital from ROW to the domestic sectors. Over the entire period there was an outflow of capital from the Philippines of approximately 900 million pesos. However, the devaluation of the peso in 1962 largely erased most of the effects of the previous outflow of capital. It is not clear if these same trends are shown in the balance of

⁴² The devaluation occurred in February, 1961. Its effects first showed up with the expected lag, in 1962.

TABLE 8

Changes in Rest-of-World Assets and Liabilities
and Capital Flow 1949-1965

	R-O-W LIABILITIES	R-O-W ASSETS	NET CHG IN BA- LANCE OF PAYMENTS
1949	322	0	-322
1950	(90)	261	+351
1951	61	(41)	-202
1952	4	30	+ 26
1953	68	0	- 68
1954	35	(66)	-101
1955	386	108	-278
1956	177	75	-102
1957	456	108	-348
1958	163	82	- 81
1959	291	265	- 26
1960	422	256	-166
1961	1,002	627	-375
1962	347	528	+181
1963	506	595	+ 89
1964	433	613	+180
1965	1,295	1,528	+233
			<u>-909</u>

a negative figure indicates outflow of capital (inc. in ROW LIAB.) while a positive figure indicates an inflow of capital.

SOURCE: Sources and Uses Table, Appendix 2.

payments data as usually presented because those tables often omit some of the item estimates that are contained in the sources and uses worksheets. In any event this is a rather striking illustration of the effect of devaluation of currency not simply on the net trade balance but also on the direction of capital movements.

Summary

We have drawn a thumb-nail sketch of intersectoral financial flows in the Philippines, focusing attention on the growth of these flows since 1949. We have shown that when related to aggregate income, financial activity grew about twice as fast as the rest of the economy. If the financial system of the Philippines is set alongside other countries - and we have used the U.S. and Japan for comparison - it is not as underdeveloped as one might suppose. When related to income, for example, net funds raised by intersectoral financial flows is smaller in the Philippines than Japan, but it is about the same as the U.S. What strikes one particularly is the lack of symmetry in the Philippine case. The structure of funds seems to have developed rapidly in the private sector but surprisingly slowly in the public sector.

One of the most constructive developments in the post-War period has been the shift in the composition of

household saving away from a dominance of tangible assets (residential structures, consumer durables) toward financial assets such as bank deposits, insurance claims, etc. This shift seems to have been brought about mainly by (1) an upward adjustment of deposit rates of interest⁴³ and (2) an improvement in the quality of financial assets available. Since the interest rate is simply one dimension of a financial contract (and not always the most important one), both these reasons pertain to increased competitiveness of financial assets.

These conclusions emphasize the role of the interest rate in determining consumption. As such they may appear to be consistent with a neoclassical theory of savings.

True, this theory does emphasize the importance of the interest rate as a determinant of savings and also the level of demand for money balances.⁴⁴ But the similarity is more apparent than real. We do emphasize the role of the interest rate as a determinant of saving behavior. But in our view, the most important function of the interest (deposit) rate is as a determinant of the

⁴³In this context "deposit rate of interest" refers to the return on household financial claims broadly viewed to include claims on bank and non-bank liabilities.

⁴⁴D. Patinkin, Money, Interest and Prices, second ed., (New York: Harper and Row, 1965).

composition of household saving. Again, whereas the neoclassical approach focusses on the role of the interest rate in the process of achieving equilibrium in an institutionally "given" set of markets, we are interested in explaining the role of interest rates in determining the configuration of saving (and lending) institutions and long-term trends in the behavior of borrowers. Finally, whereas a neoclassical approach treats saving behavior in the aggregate, we distinguish between several saving sectors, and of these only the household sector reflects a type of behavior which predominantly deposit-rate oriented.

A substantial volume of funds has been supplied to the financial system from the earnings of the financial institutions themselves. This has been especially true of the commercial banks. While this use of earnings has been a stimulant to financial growth, we consider it possible - perhaps even likely - that faster growth could have been achieved had deposit rates of interest been raised more rapidly. This would have reduced the institutions' earnings but probably increased system deposits faster than was actually the case.

Growth of the financial system has revolved around growth of the commercial banking system. This has meant that to a considerable extent the financial system in the

Philippines has continued to utilize what is essentially a payments system (bank deposits, including demand and time) as an investment intermediary system. This sort of double-function cannot be totally avoided anywhere. But to rely on it heavily as done in the Philippine case exposes policy makers to a special dilemma in times of inflationary pressure. Cutting back on the supply of payments-media also means cutting back directly on the supply of investment-intermediary media. In such circumstances the volume of investment is directly affected, and probably proportionately more than consumption, because investment expenditures are much more dependent on availability of financial intermediation than consumption expenditures. The policy dilemma emerging from this situation is therefore clear: a dampening of monetary expansion results in a commensurate dampening of the availability of intermediary services. Without doubt the growth of non-monetary intermediary institutions that occurred after 1960 was positively influenced by the Central Bank's restrictive policies to combat the 1961-63 and later inflations. To some extent this development offset the structural weakness of the system. Yet this aspect of the process was not fully appreciated by Central Bank policy makers who generally have considered the growth of non-banking intermediation as a "threat" to the effectiveness of monetary policy. This latter view seems to put too much

emphasis on achieving monetary and balance of payments equilibrium, even at the expense of structural changes which would be disequilibrative in the short-run, but helpful in resolving the stability-investment growth in the long-run.

Non-banking financial institutions have been permitted to develop certain financial practices which have decreased their usefulness as intermediaries. Only about one-half of investible resources is converted into intersector fund flows. The remainder is utilized for home office construction, and for transfer back to the household sector (from which the funds often originated) in the form of home mortgages, policy loans and similar consumer-oriented credit extensions.

Rates of gross saving and capital expenditures are only a little lower in the Philippines than in the U.S. But they are hardly more than half the comparable rates in Japan. A large part of this difference is attributable to the performance of the government sector in the Philippines. Government investment (saving) rates have averaged between one and two percent of GNP in recent years, compared with eight to nine percent in Japan. In no respect can the government sector be considered as an important element in the level or growth of intersector flows. Behavior of many government operating

corporations has not been helpful either. Only in terms of the performance of the government insurance industry can it be said that there has been a positive government contribution to the growth of financial intermediation.

The main user of funds (borrower) is the private corporate sector. Somewhat similar to the situation in Japan, private firms do not cover enough of their capital expansion requirements from depreciation allowances. Even when sizable retained earnings are added there is still a large financing deficit. This is covered by intersectoral borrowings, to a considerable extent through commercial banks. The dependence on debt financing has been sufficiently widespread to be reflected in a steadily declining equity-debt ratio among private corporations. There is reason to believe that these corporations are operating under self-imposed constraints in the issue of new equity which are related to the object of maintaining management control. The effect of this is to lower both the quantity and quality of financial instruments available to households, and therefore to produce adverse effects on household and national saving rates.

IV

CAPITAL EXPENDITURE FUNCTIONS

The system of financial flows as presented here gives us an unusual opportunity to explore investment behavior in a less developed country. The information on types of assets held, changes in holdings and the rich detail for all these variables by sector over a continuous period of 16 years made the possibility of such an exploration too attractive to ignore. We admit that we have not had enough resources (especially time) to exploit these data thoroughly. However, we felt that if a beginning was made on this type of research and the findings proved interesting enough, further research in this area might be stimulated.

Theories of Aggregate Investment

The essence of any investment decision is that it is taken with regard to the future. Since the future is unknown, the decision-maker must formulate expectations about relevant aspects of the future situation.

According to classical theory, entrepreneurs adjust investment to the expected rate of return. One way to express this is to take present profits as a proxy for future profits⁴⁵ on the assumption that the current situation is expected to

⁴⁵J. Tinbergen and J.J. Polak, The Dynamics of Business Cycles (Chicago: University of Chicago Press, 1950).

continue into the next period. Others, in an attempt to bend this assumption closer to reality, assume that relevant variables are expected to grow at fixed and pre-specified rates.⁴⁶ Another approach involves basing expectations of future profitability on valuations of firms as provided by indices of stock prices, on the assumption that market behavior accurately reflects businessmen's evaluation of future prospects, or at least that they take such behavior into consideration when making investment decisions.⁴⁷

Some authors have emphasized the role of sales in determining investment behavior.⁴⁸ The assumption underlying this approach is that firms seek to maximize their share of the market subject to a constraint with respect to a minimum rate of return on investment. This, too, leads to a theory of income maximization, although of a somewhat different sort.

One of the interesting aspects of sales-oriented investment functions is that they facilitate introduction of the acceleration principle in explaining businessmen's

⁴⁶F. DeLeeuw, "The Demand for Capital Goods by Manufacturers: A Study in Quarterly Time Series," Econometrica, V.30.

⁴⁷F. Modigliani and M. Miller, "The Cost of Corporate Capital Finance and the Theory of Investment," American Economic Review, Vol. 48.

⁴⁸R. Eisner, "A Permanent Income Theory of Investment: Some Explorations", American Economic Review, June, 1957.

response. When a distinction is made between replacement investment and new (autonomous) investment, the theory bifurcates into two theories--one concerned with decisions of replacement and one focusing on net additions to the capital stock. The first is obviously a function of the size of the existing stock. The second is often framed in terms of lagged stock adjustment models,⁴⁹ when the investment required to restore an optimum capacity-output relationship can be defined as

$$I = f(K^* - K),$$

where I is the required investment, K^* is desired (or optimum) investment and K is the existing capital stock.

But how does one specify and calculate the desired capital stock? The most elegant answer to this important question has been given by Jorgensen.⁵⁰ He defines the present value of a firm as the integral of discounted future revenues less discounted future outlays on both current and capital account. The flow of revenues is

⁴⁹H.B. Chenery, "Overcapacity and the Acceleration Principle," Econometrica, January, 1952.

⁵⁰D.W. Jorgensen, "Anticipations and Investment Behavior," in J. Dusenberry, E. Fromm, L. Klein and E. Kuh (eds.), The Brookings Quarterly Model of the U.S. (Amsterdam: North Holland, 1965, pp. 35-92; see also "The Theory of Investment Behavior", in R. Ferber (ed.) Determinants of Investment Behavior (N.Y.: Columbia for N.B.E.R., 1967), pp. 129-155.

assumed to be maximized subject to two constraints. First, levels of output and input are constrained by a Cobb-Douglas production function and second, the rate of change of the capital input is proportional to the flow of net investment (unity proportionality).

Jorgensen then proceeds to define an optimization theorem for investment behavior. If u is the rate of corporate income taxation, v , w and x the proportions of depreciation, capital cost and capital loss to be charged against current net revenues, the marginal productivity condition for the maximization of the current value of the firm is given by the expression

$$\frac{\partial Q}{\partial K} = \frac{f \frac{1-uv}{1-u} \partial + \frac{1-uw}{1-u} r - \frac{1-ux}{1-u} \frac{\dot{q}}{q}}{p} = \frac{c}{p}$$

The variables p and q represent the prices of output and investment in capital stock, respectively, r is the cost of capital and $\frac{\dot{q}}{q}$ is the rate of capital loss. The variable c , representing the numerator of the above expression, is the implicit rental price for capital services supplied by the firm to itself. Although the rental price, c , is a result of the interplay of a number of variables, it is important to note that the price levels of output and capital (p and q) and the cost of capital (the rate of interest, r) play especially pro-

minent roles in the final outcome. Jorgensen then goes on to show that the desired capital stock K^* is given by

$$K^* = \alpha \frac{PQ}{c}$$

Problems of Applying Neoclassical Theories to Investment Behavior in LDC's

The above discussion helps to make clear the importance which the neoclassical theory of investment attaches to anticipated profitability. That this approach is of some use in explaining the investment behavior of existing Philippine firms has been demonstrated by Sicat and Hooley.⁵¹ What is important here is the term existing firms. This raises the question whether the theory of investment should be derived as the aggregation of a micro theory or as a separate macro theory. In practice, the first approach has usually been followed on the assumption that "having articulated the theory of investment at the level of the individual firm...we may proceed synthetically to deduce relationships among broad economic aggregates which govern the investment desires of the business sector as a whole."⁵²

⁵¹G.P. Sicat and R. Hooley, "Investment Demand in Early Stages of Growth: The Case of Philippine Manufacturing," The Journal of Development Studies, January, 1971.

⁵²R. Eisner and R. Strotz, "Determinants of Business Investment," in Commission on Money and Credit: Impacts of Monetary Policy, (Englewood Cliffs: Prentice Hall, 1963), p.61.

There are well-known problems of aggregation in transforming a micro theory into a macro theory in this way, which a number of writers have pointed out.⁵³ There is, however, an additional problem which we have not seen mentioned which is of special relevance in an LDC. This concerns the phenomenon of new firm formation.⁵⁴ What about the decisions to invest which involve the establishment of new firms?

There is no assurance that the factors which shape the investment decisions of firms will also operate in the same way to influence the decisions of households, for example, in investing in new firms. Admittedly, this is probably not an important consideration in developed countries where new firms must account for only a small share of industry-wide capital expenditures. But the situation in LDC's is far different. In Table 9 below we present data for manufacturing concerns and for firms engaged in wholesale and retail trade. If we confine attention to manufacturing corporations, existing firms account for roughly 95% of industry investment--assuming that new and existing corporations use borrowed capital in similar proportions. However,

⁵³ See, for example, J. Boot and G. DeWitt, "Investment Demand: An Empirical Contribution to the Aggregation Problem," International Economic Review, Vol. 1, 1960; see also E. Malinvaud, Statistical Methods of Econometrics (Amsterdam: North Holland, 1970).

⁵⁴ Most of the econometric studies of investment behavior have been based on data derived from the accounting statements of existing firms, such as presented in Moody's Investment Manuals.

Comparison of Retained Earnings of Existing Firms
With Paid-In Capital of Newly Registered Companies
 (mill pesos)

<u>Manufacturing</u>				
	Retained Earnings of Existing Corps	Paid-In Capital of New Corps	Retained earnings of unincorporated Firms	Paid-In Capital of Newly Regis- tered Unincor- porated Enter- prises
1960	208	14	52	33
1961	290	17	64	30
1962	397	33	75	31
1963	560	37	90	40
1964	556	26	75	31
1965	462	27	57	37
Ar. 60-65	412	26	69	34

<u>Wholesale and Retail Trade</u>				
	Retained Earnings of Existing Corps	Paid-In Capital of New Corps	Retained earnings of unincorporated Firms	Paid-In Capital of Newly Regis- tered Unincor- porated Enter- prises
1960	71	7	103	49
1961	92	12	140	64
1962	72	15	76	83
1963	66	17	137	90
1964	108	18	178	96
1965	49	20	122	100
Ar. 60-65	76	15	126	80

SOURCE: Retained earnings of existing firms calculated from worksheets of Financial Flows Study. Paid-in capital of new enterprises from Central Bank, Statistical Bulletin, various years.

when one moves to unincorporated enterprises, the share of newly registered firms in total capital formation rises to about one-third.

The situation is even more striking in the trade and commerce sub-sector. Here newly registered firms account for a substantial share of total investment. During the same period, investment in new firms was 47 percent as large as investment in all existing firms.⁵⁵ What is undoubtedly happening here is that many of the new firms are formed primarily in the trade sector, and the successful ones move over into the manufacturing sector later as they integrate manufacturing processes into their commercial operations. Among other sectors of the Philippine economy--agriculture, transport, construction, certain types of services--the impact of new enterprises on investment activity is also likely to be quantitatively important; in others, such as electric power and communications (where concentration ratios are high) the impact of new firm investment may not be as significant. For the whole economy, however, limiting our view exclusively to the behavior of existing firms will result in overlooking a substantial volume of investment

⁵⁵ In making these comparisons we have assumed that investment funds from retained earnings and newly issued shares are used exclusively for financing capital expansion.

activity with the extent of the error varying considerably by industry group and, presumably, over time as well.

The significance of these findings is not limited to the observation that investment functions which measure the capital expenditures of existing firms may miss a considerable volume of investment activity. The point is that existing formulations are apparently missing what is perhaps the most dynamic part of investment activities in LDC's--the organization of new enterprises and their expenditures on new forms of capital. Nor should this be very surprising. Again and again theoreticians have pointed to the crucial role played by entrepreneurship in LDC's. What is entrepreneurship if it is not the staging of innovations incorporating known advances in technology? In a new society one must expect that this process is to a considerable extent embodied in the formation of new firms. In short, a useful aggregative capital expenditure function must reflect the investment behavior of new firms as well as existing ones.

A second problem in applying neoclassical investment demand functions to explain investment behavior in an LDC concerns the role of returns and costs in formulating investment decisions. It is clear that the emphasis in neoclassical type approaches is on the level of demand for

capital investment as determined by expected net returns. What about supply? The presumption is that at given levels of income savings supply is highly elastic and can always be equilibrated with changes in the level of demand by small changes in the interest rate. In LDC's, however, we must consider the possibility that investment demand may chronically exceed ex ante savings at existing rates of interest, due both to imperfections in the capital markets as well as possible interest-inelasticity in the supply of household savings. That is to say, effective equilibration of the demand and supply of investment funds is possible (if at all) only at extremely high, socially unacceptable rates of interest.⁵⁶ It seems possible to us that as national rates of capital formation have risen, a chronic shortage of capital supply may have developed in the Philippines. This situation--the transition from a situation of deficiency of investment demand to one of chronic funds supply deficiency has been well described by Hirschman.

The transition from...the point where the growth limiting factor turns from the ability to invest to the supply of savings should not be considered as a turning point neatly defined in time.

⁵⁶ A similar situation exists in agriculture in many LDC's: high food prices can affect the allocation among individual crops but have negligible effects on total food crop supply. Changes in aggregate agricultural prices cannot equilibrate the demand and supply of food.

Since intersectoral mobility is far from perfect both for savings and for development skills, the transition may mean that the country will from then on have to follow a slower expansion path than hitherto unless it takes special measures that range from the procurement of large-scale capital imports to fiscal and monetary reforms as well as to the forcible compression of mass consumption.⁵⁷

There are two elements in Hirschman's thinking which bear emphasizing. One is the developing shortage relative to the growth of entrepreneurial, technical and administrative skills. Anyone familiar with Philippine post-World War II society hardly needs to be convinced of the very rapid growth of these skills. In recent years it probably could be said without fear of contradiction that the level of development skills has been higher in the Philippines than in other countries in Southeast Asia. On the other hand, we have already shown earlier in this paper that the level of domestic savings is certainly not at particularly high levels for a country seeking to develop rapidly. A reasonable inference, therefore, is that a shortage of (ex ante) savings appeared during the period after World War II which became much more pronounced after 1960.⁵⁸

⁵⁷ Albert Hirschman, The Strategy of Economic Development, (New Haven: Yale University Press, 1969).

⁵⁸ The official foreign exchange rate was ₱2:\$1 until a floating rate of ₱4:\$1 was adopted in stages from 1960 to 1962. The over-valued rate had the effect of substantially reducing the difference between ex ante S and I since most capital goods are imported.

The second point to notice in Hirschman's approach is the absence of any reference to changes in interest rates as a policy measure which could be counted on to alleviate the shortage of capital. Obviously Hirschman feels as we do, that the disparity between required and available capital resources has to be closed by fundamental structural changes in the size and character of financial flows. These structural changes may arise from the establishment of new financial institutions, development of new capital markets, a change in the public attitude toward foreign investment, etc. Changes such as these occur slowly, and the financial system may be in disequilibrium for a prolonged period of time. Changes in interest rates may be a necessary condition in bringing about the necessary institutional changes, but they probably are not a sufficient condition.

An economy operating under the conditions described above would be correctly described by an investment function in which the independent variable(s) consist of determinants of capital supply. In other words, it is not investment demand which is the relevant constraint but the supply of investible resources. In the following section we develop and test a number of investment functions which relate aggregate capital expenditures--either for the country as a whole or by sector--to the supply of capital.

Capital Expenditure Functions

In order to test the hypothesis that it is the supply of funds rather than the demand that governs investment, we will construct capital expenditure functions for the main sectors of the economy. Capital expenditures can be financed from two main types of sources: internal or external funds. External sources of funds may be used as alternatives to income, or in conjunction with income to finance investment expenditures. The basic equation which incorporates the structural features of the model we have in mind is therefore

$$C = \alpha + \beta_1 Y + \beta_2 Ex$$

where C denotes capital expenditures, Y income after taxes, Ex the volume of outside financing and α , β_1 and β_2 are constants to be estimated.

The results of regressing the above equation on sectoral data can be grouped into four possible outcomes. First, the coefficients β_1 and β_2 may both be significant, in which case we conclude that capital expenditures for that particular sector depend on both income and the volume of external financing available. Second, the coefficient β_2 may be significant but β_1 is not, in which case we conclude that external financing is a determinant but income is not.

Third, β_1 may be significant but β_2 may not be, which would lead to the inference that income is a determinant of capital expenditures but the volume of external finance is not. Finally, neither β_1 nor β_2 may be significant, which would lead to the conclusion that factors other than income and the volume of available external finance account for sectoral investment. Our hypothesis, that the volume of external finance is available to a sector is an important determinant of capital expenditures of that sector is acceptable if fits of our regression equation yield either the first or the second outcomes; it is rejected if we obtain either the third or fourth outcomes.

Data on a sectoral basis are available from the flow of funds tables for all the above variables for a sixteen year period. We regressed the above equation on data for a number of sectors, and for a variety of definitions of external funds of the period. The symbols used to denote the variables are as follows:

C_F^B = capital expenditures of corporate business for plant and equipment

C_F^H = capital expenditures of households for residential dwellings

C_{NF}^B = capital expenditures of corporate business for inventories

C_{NF}^H = capital expenditures of households for durable goods

- C^G = capital expenditures of the government sector
 Y^H = household disposable income
 Y^B = retained earnings of corporate business
 Y^G = tax receipts plus grants of the government sector
 M^H = mortgage borrowing of households
 C_{on}^H = household borrowing on consumer credit
 E_q^B = external funds of corporate business raised through sale of equities (net)
 SL^B = short-term ^{borrowings} ~~bases~~ of corporate business
 LL^B = long term borrowings of corporate business
 TR^B = borrowing on trade credit by corporate business
 SL^G = short term borrowings of the government sector
 LL^G = long term borrowings of the government sector
Dum = dummy variable denoting presidential election years

On the whole the results are promising. Equation I in Table 10 makes total capital expenditure a function of business and household income and total external finance. The coefficient for external finance is significant at the 99 percent level and that for income at the 95 percent confidence level. The correlation coefficient indicates that approximately 90 percent of variation in capital expenditures is accounted for by the independent variables and the Durbin-Watson statistic is high enough for us to infer that there is little serial correlation present.

TABLE 10

Capital Expenditure Functions for the Private Sector⁺

$$\text{I. } (C^H + C^B) = 279.5 + .12 (Y^H + Y^B) + .682 (M^H +$$

(0.83) (1.96) (2.52)

$$C_{on}^H + E_q^B + SL^B + LL^B)$$

$$R^2 = .89$$

$$DW = 1.71$$

$$\text{II. } (C_F^H + C_F^B) = 395.1 + .041 (Y^H + Y^B) +$$

(1.75) (0.86)

$$1.53 (M^H + LL^B + E_q^B)$$

$$\bar{R}^2 = .88$$

$$DW = 1.49$$

$$\text{III. } (C_{NF}^H + C_{NF}^B) = -358.1 + .057 (Y^H + Y^B) +$$

(4.90) (4.53)

$$.272 (C_{on}^H + SL^B)$$

(1.97)

$$\bar{R}^2 = .91$$

$$DW = 1.73$$

NOTE: All DW values are above the upper limit, indicating no significant degree of autocorrelation.

⁺The values below the coefficients in parentheses are t-values.

Source: Appendix Table I.

When we shift our attention to fixed capital formation, however, we find that external finance is the only significant explanatory variable. This can be seen by referring to equation II. In contrast, equation III shows that for non-fixed capital (inventories, consumer durables), income is a significant explanatory variable and external finance is not significant. Both of these fits are good, except that equation II has a Durbin-Watson statistic which falls in the indecisive range so there may be serial correlation present.

The net upshot of these fits is that changes in the supply of internal and external funds together explain about 80 percent of the variation in private sector capital expenditures. Internal funds are the major determinant of non-fixed capital expenditures while external finance is the major determinant of expenditures on fixed capital.

We now turn to a study of the behavior of capital expenditures disaggregated by sectors. We look first at the business sector which is of particular importance as it accounts for approximately one-half of total national capital expenditures.

Results of fitting capital expenditure functions for the corporate business sector are shown in Table 11 below.

TABLE 11

Capital Expenditure Functions for Corporate Business⁺

$$\text{I.} \quad = \begin{matrix} -.005 \\ (.98) \end{matrix} + \begin{matrix} .54 Y^B \\ (5.89) \end{matrix} + \begin{matrix} .57 (SL^B + LL^B + Eq^B) \\ (4.09) \end{matrix}$$

$$\bar{R}^2 = .95 \quad DW = 1.66$$

$$\text{II.} \quad C_F^B = \begin{matrix} -95.5 \\ (1.79) \end{matrix} + \begin{matrix} .37 Y^B \\ (3.04) \end{matrix} + \begin{matrix} .87 (LL^B + Eq^B) \\ (2.79) \end{matrix}$$

$$\bar{R}^2 = .92 \quad DW = 1.81$$

$$\text{III.} \quad C_F^B = \begin{matrix} 9.15 \\ (0.12) \end{matrix} + \begin{matrix} 1.05 E^B \\ (2.79) \end{matrix} + \begin{matrix} 1.42 (LL^B + TR^B) \\ (6.35) \end{matrix}$$

$$\bar{R}^2 = .89 \quad DW = 2.28$$

$$\text{IV.} \quad C_{NF}^B = \begin{matrix} 69.9 \\ (3.74) \end{matrix} + \begin{matrix} .74 (SL^B) \\ (9.67) \end{matrix}$$

$$\bar{R}^2 = .85 \quad DW = 1.32$$

$$\text{V.} \quad C_{NF}^B = \begin{matrix} 35.8 \\ (3.11) \end{matrix} + \begin{matrix} .44 (SL^B + TR^B) \\ (17.93) \end{matrix}$$

$$\bar{R}^2 = .95 \quad DW = 1.44$$

NOTE: All DW values are above the upper limits, indicating no significant degree of autocorrelation

⁺The values below the coefficients in parentheses are t-values.

Equation I relating aggregate capital expenditures to retained earnings and total external finance gives a rather good fit. Both the income and external finance coefficients are highly significant, and the Durbin-Watson statistic suggests freedom from serial correlation. The $\bar{R}^2$ coefficient indicates that 95 percent of variations in expenditures is explained by this equation.

Shifting attention to expenditures on plant and equipment, equation II indicates that retained earnings and long term external finance perform well as explanatory variables. Again both coefficients are significant at the 99 percent level, the proportion of explained variance in the dependent is high and there is absence of serial correlation. Equation III was run to see the affect of removing income from the list of independent variable. The resulting fit is still satisfactory and the Durbin-Watson statistic increases substantially. We have observed in fitting many of these equations, that when serial correlation is present it is often due to the income variable.

Equation IV and V show expenditures for inventory accumulation regressed on a number of variables. Short-term loans (mostly from commercial banks) performs well as an explanatory variable, yielding a fit (equation IV) which has a highly significant coefficient. When trade credit is added

to bank loans as a definition of short-term financing, the fit is improved. We conclude that inventory accumulation is closely tied to bank loans to business.

The other part of the private sector consists of households. Household capital expenditures consist of fixed (residential structures) and non-fixed, which we define here as all other durables. Households capital expenditure fits are shown in Table 12 below.

TABLE 12

Capital Expenditures of Households+

$$\text{I. } C_F^H = 278.7 - 1.13 M^H + .077 Y^H \\ (1.83) \quad (.67) \quad (2.95)$$

$$\bar{R}^2 = .44 \quad DW = .96^*$$

$$\text{II. } C_{NF}^H = 19.23 - .001 C_{ON}^H + .022 Y^H \\ (1.83) \quad (.08) \quad (13.34)$$

$$\bar{R}^2 = .95 \quad DW = 1.23^*$$

*Indicates possibility of autocorrelation

+The values below the coefficients in parentheses are t-values

The household sector fits provide a marked contrast to those of the business sector. Income is the only significant explanatory variable for expenditures on residential construction and for other durables as well. In both cases the appropriate external finance variables take the wrong

sign and are statistically insignificant. Equation II indicates that households depend on income to finance durables expenditures. This is plausible because until 1965 banks and other financial institutions had only limited facilities for servicing this type of household expenditure.⁵⁹ Equation I which refers to expenditures for residential dwellings is also a poor fit. Evidently the supply of funds is not a good explanation of this type of expenditure. The inference can be drawn that we have here a type of expenditure which is more dependent on demand than on supply of funds.

The third major sector is the government, which accounts for approximately one-tenth of aggregate national capital expenditures. The results of fitting our model are shown in Table 13. These results suggest several inferences.

First, the most important determinant of government capital expenditures is income, and not external finance. The only external finance variable that shows any promise as an explanatory factor is long-term borrowing. In the future, this may become an important factor in determining government capital expenditures. At present, however, we are not justified in going beyond the statement that long-term

⁵⁹ Since that time the situation has change, however, and it is likely that the variable C_{ON} would prove significant for data fitted over the last 5-8 years.

TABLE 13

Capital Expenditures of the Government Sector⁺
(mill pesos)

$$C^G = 54.8 + .167 Y^G - .052 (SL^G + LL^G) \\ (1.22) \quad (4.97) \quad (.770)$$

$$\bar{R}^2 = .67 \quad DW = 1.01^*$$

$$C^G = -8.40 + .199 Y^G + .436 (LL^G) \\ (.16) \quad (5.62) \quad (1.19)$$

$$\bar{R}^2 = .68 \quad DW = 1.67$$

$$C_F^G = -17.93 + .183 Y^G + .547 (LL^G) + 44.33 \text{ Dum} \\ (.38) \quad (5.65) \quad (1.56) \quad (1.62)$$

$$\bar{R}^2 = .70 \quad DW = 1.68$$

⁺Figures in parentheses are t-values.

^{*}Indicates DW coefficient is in the doubtful range: autocorrelation may be present.

external finance may have some, but not a great degree, of influence on the size of government capital expenditures. This conforms to our previous observations made in Chapter III, concerning the relatively minor role played by the government sector in the flow of intersector finance.

The main determinant of government capital expenditures is income--i.e. gross revenues. For purposes of this experiment this includes both tax receipts and foreign direct grants. It does not seem to matter much whether we include or exclude inventory accumulation with fixed assets in measuring capital expenditures. The government does not view inventories as "bankable" in the same way as the private sector. Also, the ratio of inventory to fixed asset accumulation is quite low.

The dummy variable which is inserted in the last few fits is intended to capture the effects of political elections. A value of $Dum = 1$ was assigned for each election year and zero for other years. In several experimental fits the dummy variable always took the correct sign. The coefficient is generally accompanied by t-values of a little over unity--well below the 99 percent acceptance level. However in the last regression, which is generally the best fit, the t-value corresponds to an acceptance level of about 90 percent. We interpret this evidence as a

tentative suggestion that political factors did introduce a periodicity into government capital expenditures during the period under review.

On the whole, the last fit, which gives a corrected coefficient of determination of .70 appears to us to be the best. The satisfactory DW statistic indicates an absence of serial correlation so that the coefficients of revenue and the dummy (political) variable can be taken as valid approximations of the measure of influence of these variables on government capital expenditures.

CONCLUSION

This study of financial flows has been undertaken with a number of aims in mind. One objective was to demonstrate that accurate estimates of complex financial variables are feasible in a less developed country. This required us to adjust social accounting estimating procedures in several respects. First, we defined the household sector to include businesses with five workers or less. By doing this we spared ourselves the task of attempting to obtain information on an immense number of individual establishments which contribute in only a minor way to the major financial parameters. We were also able to sector in a way which better reflects the underlying sectoral financial behavior since "household businesses" are really part of the household sector in terms of basic behavioral characteristics. Another feature of our method is its heavy reliance on micro data. Only occasionally have we borrowed from the national income accounts--and then only for certain real transactions of the household sector. All of our other estimates for both financial and real transactions were obtained by inference from samples of economic units grouped by sector and sub-sector. This has provided us with two major dividends: first, both financial and real variable

estimates shown in our tables are comparable in terms of definitions, coverage and even in terms of the statistical sampling errors contained therein. Second, the extensive use of micro data has provided a solid foundation on which we were able to construct estimates of uses of funds in which we have genuine confidence. This last point is extremely important. It is not difficult to construct estimates of financial sources from available central bank data, and this has been done for some LDC's. But it is not possible to develop the uses of funds by business and other operating units from such data. Finally, we have provided a statistical model which can be used to estimate the statistical error in our results--a feature which we have not seen included in the financial accounts of any other country.

Turning to the substantive empirical content of the study, we find that financial flows in the Philippines have grown approximately five-fold between 1950 and 1965. Adjusted for price changes this growth is about three-fold. Put another way, in 1950 the total of intersectoral net financial flows amounted to 10 percent of national income; by 1965 the figure had risen to 30 percent. The rise in intermediation was accounted for by an increase in the issue of liabilities by non-banking financial institutions (life insurance, pension funds,

finance companies), by an increase in the issue of liabilities by operating business firms (primarily in the form of trade credit) and lastly, by the banking system in the form of savings-time as well as demand deposits. By the end of the period institutions other than banks had become a truly important feature of the financial system.

The rapid rise of intersectoral financial flows cannot be traced simply to an increase in the saving (investment) rate. The national saving rate advanced from approximately 20 percent to 24 percent from 1950 to 1965. The household saving rate made a similar advance. These are relatively modest changes. On the other hand, the composition of household saving shifted dramatically-- from an average of about one-quarter or less in the form of financial instruments during the 1950's to one-half in the 1960's. The shift in household saving composition plus the rise in the household saving rate resulted in the creation of a large intersector flow. The primary reason for the change in household saving behavior was the increased attractiveness of financial instruments offered to the public after 1960. The rise in deposit rates from 3 to 10 or 12 percent (considering effective rates) as well as the proliferation of a range of types of instruments differing in risk, maturity, terms of

withdrawal, potential participation in capital gains etc., constituted only some of the important changes. We stress these other dimensions of the deposit "return" because they may be of equal importance with the "money" rate in determining household behavior. At any rate households altered their savings portfolios in this direction. Our explorations indicate that financial instruments are not by any means a perfect substitute for tangible assets in household portfolios. Consequently, the acquisition of financial assets by households in the 1960's did not result in any substantial reduction in their acquisitions of tangible assets. The net result is that the overall saving rate rose as a result of the increased attractiveness of financial assets.

Increased household saving in financial form was matched by an equally dramatic shift in corporate investment behavior toward greater reliance on external finance. The shift in corporate financing practices was due to several factors: first, the policy of decontrol initiated in 1961 brought to an end the government subsidy to purchasers of capital equipment in the form of an overvalued currency, and therefore increased the peso cost of any given size investment program. Second, indigenous business which expanded rapidly under the aegis of controls continued to expand after decontrol. Third,

Philippine business units on the whole have not expanded equity capital at a rate sufficient to keep up with their rate of total capital expenditures. The reason for this seems obvious: they have set continued family control of the firm as a primary management objective. The way to do this, of course, is to issue debt instruments to the extent that capital expenditures exceed retained earnings.

We have compared the structure of financial flows in the Philippines with those of Japan and the U.S. Sharp contrasts and similarities appeared on several points. While household saving rates in the Philippines are not markedly lower than in the other two countries, the composition of saving is different. In the Philippines, household saving tends to be more dominated by saving in tangible assets compared with Japan. The rate of corporate saving is somewhat lower than in Japan. But the sharpest contrast is between government saving in the Philippines and the other countries. About half of the difference between the Philippine and Japanese rates of national saving is accounted for by the meagre contribution of the Philippine government. Thus the two main points of contrast are in the government and the household sectors--the former marked by a low rate of saving and the latter by a high ratio of durables accumulation.

We have analysed investment in terms of sectoral capital expenditure functions. These functions tie capital expenditures of each sector to the availability of the supply of funds (i.e. fund sources). In a number of cases we have been able to demonstrate that expenditures for certain types of assets is dependent upon specific types of financial sources. We feel that expenditure functions of this type are particularly relevant to the Philippine economy because they are constructed on the implicit assumption that the most critical financial bottleneck is located on the supply side. This contrasts with the assumption that demand factors are the most critical--which implicitly underlies the more commonly investigated investment demand equations. We have tested a number of formulations of our basic capital expenditure function and have obtained what we feel are very satisfactory results. For example, in the business sector, which accounts for roughly one-half of national investment, a capital expenditure function can account for almost 90 percent of observed values of investment. These results are even more impressive when it is recalled that Durbin-Watson statistics associated with these tests generally indicate little or no serial correlation. The fits generally improve as we move from aggregate to sectoral data. The

reason for this seems to be that first, we are dealing with more homogeneous behavior patterns as we shift focus to more narrowly defined sectors and, second, we are able to specify the functions more correctly--as, for example, in the government sector where we included a measurement of political timing among the explanatory variables.

The one sector for which we obtained only moderately satisfactory results was the household sector. We believe this suggests that demand factors are critical in this sector. This inference is consistent with a situation where supply of capital in residential housing is in equilibrium with effective demand at existing price levels. Of course, there is an immense unsatisfied demand for housing in the Philippines, but we know from information presented here and elsewhere that quality housing is out of the reach of a large number of income receivers. One of the reasons why housing prices are high is that residential mortgage financing is costly. Not only are interest rates high but more important, other terms of the mortgage are unattractive. For example, maturities are seldom in excess of 10 years. In short, what we are saying is that for approximately the upper 5-10 percent of households, investment in housing and consumer durables has been pushed to the equilibrium point considering household rates of return

and existing capital costs. For the rest of the private sector however,--households and business--the supply of capital still constitutes the critical variable determining the level of investment.

The nature of sources and uses worksheets makes possible the construction of continuous series on capital stock and wage payrolls in the aggregate and by sector. When these series are deflated and combined we get an index of the capital-labor ratios. We have constructed such indices for benchmark years for the major industrial classifications--i.e. transport, manufacturing, electric utilities, etc. During the post-war period there has been a rise in the capital-labor ratio due to a number of factors, the most important of which are a shift of economic activity towards sectors whose technology requires higher ratios, overvaluation of the exchange rate, and shifts in the share of output accounted for by large firms. On the last point we have observed a strong tendency for capital-labor proportions to be affected by industrial concentration, and we attribute this to the shortage of more highly skilled (including administrative skills) in the labor force. We have presented a model which includes all these variables, and were able to successfully explain about three-fourths of the variation in observed capital-labor ratios in

manufacturing.

There are a number of interesting aspects of changing capital-labor proportions in Philippine industry. For example, we found that the ratio was much lower in government operated firms than in private firms. Some might argue that this is simply a reflection of "bureaucratic inefficiency". But we chose to view this as reflecting--at least to some extent--the social cost of unemployment. To the extent that the private sector cost calculations do not reflect this unemployment they understate the true cost of those particular production technologies. To a considerable extent the financial system has been involved in this process of unemployment creation. The financial system services especially the larger and therefore more capital intensive enterprises--because as our data show, these are the firms with the highest proportions of external to internal financing. Larger firms may also receive banking accommodations on more attractive terms. Again, decisions to extend credit are made on the basis of calculations which take into consideration private costs only.

Many of the sectors reflect financial behavior patterns common elsewhere while some sectors exhibit patterns unique, as far as we know, to this country.

It is not surprising, for example, that corporate enterprises depend substantially more on external finance than do the generally smaller, unincorporated firms. But it is remarkable that Philippine commercial banks obtain as much as one-fourth to one-third of new capital from retained earnings. This is the result of the large spread between lending and deposit rates of interest. While this policy "makes sense" for a single bank, viewed from the perspective of the banking sector as a whole we believe that the spread between lending and borrowing rates has not been optimized. That is, over much of the period, higher deposit rates would have more than compensated for the reduction in profits by attracting a larger volume of resources from savers.

In one way this "lagging competitiveness" of the banking system was fortunate, because it created the groundwork for a rapid expansion of non-banking financial institutions. Many of the latter had been in existence since the early years of this century but had now grown rapidly. Under the conditions of a virtually insatiable demand for investment funds which characterized the period from the late fifties on, and with the banking system operating under the common constraint of stabilization policy, non-banking institutions grew extremely

rapidly. By the mid-sixties they were an important component of the country's financial system. However, their contribution to investment finance has not been maximized, due to certain operating policies. First, a large share of financial flows into these institutions has been utilized for construction of home offices. About one-fourth of financial flows has been so utilized. Second, substantial investments have been made in the policy loans to members of the insurance system (mostly households). Together these two diversions represent a leak of nearly one-half of total investible fund flows that could otherwise have gone for productive investment.

Up to this point we have discussed non-banking intermediaries as if this class of firms was limited to financial institutions. That is decidedly not the case. Our data indicate that the single fastest growing financial flow was interfirm credit. By the mid-sixties interfirm credit had become large enough to be considered-- along with savings and time deposits--one of the most important forms of short-term credits. In a way, its importance is even greater. A close scrutiny of the debit and credit balances of groups of firms convinces us that large firms are often net extenders of credit to smaller firms and households. On a regional basis, urban-based firms (e.g. San Miguel) extend credit to rural-based

firms (retailers and rural household-business units). Trade credit is, therefore, a major link in the flow of bank finance from urban to rural areas and from large to small firms and households.

Some writers have suggested that the rapid rise of non-banking financial institutions poses a threat to the implementation of monetary policy. This is the view of Gurley and Shaw, expressed in a number of wellknown articles. It also seems to be the view of the Joint IMF-CBP Banking Survey Commission.⁶⁰ Insofar as these intermediaries issue liabilities which are substitutes for money the failure of their policies to be complementary to Central Bank poses a possible obstacle to the successful implementation of the policy. This is essentially a short-run view.

In the long-run, however, the impact of non-banking institutions could be quite favorable toward the pursuit of stabilization policies. When a country has to depend on the commercial banking system to supply the payments medium and to provide intermediary services for investment, policy makers have no way to pursue a monetary

⁶⁰ Recommendations of the Joint IMF-CBP Banking Survey Commission on the Philippine Financial System (Manila: Central Bank of the Philippines, 1972), pp. 11 and 139-140.

stabilization policy that does not, at the same time have a correspondingly contractionary effect on investment. In fact, investment expenditures will contract more than the money supply if investors rely heavily on external sources to finance those expenditures. Typically the average household in an LDC relies much less on bank financing and therefor its level of expenditures will be affected much less. The net upshot is that under these circumstances stabilization policy is often a viciously anti-growth policy as well. But when non-banking institutions exist which are capable of acting as intermediaries for a substantial portion of investment expenditures, a contraction in the money supply can be at least partially offset by intensified activities among non-banking financial institutions. In this way the burden of monetary adjustment can be lifted from the sectors primarily responsible for capital expenditures. Presumably the household sector would then be required to bear its proportionate share of the adjustment burden.

The present situation in this country seems to be that deficit financing by the government is responsible for a large share of the monetary expansion, as pointed out by Tan.⁶¹ We agree that this symbiotic relationship

⁶¹Edita Tan, "Central Banking and Credit Policies in the Philippines," School of Economics Discussion Paper 72-20.

between deficit fiscal and monetary policy is a major problem in the Philippines. One solution is to enable the Central Bank to follow a more independent course of action with regard to growth of the money supply.

Another way, and one which we prefer, is to get the government to undertake more bona fide long-term investment projects to augment the presently over burdened infrastructure, raise aggregate productivity and generate an enlarged supply of financial instruments which non-banking intermediaries can acquire. We prefer the second course because it holds the promise of reconciling monetary stability with higher levels of capital expenditures and growth.

