INVESTMENT STATISTICS FOR ECONOMIC RECOVERY

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A continuing expansion in private long term investment seems to be a resounding theme in both the government and private business circles in a mutual goal to see the Philippine economy shift from private consumption to investment as a linchpin of growth in order to sustain the momentum of economic advance over the medium term horizon. Thus while there are existing information that can track the progress towards this goal at the macro level, an improved and more responsive investment information system need to be pursued in order to understand more fully and accurately the nature, origins and trends in the capital formation process. This paper attempts to assess the state of information in the field of investment starting with a review of available data and their sources, including comments on their possible uses. The gaps in the existing information system are subsequently identified and the possible approaches to analyzing and anticipating investment growth and efficiency trends are suggested.

SURVEY OF INVESTMENT STATISTICS

Table 1 presents a summary of available information on the flow of investments in the Philippines. The data may be broadly aggregated into 3 sources:

1. National Accounts. The data presents purchases of capital goods and inventory accumulation by enterprise, households, government and private non-profit institutions based on ASE, CM, CE, Pag-ibig, COA and government disbursements for infrastructure reports.

2. SEC/BOI. An analysis of investments based on approved projects and capital registrations piped into these agencies.

3. CB. Provides information on the actual dollar remittance vis-avis committed DFI as a component of the BOP monitoring system.

In general, the available data is useful for both private and public sector decision making. Businessmen, corporate executives and potential entrepreneurs may find the data relevant for environmental scanning including identification of business opportunity areas, potential sources of new capital and macro-economic growth prospects. On the other hand, the government utilizes the information for policy feedback purposes, such as the impact of investment promotion on the growth and sectoral allocation of capital formation.

Judging from the table, the Philippines does not seem to suffer from an insufficiency of indicators and sources of investment data. However, most of the data does not seem to give a total picture of investments at the micro level, particularly, at the level of industries , including relevant indicators such as the investment rate, net versus replacement investment, the sufficiency of capital use and relative price of capital at the disaggregated level. Moreover, there is a shortage of data on capital stock by sector and their valuation over time. While these statistical issues may have been recognized elsewhere, there is yet a need to lay down a framework for understanding the forces at work behind investments viewed from a sectoral perspective.

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Specifically, certain researchable questions pertaining to the capacity of the economy to sustain the economy's sustained growth remain unanswered.

(1) What is the growth of investment for various industries that is adding to the country's productive capacity versus the component which merely represents replacement of capacity? What percentages do this represent in relation to the output of the industries and their share to the total capital formation taking place in the whole economy.

(2) What factors affect the movement of the variables in number 1? What may have been the impact of the cost of capital, exchange rate, terms of trade, and savings rate on the net change in capital stock in manufacturing and non-manufacturing industries?

(3) What have been the trends in relative efficiency of capital use of various industries and the determining factors thereof? What is the impact of macro-economic and industrial policies as well as R and D on the coefficients of capital in selected industries?

SOME REFINEMENTS IN THE INVESTMENT INFORMATION SYSTEM

To understand more fully the trends and composition of investment spending, it would be useful to analyze the growth of investment by net investment (growth in the capital stock) and replacement investment, as well as the industry sectors making the investment. This approach permits an analysis of the nature of investments undertaken by segregating the investments made to restore capital stock previously reduced by obsolescence, depreciation, shutdowns and deterioration of idle plants and equipment since an appropriate base period stock from the outlays that result in upgrading productive capacity of industries.

Further in analyzing the trend of investments: an investment rate concept has to be formulated on an industry disaggregated basis which would allow for inter industry efficiency comparisons over time.

APPROACHES TO ANALYZING INVESTMENT RATE BY INDUSTRY

$$(1)\quad \frac{RKI_i}{GVA_i} = \frac{(NCI_i)}{(PGVA_i)} \times \frac{(PFI_i)}{(KPI_i)}$$

(Investment and Relative Price)

$$(2)\quad \frac{RKI_i}{GVA_i} = \frac{(RK_i)}{K_i} \times \frac{(K_i)}{(GVA_i)}$$

(Capital Stock Ratio and Capital Coefficient)

$$(3)\quad \frac{RK_i}{GVA_i} = \frac{(NKI_i)}{(GVA_i)} + \frac{(RRI_i)}{(GVA_i)}$$

(Investment Rate decomposition)

where RKI_i = real growth capital investment in industry i

GVA_i = gross value of production (measure of output) in industry i

NCI_i = nominal capital investment of industry i

IPI_i = implicit price index for output industry i

$PGVA_i$ = nominal value of output for industry i

KPI_i = deflator for capital stock

K_i = real capital stock of industry i

NKI_i = net investment of industry i

RRI_i = replacement investment of industry i

Equation (3) analyzes the composition of investment into replacement and net investment as percentage of output of the industry or sector. Equation (1) shows an incremental capital to output ratio (ICOR) per industry as a product of the nominal investment rate and the relative price of investments. Equation (2) analyses the same variable as a product of the coefficient of capital (real capital stock to Gross Value of Output in Real Terms) per sector and the real investment flow to capital stock ratio. Using the equations above, the investment rate can be influenced by the efficiency of capital use (measured by the capital stock/GNP ratio), addition to the existing capital stock (capital stock ratio) and relative price of investments (indicator of the relative cost of capital) for the industry.

Using the framework in the Philippine setting, it would be useful to conduct a rigorous empirical investigations at the industry level and the efficiency with which capital is being utilized across industries in determining the optimal allocation of financial and real resources in the economy. Obviously, this study will require time series estimates of capital stocks of private industries, R and D expenses capital stock prices and investments being undertaken. The effort could start with disaggregation of the investment spending into agriculture, manufacturing, the rest of the industrial sector, service industries, public administration and defense and own account capital formation as suggested by UNSNA. Likewise, the Survey of Manufactures that include investment expenditures of new firms could be a starting point for estimating industry capital stocks for manufacturing and non-manufacturing sectors following R. Hooley.

As a way of anticipating investment rate trends, proposed data on capital goods, orders received for construction, industrial machinery, and heavy electrical equipment should complement the data on LCs opened for this particular type of capital goods. Furthermore, manufacturing and other short term surveys should estimate normal inventory of sales ratios on a regular basis.

CONCLUSION

There are obviously other dimensions that has not been captured in this simplistic theoretical framework and suggested data inputs as the one above. At this point, we would like once again to highlight the importance of sectoral disaggregation of investment behavior required for different policy and private decision making questions. This is also where coordination of different statistical sources become important. We feel we have not exhausted all the issues but indicative enough of the proper direction that the statistical system on investments should take.

The other housekeeping jobs that have to be undertaken to maximize the usefulness of the data include:

(1) Regionalization of investment spending patterns to support the requirements of local planners and businessmen.

(2) Establishing a method of cross checking movements of key variables from the BOI with that of the SEC and CB to assure consistency at sectoral levels. There should be a method of correlating data generated from census and survey data on investments.

(3) Enhance monitoring capability for capturing unorganized own account capital formation activities.

Table 1
SUMMARY OF CURRENT STATISTICS ON INVESTMENT

INVESTMENT INDICATOR	DATA SOURCE	COVERAGE	IMPLICATIONS
A. Gross Domestic Capital Formation - includes the value of purchases and own-account production of fixed assets by enterprise, households, private non-profit institutions and general government for civil defense.	Establishment Survey SKE, Data of NSO (reported in NIA) Flow of Funds Accounts (reported by CB)	1. By Type 1.1 Gross Fixed Capital Formation 1.1.1 Construction Private Government 1.1.2 Durable Equipment (By Type) 1.2 Inventory Investment 2. By Institution 2.1 Household Operated Activities 2.2 Government 2.3 Government Corporations 2.4 Unincorporated Enterprises 2.5 Rest of the World	Evaluative information on - capacity expansion of private enterprises - government "pump priming" efforts - impact of government housing finance on income - Leading indicator of business cycle fluctuations - sources of financing of capital formation by sector from savings bilateral transfers and debt.

B. Initial Paid up Capital/ Increases in Equity - cash, property or any asset put up by registered business at the time of organization or in the course of existence.	Registration, Licensing Documents and reportorial requirements submitted to SEC by registered corporations, partnerships and multinational companies.	1. By Industry 2. By Region 3. By Nationality (Local and Foreign) 4. By Size of Capital	. Environmental Scanning Information - Market Distribution - Capital Concentration - Industry Concentration - Business expansion of going concerns . Effectiveness of Investment Promotion
C. Share of Stock Transactions - investments made in the boards over the counter	Trading reports at both exchanges	1. Sectoral volume turnover and value of transactions 2. Stock price index by sector	. Confidence Barometer - Overall economy - Political Stability . Leading indicator of business cycle fluctuations
D. Underwriting of Debt and Equity	SEC Reports	1. By Institution 2. Best efforts or firm	. Policy evaluation on capital markets development and unibanking . Evaluation of long term demand for capital

E. Equity Investments (Approved by BOI) Under Various Legislative Acts	BOI Reports on Projects	1. By Nationality (Local/Foreign) 2. Wholly owned ordaint venture 3. With or without incentives 4. By Sector (Agri, fishing, mining, public utilities, export traders, real estate, regional headquarters, etc.) 5. By Product Type (new, existing, PD 218, PD 1469)	. Effectiveness of Investment Promotion (e.g. Incentives) . Environmental scanning information . Planned industrial project areas . Employment generation . Volume trends and sectoral patterns of DFI inflows . Confidence barometer on political situation
F. CB Approved Direct Foreign Equity Investments - actual versus approved inflows of DFI	FX operations and Investments Dept.	1. By Sector (Banks and other FI, manufacturing, mining, commerce, services, public public utility, agri, construction, others)	. Policy evaluation Impact of investment promotion policies - BOP and monetary impact - external debt management
		2. By Instrument (Debt-equity swap, bank interbranch operations, new foreign investments, portfolio investments, etc.	. Environmental scanning Information . Sectoral investment patterns . Growth and inflation prospects . Stock market impact

LEADING INDICATORS FOR ECONOMIC RECOVERY

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Leading indicators as defined by students and practitioners of business cycles are:

"Certain (economic) activities that frequently foreshadow changes in aggregate economic activity. They reflect future production and employment. For example, new orders are placed particularly for machinery and other types of equipment; contracts are left for the construction of new plants; investments in materials inventories are made; and new businesses are started. Statistical measures of activities which foreshadow changes in aggregate economic activity are leading indicators. They are signals of things to come." [1]

The indicators that we seek are statistical measures of economic activity that will provide us an idea of the economy's performance a period or two ahead. These choice of leading indicators do not significantly change if our concern focuses on economic recovery. Economic recovery implies a level of economic performance by the economy in relation to a government standard or criterion.

Economie Recovery Criterion

The government standard or criterion for economic recovery is formally stated in the Medium Term Philippine Development Plan 1987-1992. Economic recovery in macroeconomic terms requires that we regain the highest level of real per capita income achieved by the country. This milesone in Philippine economic history was achieved in 1981 when real per capita income hit P1933 in 1972 prices.

"... implementation of essential and consistent policy reforms shall enable the economy to recover and sustain respectable growth during the period 1987-1992 while maintaining internal and external stability.

During the Plan period, real Gross National Product ... is targeted to increase by 6.8 percent on the average. ... In real terms, this represents an average annual increase in per capita income of 4.4 percent during the period, higher than the recorded increase in real per capita income in 1961-1980. This increase in real per capita income shall provide for the recovery of the income of the population which has been set back by ten years when the level in 1985 fell to its 1975 level. It is expected that the 1981 real per capita income of P1,933, the highest ever achieved by the country will be regained in 1991. The targeted level also allows for some improvement in the income level which hinges on the success of the structural reforms which shall continue to be implemented during the Plan period."[2]

DETERMINING LEADING INDICATORS

Although structural reforms have been listed and some have been implemented, quantitatively monitoring the implementation of the structural reforms will prove cumbersome for our purpose here. We have to relate the indicators that we have selected to real income growth. In doing so, we need a time series of these indicators. However some of the structural reforms are policy reforms that are difficult to capture statistically much more so provide for a time series of these. Secondly, inorder to relate it to the statistical measure of income and to provide some basis for the conclusions on the

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