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 -- out attention will focus primarily on sources and uses in the sector investment account. 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 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. However, 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 the 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

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

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 rates (r_L). We have

$$D = f(r_d)$$

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

Differentiating (1) with respect to itself and substituting we have

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

or

$$\dot{R} = f\{\dot{r}_d + \dot{(r_L - r_d)}\} \qquad (3)$$

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

$$\lg R = \underset{(7.86)}{1.25} \lg r_d - \underset{(1.11)}{.14} \lg (r_L - r_d) \qquad \bar{R}^2 = .88$$

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 $(r_L - r_d)$ is not significantly different from zero. (Numbers in parentheses are t-values). Since the coefficient of r_d exceeds that of $r_L - r_d$, 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 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.[14]

On the user side, the main outlet for commercial bank funds consists of short-term loans to business firms. Of course, 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 Philippine business (including manufacturing) are at least as large as the fixed capital requirements.[15] There has been a

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[14]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 (bank).

[15]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.

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 financiera-type companies such as First Acceptance and Investment Corp., Merchants Credit Corp., and similar institutions. But without any doubt commercial bank 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 (in the form of policies) primarily to the household sector. An unusual feature of the insurance subsector, however, is the relative small share of total fund sources represented by the accumulation of financial assets. Something like one-fourth to one-third of non-financial sources find their way into financial asset accumulation.[16] The reasons for this 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

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[16] see Appendix Table 2. We omit from consideration 1959 and 1960, years in which there were charges to reserves and miscellaneous assets.

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.

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 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.

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 subsector. A unique feature of Philippin 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 corporation which is characterist of this society and which we will discuss further at a late 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 5a

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 5a 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 turn again 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 f external financing is long-term bank loans. Government corporations generally have relied on the issue of equities as a source of external finance even less 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 percent which is an increase of about 10 percent from the early years of the period.[17]

What are some possible explanations for these peculiar features? One type of explanation emphsizes that government corporations have been operated for essentially

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[17]When 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 financia accumulation, the unique character of the government corpora financial flow structure becomes even more apparent.

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 unemployment traceable to the capital-intensive structure of private corporate production. Perhaps a good social accounting could link this inefficiency to the private corporate sector, which is no doubt its source. The net upshot of the 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.[18] Capital expenditures 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.[19] 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 that these tra 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.

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[18]Since non-corporate business is probably more concentrated than corporations in the rural areas, the avera wage rate is probably lower than for corporations and there-fore the difference in the share of "real" payroll expenses probably is greater than it appears from the above.

[19]This may be related to the tendency of some house-hold to use the 'family business' as a vehicle for accumulat 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 underevaluation 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.[20]

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) 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

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[20]G.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.

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 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.[21] 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 stock was extensive in the Philippines, and complete rebuilding was probably not completed as of 1950--signififying that the 1950 ratio was probably abnormally high.[22]

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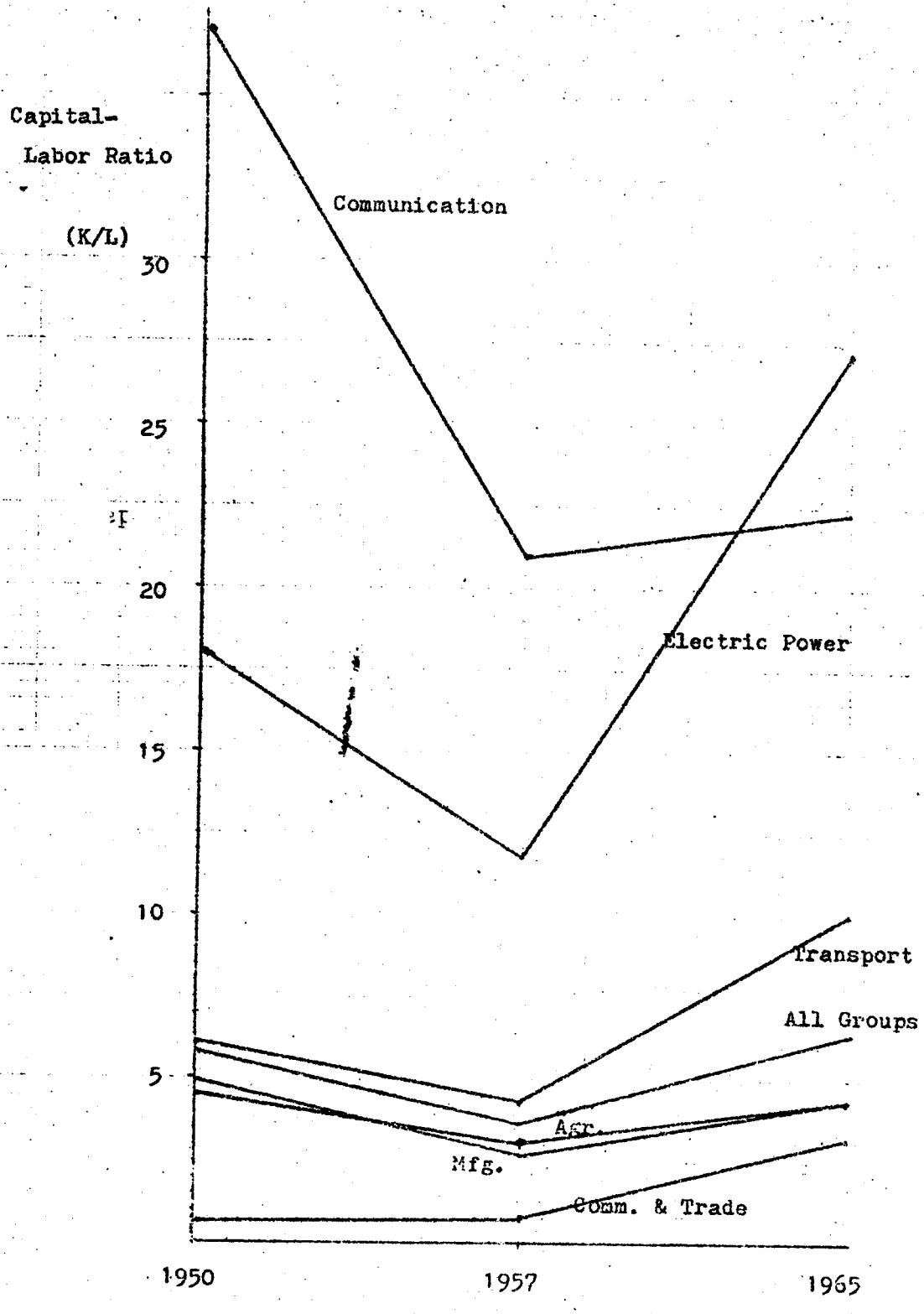
[21]In the data presented here we have assumed a ten-year life of capital for purposes of deflating K. The values of K in current prices, however, are taken directly from the industry financial statements.

[22]That is, a portion of the capital stock will be idle as long as rebuilding is not complete.

Figure 4



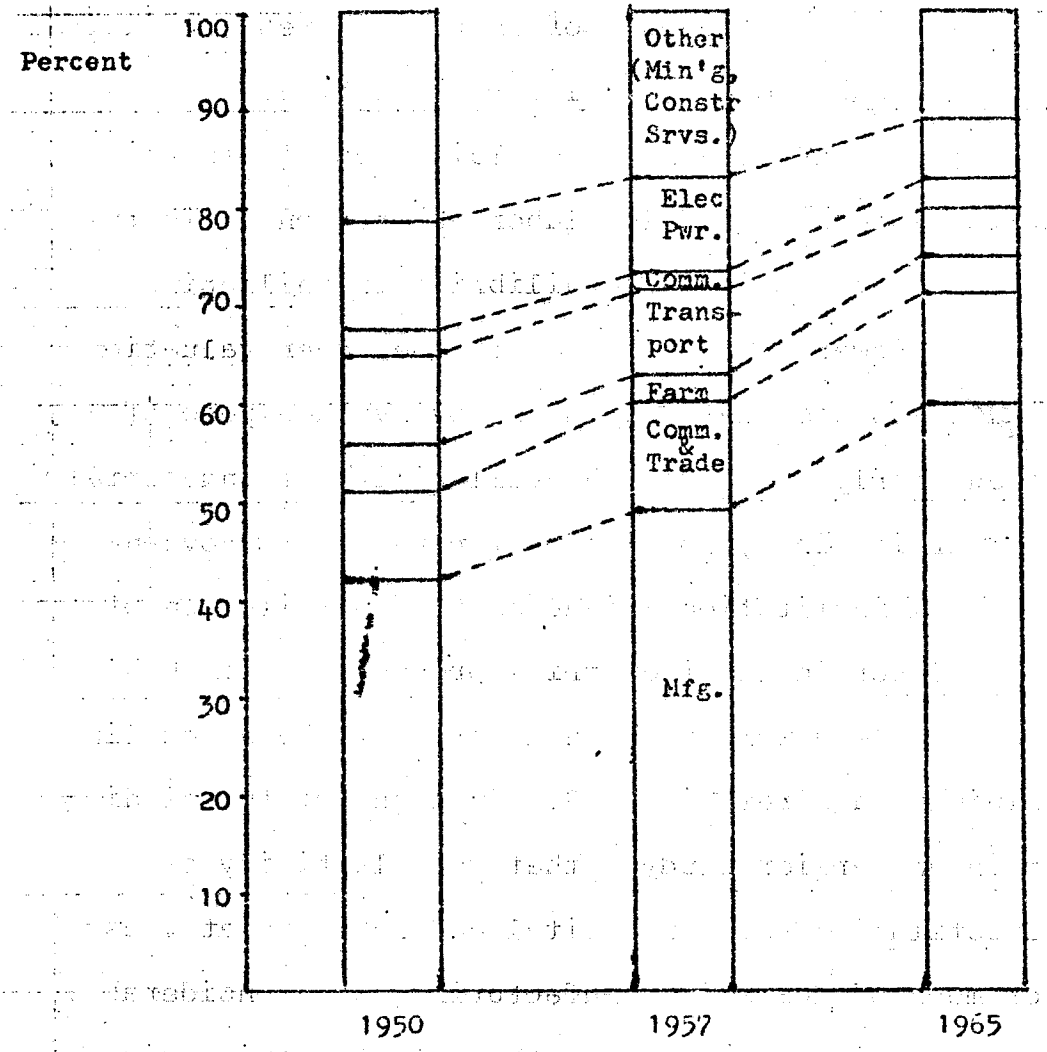
Capital-Labor Ratios by Industry for the Private Corporate Subsector, 1950, 1957 and 1965

Source: Appendix tables on Private Corporate Financial Statements

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 assume that the supply of industrial labor was growing somewhat faster than total population growth, then an annual growth rate of from 4-5%

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.

Figure 5



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

Source: Appendix tables on Financial Statements of Private Corporations.

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.

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 under valuation 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.[23] 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 of Sicat in an earlier study[24] 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.

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[23] 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.

[24] G. 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.

Earlier in this paper we showed how labor intensity decreased with size of firm. We found that a systematic relationship exists between firm size and capital per worker.

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:

$$K/L = + B_1 \frac{(R_F)}{R_O} + B_2 C + B_3 W + B_4 A$$

We would prefer to think of the dependent variable as referring to the ratio of capital to labor as embodied in <u>additions</u> to the stock of capital -- i.e., new investment -- rather than the whole stock of capital. This is so 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 information on the utilization of capital as well as on the average hourly work which we do not have. Consequently, in our empirical fits we have measured capital intensity in terms of the whole applicable existing stock of capital. The explanatory variable $\frac{(R_F)}{R_O}$

measures the relationship between the free market value of the peso and the official rate, or the degree of over-valuation. 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 results of regressing the above formulation on annual time series of manufacturing from 1950-1965 are shown below. The foreign exchange rate $(\frac{R_F}{R_0})$ 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 $(\frac{R_F}{R_0})$ the results are good and significant at the 99 percent 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 K/No. 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

Table 6

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

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

$$R^{-2} = .79 \qquad DW = 2.38$$

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

$$R^{-2} = .75 \qquad DW = 2.14$$

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

$$R^{-2} = .53 \qquad DW = 1.92$$

special way. Moreover, we note that when A is inserted in the regression there is a decided improvement in other variables as well. 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 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 its size, may over a short period, even have 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.[25] 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;

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[25]Actually, it may reflect the influence of a single businessman over the government.

entrepreneurial income accounts for much of the remainder. As to be expected, 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.[26] 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. From this fact we see 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 yields a total which can be though of as representing savings by ROW sector. Alternatively, this can be represented as the Philippines'

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

balance of payments with the rest of the world. In the table which follow - Table 7 - 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 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 domestic 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.[27] That is to say, between 1953 and 1961 when the peso was overvalued there was a steady outflow of capital to 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 payments data as usually presented because those balanced payments tables often omit some of the item estimates that are contained in the flow of products 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 movement.

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

TABLE 7

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

	R-O-W LIAB.	R-O-W ASSETS	NET CHG + B/P #
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
			-909

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.

Summary

In this paper we have drawn a thumb-nail sketch of intersectoral financial flows in the Philippines, focussing 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 under-developed 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 (houses, 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 adjust-ment of deposit rates of interest[28] and (2) an improvement

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[28]In this context 'deposit rates of interest' refers to the return on household financial claims broadly viewed to include claims on bank and non-bank liabilities.

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 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.[29] 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 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 and saving behavior in the aggregate, we distinguish between several

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

saving sectors, and of these only the household sector model reflects a type of behavior which is predominantly deposite-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 on the supply of investment-intermediary media. In such circumstances the volume of investment is directly affected -- possibly even 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 attractive to us. 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 clasical theory, entrepreneurs adjust investment to the expected rate of return. One way to take present profits as a proxy for future profits[1] on the assumption that the current situation will not

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

change. 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.[2] Another effort to move even closer to reality involves basing expectations with regard to future profitability on valuation of firms as provided by indices of stock prices, on the assumption that market behavior accurately reflects businessmen's evaluations of future prospects, or at least that they take such behavior into consideration when making investment decisions.[3]

Some authors have emphasized the role of sales in determining investment behavior.[4] The assumption underlying this approach is that firms seek to maximize their share of the market subject to some constraint with respect to a (minimum) rate of return on investment. Therefore, 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 it facilitates introduction of the acceleration principle in explaining businessmen's response. When a distinction is made between replacement

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[2] F. DeLeeuw, "The Demand for Capital Goods by Manufacturers: Study in Quarterly Time Series," Econometr V. 30.

[3] F. Modigliani and M. Miller, "The Cost of Corpor Capital Finance and the Theory of Investment," American Economic Review, Vol. 48.

[4] R. Eisner, "A Permanent Income Theory of Investment: Some Explorations," American Economic Review, June, 1967.

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--replacement--is obviously a function of the size of the existing stock. The second is often framed in terms of lagged stock adjustment models,[5] 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.[6] 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 assumed to be maximized subject to two constraints. First, levels of output and input are constrained

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[5]H.B. Chenery, "Overcapacity and the Acceleration Principle," Econometrica, January, 1952.

[6]D.W. Jorgensen, "Anticipations and Investment Behavior," in J. Dusenberry, G. 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.

by a Cobb-Douglas production function and second, the rat change of the capital input is proportional to the flow o net investment (unity proportionality).

Jorgensen then proceeds to define an optimization theorem for investment behavior. If u is the rate of cor porate income taxation, v, w and x the proportion of depre tion, capital cost and capital loss to be charged against current net revenues, the marginal productivity condition 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 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 prominent 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 anticipate profitability. That this approach is of some use in explaining the investment behavior of existing firms has been demonstrated by Sicat and Hooley.[7] But 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."[8] 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.[9] There is, however, an additional problem which we have not seen mentioned which is of special relevance in an LDC. This

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

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

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

concerns the phenomenon of new firm formation. Neo-classical investment theory refers to the decisions of existing firms.[10] 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 8 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, when one moves to un-incorporated enterprises, the share of newly registered firms in total capital formation rises to about one-third.

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[10]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.

Table 8

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

Manufacturing

	Retained Earnings of Existing Corps	Paid-In Capital of New Corps	Retained earnings of unincorporated Firms	Paid-In Capital of Newly Registered Unincorporated Enterprises
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

Wholesale and Retail Trade

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.

The situation is even more striking in the trade an commerce sub-sector. Here newly registered firms account f 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.[11] What is undoubtedly hap ing here is that many of the new firms are formed primaril in the trade sector, and the successful ones move over into the manufacturing sector later as they integrate manufactur 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. Fo the whole economy, however, limiting our view exclusively to the behavior of existing firms will result in overlooking a substantial volume of investment 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 considerab volume of investment activity. The point is that existing

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[11] In making these comparisons we have to assume that investment funds from retained earnings and newly issued shares are used exclusively for financing capital expansion.

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 probable 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.+ 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. Since intersectoral mobility is far from perfect both for savings and for developmental 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.[12]

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

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+ 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.

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

it probably could be said without fear of contradiction that the level of development skills has been higher in the Philippines than in any of the 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 conclusion, therefore, is that a shortage of (ex ante) savings appeared during the period after World War II which became much more pronounced after 1960.+

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.

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

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, it should be recalled, represent that part of investment which is financed by monetary expenditures -- as opposed to investment made by non-monetary outlays. In the Philippines, capital expenditures amount to about 90 percent of total investment; in the corporate and government sectors the two are virtually equivalent.

Capital expenditures can be financed from two main sources: internal and external funds. The basic equation which incorporates the structural features of the model we have in mind is therefore given as

$$C = f(Y, Ex)$$

where C denotes capital expenditures, Y income after taxes and Ex the volume of outside financing available. Either one, or both, of the independent variables may prove significant. On the one hand, if both Y and Ex prove to be significant determinants of C, then the evidence supports the hypothesis. Business and households invest in response to the volume of funds available from internal and external sources. On the other hand, either Y or Ex may prove not to be a determinant of investment. This could occur, for example, if business or households chose to substitute external funds (when available) for internal funds, and use the latter for consumption. In such a case Ex would be significant and Y would not be a significant determinant of C. The mere fact that one or the other of the independent variables is not significant is not conclusive evidence of substitution among fund sources, but it must be considered a

possibility. Finally, there is the possibility that neither Y nor Ex is a significant determinant of C. This would occur where real variables dominate the demand for investment, and where the availability of funds, either internal or external does not play a decision role.

Data for 16 years are available to us from the flow of funds tables. We regressed a variety of capital expenditure variables on independent variables derived by combining various types of external and internal sources. The results of the tests for the private sector (business and households) are shown below in Table 9. 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 exependitures 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^H_{on} = household borrowing on consumer credit

E^B_q = external funds of corporate business raised through sale of equities (net)

SL^B = short-term 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 9 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 9

Capital Expenditure Functions for the Private Sector+

I. $(C^H + C^B) = \underset{(0.83)}{279.5} + \underset{(1.96)}{.12}\ (Y^H + Y^B) + \underset{(2.52)}{.682}\ (M^H + C^H_{on} + E_q{}^B + SL^B + LL^B)$

$\bar{R}^2 = .89$

$DW = 1.71$

II. $(C^H_F + C^B_F) = \underset{(1.75)}{395.1} + \underset{(0.86)}{.041}\ (Y^H + Y^B) + 1.53\ (M^H + LL^B + Eq^B)$

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

$DW = 1.49$

III. $(C^H_{NF} + C^B_{NF}) = \underset{(4.90)}{-358.1} + \underset{(4.53)}{.057}\ (Y^H + Y^B) + \underset{(1.97)}{.272}\ (C^H_{on} + SL^B)$

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

$DW = 1.73$

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

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

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 -- i.e. there may be serial correlation present.

The net upshot of these fits is that 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 while external finance is the major determinant of capital expenditures on fixed capital.

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

Results of fitting capital expenditure functions for the corporate business sector are shown in Table 10 below. Equation I relating aggregate capital expenditures to retained earnings and total external finance gives a

TABLE 10

Capital Expenditure Functions for Corporate Business[+]

I. $$= \underset{(.98)}{-.005} + \underset{(5.89)}{.54\ Y^B} + \underset{(4.09)}{.57\ (SL^B + LL^B + Eq^B)}$$

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

II. $$C_F^B = \underset{(1.79)}{-95.5} + \underset{(3.04)}{.37\ Y^B} + \underset{(2.79)}{.87\ (LL^B + Eq^B)}$$

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

III. $$C_F^B = \underset{(0.12)}{9.15} + \underset{(2.79)}{1.05\ E_q^B} + \underset{(6.35)}{1.42\ (LL^B + TR^B)}$$

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

IV. $$C_{NF}^B = \underset{(3.74)}{69.9} + \underset{(9.67)}{.74\ (SL^B)}$$

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

V. $$C_{NF}^B = \underset{(3.11)}{35.8} + \underset{(17.93)}{.44\ (SL^B + TR^B)}$$

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

NOTE: All DW values are above these upper limits, indicatin no significant degree of autocorrelation

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

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. A point to notice here is that when income is removed 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, therefore, that inventory accumulation is very 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 are primarily durables. Households capital expenditure fits are sh are shown in Table 11 below.

TABLE 11

Capital Expenditures of Households+

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

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

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

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

*Indicates possibility of autocorrelation

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

The household sector fits provide a marked contrast to those of the business sector. For both fixed and non-fixed expenditures, income plays the main explanatory role. In both cases the appropriate external

finance variables take the wrong sign and are statistically insignificant. Equation II which treats consumer durables tells us that households depend entirely on income to finance durables expenditures. This is plausible because until 1965 banks and other financial institutions had only the most limited facilities for servicing this type of household expenditure.+ Equation I which refers to expenditures for residential dwellings is a poor fit. Apparently the supply of funds is not a good explanation of this type of expenditure which is more dependent on demand than on supply of funds?

The third major sector is the government. Capital expenditures by the government account for approximately one-tenth of aggregate national capital expenditures. The results of fitting our model are shown in Table 12.

The results of the government sector regressions of our model supply several insights into investment behavior in that sector. First, it is noticeable that the most important determinant of government capital expenditures is not external finance. True, some of the external finance variables (especially long-term finance)

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

TABLE 12

Capital Expenditures of the Government Sector+
(mill pesos)

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

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

$$C^G = \underset{(.16)}{-8.40} + \underset{(5.62}{.199Y^a} + \underset{(1.19)}{.436}\ (LL^G)$$

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

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

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

+Figures in parentheses are t-values.

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

prove to be statistically significant for different fits. However, the overall impression that one gets from the size of the coefficients and their corresponding t-values is that availability of long-term external finance has some, but not a great degree, of influence on the size of government capital expenditures. This conforms to our previous observations, 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 reason is partly that the government does not appear to view inventories as 'bankable' in the same way as the private sector, for obvious reasons. 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 reasonably satisfactory. The satisfactory DW statistic indicates an absence of serial correlations 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.

V

CONCLUSION

This study of financial flows has been undertaken with a number of aims in mind. A major objective has been to demonstrate that accurate estimates of complex financial variables are eminently feasible in a less developed country. This required us to adjust social accounting estimating procedures in several important respects. First, we defined the household sector to include businesses with five workers or less. Not only were we relieved on attempting to obtain information on an immense number of individual establishments which contribute in only a minor way to important financial parameters, but we were able to sector in a way which better reflects the underlying 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 in which we have genuine confidence. This is 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 inter-sectoral 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. This 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 towards 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, indigeneous 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 the 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 so much lower than in the other two countries, the composition of saving is different tending, for example, to be much more dominated by tangible saving in the Philippines compared with Japan. The rate of corporate saving is also somewhat lower here 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 government here. 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 in the Philippines.

We have analysed investment in terms of sectoral capital expenditure functions. These functions tie capital expenditures of each sector to the availability of 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 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 actual, 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. And finally, the fits generally improve as we moved 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 clearly 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 housing is out of the reach of the majority of income receivers. One of the reason 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 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 consumer durables has been pushed to the equilibrium point considering existing capital costs in this country. For the rest of the private sector however, -- households and business -- the supply of capit 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 inde of the capital-labor ratios. We have constructed such indices for benchmark years for the major industrial class fications--i.e. transport, manufacturing, electric utiliti etc. During the post-war period there has been a rise in capital-labor ratio due to a number of factors, the most important of which are a shift of economic activity toward sectors whose technology requires higher ratios, overvalua tion of the exchange rate, and shifts in the share of out- put accounted for by large firms. On the last point we ha observed a strong tendency for capital-labor proportions t be affected by industrial concentration, and we attribute this to the shortage of more highly skilled (including administration skills) in the labor force. We have presen a model which includes all these variables, and are able t successfully explain about three-fourths of the variation in observed capital-labor ratios in manufacturing.

There are a number of interesting aspects of chang capital-labor proportions in Philippine industry. For example, we found that the ratio was much lower in goverm operated firms than in private firms. Some might argue th 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 th the private cost calculation do not reflect this unemploy- ment 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 accomodations on more attrative 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 not 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 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 debti 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.

From one standpoint 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 well-known articles. It also seems to be the view of the Joint IMF-CBP Banking Survey Commission.* 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

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

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 stabilization policy that does not at the same time have an equally contractionary effect on investment. In fact, investment expenditures may 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 therefore their level of expenditures will be affected that much less. The net upshot is that under these circumstances stabilization policy is often 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.* We agree that this symbiotic relationship 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 inancial 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 expenditure and growth.

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