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ABSTRACTS OF DISSERTATIONS AND THESES

Ph.D. Dissertations

Bienvenido P. Alano, Jr., *Import Smuggling in the Philippines: An Economic Analysis,* University of the Philippines, School of Economics, 1983.

Smuggling, the practice of using illegal trade channels or fake foreign trade declarations to evade the payment of duties and taxes, inevitably causes distortions in international trade data and on policies subsequently formulated from it. These distortions usually arise as a consequence of the fact that smuggling, if successfully carried out, results in the omission of some import and export shipments from the data on foreign trade which are normally collected at the customs frontier.

There is reason to believe that such omissions may be quite substantial, with the level depending on the restrictions of the trade control regime. However, research in this area has been hard to come by despite its obvious importance, particularly to developing countries whose economies are normally characterized by restrictive trade policies.

This study was an attempt to generate an estimate of the smuggling level from data on Philippine import trade. This was accomplished by, first of all, developing a microeconomic model which tried to explain the level of smuggling activity in terms of factors which impinge on the trader's decision to engage in smuggling. The theoretical framework drew heavily from the studies of Becker (1974) and Ehrlich (1974) on the economics of crime and punishment. A comparative static analysis of the model was carried out to show that the influences of the explanatory variables on the choice variable in the model were in accordance with real-world expectations. The welfare implications of the model were also analyzed using the Bhagwati-Hansen (1974) framework.

Discrepancies in the level of trade as gathered from the corresponding reports of the exporting and importing countries are due to several factors, among which is smuggling. The empirical model, which was derived from the behavioral implications of the above-mentioned theoretical model, sought to isolate the smuggling component of such partner-country trade data discrepancies. Regression estimates of the model were generated using the time series as well as pooled time series and cross section data on Philippine trade at different levels of aggregation.

The regression results allowed the formulation of conclusions regarding the nature of smuggling activity in the Philippines. They also revealed the advantages of a detailed analysis of the problem as some inferences which are made at disaggregate levels are not evident at more aggregate levels.

The regression results were also used to generate estimates of the smuggling level. These estimates were found to range from 28.95 per cent (at the most aggregate level) to 53.81 per cent (at the most disaggregate level) of the reported exports to the Philippines of the partner-countries considered during the period under study.

The model, therefore, was found to serve as a useful framework for an analysis of smuggling in the Philippines. It enabled the formulation of conclusions concerning the nature of smuggling activity which may prove useful in policymaking with regard to the enforcement of customs and tariff laws. More importantly, it also provided the mechanism for the generation of an estimate of the smuggling level which may be used to correct a possible bias in foreign trade data resulting from smuggling.

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Clodualdo R. Francisco, *Portfolio Theory and Capital Market Phenomena Tests and Extensions of the Capital Asset Pricing Model*, University of the Philippines, School of Economics, 1983.

This work attempted to test the capital asset pricing model (CAPM) using Philippine stock market data. The "traditional" CAPM hypothesizes that if certain assumptions are met, there is a linear relationship between the rate of return and risk (beta) of capital assets. Evidences in the U.S. against the traditional CAPM have been noted to be ambiguous due to the use of indirect estimates of the betas which further implicitly assumes stationarity, and the use of equal proportion of each security in the market portfolio. Theoretically, the traditional CAPM is criticized due to its property that all investors hold the same market portfolio.

Tests of the traditional CAPM with precise estimates of the betas and the composition of the market portfolio did not confirm the hypothesized linear return-risk relationship. The presence of some securities with auto-correlation in their rates of return and non-stationary betas could not explain the generally poor test results. An alternative model, which introduces constraint on the maximum number of securities held by investors on the basis of transaction costs and indivisibility of investments, was indirectly tested using the variance as risk surrogate. The results did not confirm the hypothesized relationship. Ex post portfolio mean-standard deviation frontiers indicated that investors need not invest in all securities to derive the market portfolio return-risk combination. Informational imperfection was observed to be an important consideration for an investor to limit investment to a few securities. Peaked and asymmetric distributions were assumed to be ex post realizations of the non-homogeneous expectations (NHE) among investors. The traditional CAPM was modified by relaxing the assumption on homogeneity of expectations and the restrictive property that all investors hold the same market portfolio was eliminated. However, investors still had holdings in all assets.

An explicit non-linear return-risk relationship of the CAPM with NHE showed other type of risks called theta risk I and II. Theta risk I is the systematic bias on the beta risk due to NHE in the perceptions of the mean of the probability distribution; theta risk II is the systematic bias on the beta risk due to NHE in the perceptions of the variance (covariances). Approximate magnitudes of the theta risks gave three alternative approximate linear return-risk relationships. Indirect and approximate tests of the CAPM with NHE using an errors-in-variables model based on these alternative return-risk relationships showed a pattern of significant results for sectoral groups of securities. Explanations were provided for the test results taking into account the combined effects of the risk premium and the theta risks within the framework of the errors-in-variables model.

Aside from the fact that investors do limit their investments to a relatively few securities, and the generally poor test results, the findings that the sectoral risk premiums were statistically different from each other invalidated an important property of both the simple CAPM and the CAPM with NHE that the risk premium is the same all throughout the market. These results however did not necessarily invalidate the standard portfolio theory. Thus, the CAPM in its present form was considered an inadequate and an unacceptable framework for explaining capital market phenomena.

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Victorina P. Hermoso, *The Development of the Philippine Space Economy: 1900-75,* University of the Philippines, School of Economics, 1983.

This study raised this one question: *where* did economic development largely occur at a given period of time? The incorporation of a spatial dimension in development studies and policy analysis is an important task since: (a) a country's economic transformation is always accompanied by changes in the organization of the space economy, and (b) economic policies exert spatial biases.

The documentation was carried on two levels. A historical analysis of the evolution of the urban and regional economy was presented first to highlight the spatial dimension of economic development and policies. A cross-section analysis of the locational concentration of manufacturing activity then followed to investigate an existing spatial phenomenon—industrial concentration.

Empirical evidence demonstrated that economic development was accompanied by: (a) the structural transformation from an agricultural to an industrializing economy, and (b) the alteration in the spatial pattern of population and economic activities. In the agricultural phase of economic development, inertial, historical forces, the relative abundance of good agricultural land and the pursuit of a primary-product export-led growth spurred the development of the agricultural regions (Ilocos, Bicol, Central Luzon, Southern Tagalog and the Visayas). Manila's prominence then stemmed largely from its being the country's major entrepot.

The postwar years saw the adoption of industrialization via import substitution and the relative neglect of agricultural development. The import substitution policy reinforced Manila's historical advantage as the country's premier city, making it the center of industrialization. The spatial diffusion of industrialization to contiguous Central Luzon and Southern Tagalog resulted in the formation of the Central Industrial Region.

By 1975, manufacturing industries clustered in Manila except resource-based industries. The concentration of import-substituting and final-stage processing manufacturing industries in Manila appeared well-accounted for by Weberian location factors and policy attributes (e.g., a highly protective tariff structure).

Meanwhile, the relative neglect of agricultural development and other constraints resulted in the decline in the economic prominence of the traditional agricultural regions (Ilocos, Bicol and the Visayas). The short-lived impact of resettlement policies, on the other hand, seemed historically evident from the low share of the frontier regions (Cagayan Valley and Mindanao) in population and economic activities.

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Hooi-Eng Leo, *Trade Policies and Their Effects on the Growth and Structure of Manufacturing Industries in Peninsular Malaysia: 1960-1980,* University of the Philippines, School of Economics, 1983.

The objective of this study was to assess the structure of protection in Peninsular Malaysia by examining the different commercial and industrial promotion policies implemented during the period 1958 to 1980 and to evaluate their effects on the growth and structure of manufacturing industries. In order to evaluate the effects of the policies and the level of protection granted, a general equilibrium was used to convey the main interrelationships in the product markets and to determine how the structure of protection changed the structure of relative prices between manufactures and non-manufactures. The model thus took into account the interactions between the importable, exportable and home goods markets and general equilibrium was attained through changes in the structure of relative prices. The prices of importables and exportables were expressed in terms of home goods, and the relative prices of both traded goods in terms of home goods were assumed to be flexible so as to allow the home goods market to clear.

The model consisted of three main building blocks, namely:

a) the consumption side where domestic consumer demands for the *n* commodities yield a system of demand equations;
b) the production side which yields the supply functions; and
c) the link (which is provided by the budget constraint) between the demand and supply parts of the model.

It was shown that the equilibrium properties of the model may be studied in terms of either the equilibrium trade balance or equilibrium in the home goods market. Based on this model, the change in the equilibrium relative price of importables and exportables was calculated and this "net protective rate" for importables and exportables respectively showed the net result of *all* the different policies implemented as well as the effects of exogenous factors. The net protective rate due to a) exogenous factors, b) domestic policies, and c) income, was calculated for exports and imports of manufactures for the period 1967-80. In general, the empirical results indicated that the commercial and industrial policies implemented have been successful in encouraging the growth of the manufacturing sector and domestic demand has also provided an important stimulus to it.

To complement the study based on the general equilibrium model, certain partial equilibrium indices (e.g., the effective rate of protection) were also presented and the sources of growth of output (and of value added) of the manufacturing sector were also analyzed. Results of the analysis based on the partial, as well as the general, equilibrium framework did not contradict each other.

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M.A. Theses

Julieta L. Legaspi, *Empirical Model of Government Revenue Forecasting for the Philippines,* University of the Philippines, School of Economics, 1980.

The objective of this paper was to generate an empirical model for forecasting tax collections in the Philippines which could be very useful for better fiscal planning and management. An indication of how much resources in terms of government tax revenues could be generated in the future with the existing tax structure, rates and system of administration, would provide a workable guide for setting ceilings of government expenditures. Improved debt management would also be ensured if projections of revenues were available for government planners and decision-makers. Information on the actual needs and the available resources would provide policymakers with the signal to formulate and implement new revenue reform to beef up revenues of the government. This would also avoid costly mistakes of incurring excessive debts which are more than enough to finance the development program. Furthermore, information on the available resources would also facilitate an improved programming of government capital projects.

The study covered the period 1967-1978 and limited its discussion to the national government tax and social security collections. This paper gave detailed consideration to some of the factors likely to affect tax levels in the Philippines. The variables determining the levels of collection of specific tax components were identified and projected. Tax collections over the period 1979-1990 were projected using estimated relationships between tax collections and their determinants or bases. Two projections series were made with regard to the total taxes. One used the regression equation which specified per capita income, import and price as explanatory variables of total tax collections, and the other is the summation of projected collections from the different types of taxes. The former yielded more optimistic results while the latter appeared somewhat conservative. This result may imply that the economy might be at that stage of development whereby the presently used tax bases for the different categories of taxes might no longer be productive for the tax system to yield the necessary revenues to finance the development program.

While important gaps remain to be covered, the empirical findings of this paper suggested that tax levels which are a possible indication of the size of the public sector are importantly affected by the availability and effective exploitation of taxable bases. As the economy advances, many other bases are likely to emerge, thus giving greater scope for increasing tax collection necessary to finance higher levels of government expenditures.

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Emmanuel F. Esguerra, *The Redistributive Potential of the Masagana 99 Credit Subsidy,* University of the Philippines, School of Economics, 1981.

For economic and political reasons, the attainment of self-sufficiency in rice has been a goal of national administrations since the 1950s. The M99 Program was launched in 1973 to add impetus to the government's production intensification campaign for rice.

A credit subsidy constituted the core of the M99 Program consistent with the view that the provision of low-cost credit is the key to increasing farm productivity because it reduces the small farmers' borrowing costs and enhances their self-sufficiency. Thus, the M99 Program is usually perceived as an equity measure.

This study examined the potential of the M99 credit subsidy as a mechanism for transferring income to small rice farmers. The coverage of the credit program, the size of the credit subsidy and its distribution among farmer-beneficiaries and between farmer-beneficiaries and credit agencies were the factors considered in establishing the redistributive potential of the credit subsidy.

The findings of this study indicated that as an equity measure, the M99 credit subsidy was not only ineffective but also expensive to implement. The coverage of the credit program has been limited to at most one-fourth of the total number of small rice farmers in the country. The amount of government subsidy in terms of low-cost funds channeled to the M99 Program has been substantial, although the main portion of this subsidy has accrued to the financial institutions as incentives to lend to small farmers.

Because the distribution of M99 loans was not independent of farm size, the distribution of the credit subsidy that eventually reached farmer-borrowers was biased against small farmers. Furthermore, the income transfers realized by borrowers from the credit subsidy derived mainly from non-repayment of loans. This made the credit subsidy a costly vehicle for effecting income transfers, without attaining the equity objective.

The study also raised the possibility that the low-income groups were bearing the burden of the cost of the M99 credit subsidy. However, this point required a more systematic examination.

Finally, if a reduction of rural interest rates is deemed desirable on equity grounds, measures other than subsidizing the lending costs of institutional credit sources ought to be attempted. Improvements in the small farmers' repayment capacity are likely to have a more lasting impact on the level of rural interest rates than legislated ceilings. A thoroughgoing and genuine land reform may be more effective.

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Deirdra F. Garcia, *Rural-Urban Migration in the Philippines, 1965-1973: A Test of the Expected Income Hypothesis,* University of the Philippines, School of Economics, 1981.

This paper tested the applicability of the Todaro expected income hypothesis for Philippine rural-urban migration from 1965-1973; it also looked into the other factors that affected the decision to migrate. Initial regression runs caused the writer to discard the rural and urban education variables. The remaining variables considered were rural and urban income, probability of urban employment, population and distance.

The paper concluded that the strength of the economic motive in the decision to migrate could be verified in the rural-urban migration flows in the Philippines. Adjusting for the effects of short-term factors, it was found that people migrated to urban areas not simply in response to the level of urban income (which in fact was found to be insignificant) but really in response to the *expected* urban income.

The paper called for further research on a sharper and more precise specification of the urban employment probability variable, as the specific labor market conditions in urban areas used in this study represented only part of the employment-related factors affecting migration. The effect of contacts upon migration could be explored further in relation to the people specification of the employment probability variable.

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Brenda M. Katon, *Employment in Small- and Medium-Scale Industries: Philippines,* University of the Philippines, School of Economics, 1981.

The task of creating employment opportunities for the members of the labor force assumes a key role in the satisfaction of the basic needs of the population, particularly in an economy characterized by considerable labor underutilization. As an instrument for expanding opportunities for participation in the labor market, small and medium industries have increasingly gained recognition largely due to their supposed labor-intensive character.

To what extent small and medium industries have provided direct employment was a primary concern of this study. Aside from this, it sought to identify the employment determinants in the small and medium industry sector, measure the relative strength of each determinant, and explore the policy implications for employment creation.

The findings revealed that, though small and medium industries (SMSIs) did not currently account for the largest share of employment, value added and number of enterprises, their growth rates between census years 1967 and 1975 had been more remarkable than those of large and cottage industries. The small industry segment has emerged as the fastest-growing in terms of employment and number of enterprises while the medium industry segment has experienced the most marked output expansion. Along with the influence of agricultural development on the product markets, this has been attributed to the advantages of localized small-scale production for certain products and the growth of urban centers which provided a dynamic source of market growth.

The regression results on the employment determinants in the SMSI sector portrayed the responsiveness of employment to the following explanatory variables: 1) output, 2) wage rate, and 3) output mix.

In addition to this, regression results for the non-SMSI sector similarly pointed to output and wage rate as the most critical employment determinants.

The responsiveness of employment to the foregoing explanatory variables underscored the necessity of the following: formulating measures to raise output levels or minimize constraints to output growth, implementing complementary measures such as information dissemination and vigorous extension services which promote labor-intensive production techniques, and restructuring industrial incentives to reduce capital-labor substitution as indicated by other studies. In addition, increased access to capital, consultancy services and other productive resources were vital to the viability of the sector. If the growth rates of small and medium industries could be accelerated and sustained, they could expand the opportunities for employment.

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Benvenuto N. Icamina, *The Impact of UNCTAD Commodity Stabilization on Philippine Trade: A Simulation Analysis of Selected Commodities,* University of the Philippines, School of Economics, 1981.

This paper recognized the importance attached by the Philippine Government to the mutually reinforcing UNCTAD Commodity Stabilizing measures: the Integrated Programme for Commodities (IPC) and the Common Fund. As such, this paper aimed to investigate: (1) the possibility of measuring gains and losses out of the said stabilization measures being conceived at UNCTAD through the formulation of an adequate quantitative framework; (2) the compatibility of commodity price stabilization to revenue stabilization; and (3) the compatibility of price stabilization to increased revenue (or decreased payment, in the case of imports) for the country's major trade commodities.

The commodity performance being evaluated in this particular work covered those commodities listed under the UNCTAD'S 10 "CORE" commodities which are of substantial export or import interest to the Philippines (commodities which constituted at least 1/2 of one per cent of total exports or imports during the period 1970-78). Behavioral equations relating quantity exported or imported to prices and other explanatory variables were estimated individually for each of these commodities to determine the effect of price changes to their quantities.

Varying assumptions on the level of stabilized prices were presented including certain allowable range of fluctuations, which were then fed to the behavioral equations in case actual price performance fell outside the range of the stabilized price level. This would certainly alter the level of export supply or import demand and, in turn, export receipts and import payments for those particular observations. Simulation was carried out over a ten-year period starting in 1969.

The results of the estimation of the behavioral commodity models, as well as the simulation exercises were further investigated in terms of their consistency with theoretical formulations, *a priori* expectations, and results of past empirical investigations.

The results of the study showed that: (1) the intervention bias of control authorities was toward purchases, although less intervention would be necessary under the five-year moving average assumption; (2) price stabilization was compatible with revenue stabilization under both assumptions; and (3) a net revenue loss was experienced under the trend-line assumption, and a net revenue gain under the five-year moving average. It can therefore be concluded that the country's negotiator should be wary of the manner in which the prices are set in the negotiating tables, as this could spell the difference between a loss or a gain.

The study likewise confirmed that, commodity-wise, there will be gainers as well as losers, under price stabilization. The study has supported the results of previous investigations relating to net revenue effect on sugar and cotton, partly supported the results for abaca and copper, and has not supported the results for coffee and cocoa.

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Beneva G. Lacsamana, *The Postwar Economic Growth of Luzon, Visayas, and Mindanao,* University of the Philippines, School of Economics, 1981.

This study has been undertaken to provide better perspective to our understanding of the economic growth of the regions and serve as an input to regional development planning. Specifically, the paper measured and analyzed regional growth trends in terms of production, employment, labor productivity and per capita income; examined the changes in regional industrial structures in terms of production and employment; and studied the regional income inequality in the country.

The postwar economic growth of Luzon, Visayas and Mindanao has not been remarkable. There was a slowdown in economic growth in the 1961-1967 early decontrol period as a result of the gradual exhaustion of the domestic market for "easy" import substitutes, lack of backward integration in production and rural sluggishness, among others. These problems were compounded by the concentration of industry and trade in Metro Manila at the expense of the development of the other regions which lagged behind. Only Mindanao experienced significant growth among the major regions in this period as a result of the growth of its agriculture sector.

In the following 1967-1974 decontrol period, there was a general improvement in the regional economies, except in Mindanao which was facing an internal armed conflict. However, compared to the pre-1960s, the growth rates of the Regional Domestic Products and regional per capita incomes were lower in the early 1970s.

Visayas, which only started to experience significant economic growth in the late 1960s, was the exception.

By the early 1970s, the major regions showed a decrease in labor productivity growth rates as employment growth rates increased. Only Visayas had a rise in labor productivity growth rate hand in hand with the increase in employment growth rate. This implied a labor-surplus condition such that the regional economy was unable to absorb labor without a substantial fall in the average productivity level.

There have been sectoral shifts in terms of product and employment in the regional economies. The major regions, except for Visayas, showed a downward trend in the share of agriculture product and an upward trend in the share of industrial product. However, these shifts have not really been significant enough to bring about a structural transformation. Only Southern Luzon has departed from an agriculture-based economy.

There has been a downward trend in the regional income differentials. The country, though, was still far from regional convergence of incomes. Southern Luzon continued to dominate the economy. The localization economies, scale economies and urbanization economies offered by the region to industries made the regional dispersal of industries a difficult task.

The growing unrest in areas which are lagging behind in terms of socioeconomic development increases the urgency for the economic development of the regions. The Philippine government is now providing regional dimensions to its national planning efforts. The country's development strategy is concerned not only with the functional, but also the geographical, integration of the various development elements.

This paper advanced three points in the present efforts towards regional development, namely: the general lack of regional planning expertise, the lack of coordination between the public and private sectors, and an inadequate plan formulation—plan implementation interface. Improvement in these areas is critical to the success of our regional development efforts.

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Lucia C. Laquindanum, *The Postwar Growth of Labor Productivity in the Non-manufacturing Industries,* University of the Philippines, School of Economics, 1981.

The paper sought to identify labor productivity trends and structural shifts which occurred in the nonmanufacturing industries during the postwar era.

The paper concluded that growth of labor productivity for nonmanufacturing industries, namely: mining and quarrying, construction, utilities, and transportation, communication and storage group was sluggish for the twenty-year period. A look at the shifts in production structure within nonmanufacturing showed a tendency for labor resources to go to industries with low labor productivity. A comparison with some selected Asian countries showed the same tendency. The analysis of size structure revealed that the contraction or expansion of share to total value added of small establishments was not accompanied by a corresponding increase or decrease in levels of labor productivity over time.

The trend analysis which divided the whole span of the postwar period into two subperiods registered a negative rate of growth in the first period. This however changed with increasing rates recorded in the next period. Trends were explained in terms of those factors which affected growth of output and employment. For construction, a more influential factor which determined labor productivity movement was the change in output mix. In electricity, changes in rate structure and shift in energy consumption by type of consumer seemed to have a bearing on growth of output and employment. In the absence of information on factors accounting for employment rates in the transport group, discussions were limited to those affecting output movement. Management and effectiveness of government policy seemed to have played an important role in output growth.

Structural analysis showed that rates of growth of labor productivity could not be attributed to structural shifts. First, shifts in production structure saw the transfer of labor resources to sectors with lower output per worker such as construction and transportation. A comparison with Malaysia, Taiwan and Indonesia showed similar tendencies. Secondly, a study of size structure revealed that the share of value added of small establishments to total value added ranged from less than 1 to 20 per cent. Thus, movement overtime from small to large establishments could not have affected growth of labor productivity. However, it was found that those sectors where share of small establishments to total value added was largest, like construction and transportation, were also those with low output per worker.

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Mardiyono, *Factors Affecting Fertility in Indonesia: Areal Analysis Based on the 1971 Census Data*, University of the Philippines, School of Economics, 1981.

The fertility level is affected by factors of demand for and supply of children. The major thrust of the study was to determine the quantitative relationship by areal regression analysis between fertility level and the following factors: infant mortality rate, female labor force participation rate, proportion of labor force employed in agricultural sector, proportion of labor force who are illiterate, and proportion of ever-married women. The major source of data used for the study was the 1971 Indonesia Population Census, the latest data available, which were published by the Central Bureau of Statistics in March 1974. The major findings of the study were as follows:

Infant mortality rate had a significant positive effect on fertility level in the rural areas but was insignificant in the rural areas. On the other hand, the female labor force participation rate had a significant negative effect on fertility level in the urban areas, but was insignificant in the rural areas. The proportion of labor force who are illiterate, as the proxy for the lowest income group, had a significant negative effect on fertility in rural areas, but proved insignificant in the urban areas. The proportion of labor force employed in agricultural sector and the proportion of ever-married women had significant positive effects on fertility level.

These findings suggested some directions for fertility reduction policies. First, policies should aim at reducing the demand for children. This could be achieved by: a) increasing job opportunities for women, especially in the non-agricultural sector or in non-home-based industries, and changing the cultural norm which emphasizes the role of women as housewives; b) changing the production process techniques by supplying machines to farmers, especially in thinly populated areas or transmigration settlements; and c) establishing closer coordination among the National Family Planning Board, the press and the Department of Education and Culture in order to encourage people towards small family size norms. Furthermore, such policies should also aim at affecting the supply of children through: a) the reduction of the proportion of ever-married women by increasing school attendance rate through better educational facilities; b) the reduction of the mortality rate by supplying better medical facilities, especially in rural areas; and c) the development of personnel and expansion of family planning facilities to increase the effectiveness of fertility regulation.

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Djaborotan Nasution, *Rice Consumption in Indonesia*, University of the Philippines, School of Economics, 1981.

The main focus of this study was to determine rice consumption per capita among different groups based on the following characteristics: urban or rural family, occupation of household head, and income levels. The analysis was based on cross-sectional data from the Fifth National Socioeconomic Survey (SUSENAS) conducted from January to December 1976.

To estimate rice consumption, the semi-logarithmic function was chosen as the mathematical model for the study. The major findings of the study were:

1) Rice consumption increased with income and household size, and decreased with price. The estimated elasticities were: a) 0.61 for income, b) −0.23 for price, and c) 1.19 for household size.
2) Rice consumption varied by occupational groups and by rural-urban residence, probably reflecting the effect of income.
3) In general, the estimated average rice consumption in Indonesia was 11.14 kilograms per household per week or 131.94 kilograms per capita per annum.

These findings suggested some points regarding government policies. First, the relatively higher income and price elasticities in the rural areas than in the urban areas suggested the need to implement a comprehensive food policy designed to provide adequate food supplies to the poor. This should go hand in hand with programs designed to increase their income.

Secondly, the lower household size elasticity in rice consumption of farmers and low-income groups in the rural areas relative to other social groups suggested that an increase in household size in these groups tended to result in a smaller increase in per capita consumption levels. This pointed to the importance of reducing household size to increase consumption per capita, along with efforts to increase incomes and reduce the price of rice for the poor.

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Rogelio V. Paglomutan, *Steel Consumption in the Philippines: An Economic Analysis*, University of the Philippines, School of Economics, 1981.

An econometric model of steel consumption was formulated to investigate the economic factors that have significantly determined the level of steel consumption in the Philippines. Although there is a high correlation that exists between national income and consumption, this national income variable is by no means the only factor affecting the level of steel consumption in the country. As a developing country, there were other essential and limiting elements influencing its consumption level.

It was found that consumption of steel was highly dependent on three factors: domestic steel production, import price of steel, and construction expenditures. The construction sector has gained more importance over manufacturing, and this is expected since construction is the primary growth sector in the 'take-off stage' of a country's economic development. The insignificance of the manufacturing variable could be explained by the economy's failure to switch from mere domestic production of consumer goods, which are not steel-intensive, to the manufacturing of more intermediate and capital goods. But it is expected that manufacturing will gain importance with the structural shift to intermediate and capital goods industries as envisioned in government economic plans. Generally, steel consumption is basically non-price responsive.

Philippine steel consumption has increased 3.4 times over the period 1960-1977, and reached its highest level of 1,160,210 metric tons in 1977. And it is forecast to increase by 7 per cent per year; to reach 2 million metric tons by 1990; and a 4-million-metric-ton mark by the end of the century.

The Philippine steel industry, in response to the country's industrialization program, has continued to increase its steel-producing capacity, resulting in a remarkable decline in the proportion of steel imports to total steel consumption. But the industry has yet to overcome some inherent constraints such as investment capital, technical expertise, and skilled workers necessary for a modern steel industry.

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Leticia H. Pahimulin, *Agricultural Organization and Land Settlement Policy in Peripheral Areas,* University of the Philippines, School of Economics, 1981.

Land settlement has been advocated as one of the important tools of increasing food production. This study has shown that 'short distance' land settlement undertaken by self-financed settlers was cheaper and produced higher productivity for the settlers.

There are two types of land settlement in the Philippines: the government-assisted and self-financed. A comparative study of both forms of land settlement revealed that self-financed settlers were more successful, earning higher income and achieving a higher level of farm development. The role of agricultural contracts and the natural selection of people in migration explained the relative success of self-financed settlers.

Cost estimates for government-assisted land settlement were high. The direct assistance package comprised the larger cost in the government program of resettlement. The subsidy offered by the government encouraged the migration of settlers lacking appropriate skills in the development of newly settled areas and led to lower average productivity among the assisted settlers.

The favorable accomplishments achieved by the self-financed settlers in this study suggested that a feasible peripheral land settlement is possible in the country even within densely populated areas.

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Ma. Alicia Lea D. Pamintuan, *Schooling, Experience and Earnings: The Philippine Case,* University of the Philippines, School of Economics, 1981.

This paper was about an application of the human capital model to the Philippines. The objective of the paper was to test the effects of schooling and experience, using the human capital framework. Using individual characteristics of 5,720 full-time employees, differences in schooling and experience explained about sixty per cent of relative earnings dispersion. This result was based on the existence of an "overtaking year of experience" occurring within the first decade of the working life of the individual. An attempt was made to isolate the rate of return to training from the returns to schooling by analyzing the earnings of the illiterate workers differentiated only by their skill level. Results were remarkably similar to those obtained in other countries, especially those regarding the explanatory power of the human capital variables.

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Leah del Rosario Panganiban, *Philippine Minimum Wage Policies, 1951-1981,* University of the Philippines, School of Economics, 1981.

The promotion of social development and social justice has always been the proclaimed concern of the State. The State aims to promote social justice by altering the inequitable distribution of income. One of the means by which the State can achieve this is through wage policies.

This paper argued that minimum wage policies were not deliberately formulated to redistribute income. No regular pattern has been observed regarding adjustments in the minimum wage and cost of living allowances. Wage policies during the period 1951 to 1972 seemed to be mere reactions to political pressures. Those formulated during the period 1973 to 1980, on the other hand, seemed to be responses to price increases (inflation). Furthermore, the lack of an efficient monitoring system made it difficult to determine whether workers did receive the wages they were legally entitled to.

The paper also looked into the wage system in the sugar industry as a case study. The Social Amelioration Program which was meant to transfer income from sugar millers and planters to sugar workers was discussed. However, no attempt to measure the benefits and costs of the said program was made.

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Ma. Eden D. Sena, *A Reappraisal of Philippine Exports and Economic Development,* University of the Philippines, School of Economics, 1981.

Less developed countries are alleged to be vulnerable to fluctuations in export earnings as a large proportion of their national income is highly dependent on export earnings from primary products. It is also averred that these fluctuations can cause a serious impediment to the LDC's economic growth. To test whether this phenomenon runs true for the Philippines, an analysis of the short-run fluctuations in its export earnings and the effect of such fluctuations on the domestic economy was made in this study. The analysis included two sub-periods, 1952-1964 and 1965-1977, to determine if the state of export instability in the country had changed over the years.

Empirical results showed an increasing instability in export earnings from 1952 to 1977. The high dependence of the Philippines on primary exports had led to commodity and geographic concentration of exports. However, the *a priori* expectation that primary goods specialization and commodity and geographic concentration cause export instability was not supported by statistical results. Instead, it was found that the fluctuations in export receipts came mainly from variations in the volume of goods exported, hence to variations in supply rather than in demand.

These fluctuations in export earnings had adverse effects on the economy as variations in these earnings were positively and significantly related to variations in the GNP, imports and government revenue on a current year basis, and to variations in domestic capital formation and cost of living on a one-year lagged basis. Measures to counteract these effects are therefore necessary and timely to aid the beleaguered export sector of the economy.

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Ellen G. Sitompul, *Determinants of Infant and Child Mortality in Misamis Oriental, Philippines,* University of the Philippines, School of Economics, 1981.

The main purpose of the study was to determine the quantitative relationships between infant and child mortality and a set of demographic and socioeconomic variables. The data source was the Survey of Female Work Participation and Fertility in Misamis Oriental Province, Philippines, 1979.

The tests using multiple regression analysis revealed the following relationships:

1) Education of the woman was shown to be a strong explanatory variable. Its relationship with infant and child mortality was nonlinear such that increases in the level of education induced significant reductions in infant and child mortality up to a certain point after which further achievements in the woman's education would not significantly reduce mortality any further since low mortality would have been achieved.

2) Occupational status of the husband, mainly in the professional and clerical categories, was significantly and inversely related to infant and child mortality.

3) The potential income of the husband, which represented the ability to afford health care for the children, did not appear to be significantly related to infant and child mortality. Its relationship with infant and child mortality was hypothesized to be nonlinear, similar to that of education. However, the results indicated that the signs of the coefficients were quite in the opposite direction. A tentative explanation was that due to the lumpiness of the costs of health care, at low levels of income, increases in income would not buy the proper health care. Only beyond a certain level would increases in income improve mortality levels.

4) Age of the woman at first birth showed a significant positive relationship with infant mortality when examined for age cohorts, namely, in the 30-39 age group. This implied a higher incidence of infant mortality the older the woman is when having her first child.

5) Work experience of the woman and her farm background did not seem to be significantly related to infant and child mortality.

These tentative findings suggested that a more detailed investigation should be carried out on the possible determinants of infant and child mortality. Priority may be given to looking for alternative measurements of both the dependent and the explanatory variables.

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Evangeline M. Soliman, *Structure and Development of Philippine Cities,* University of the Philippines, School of Economics, 1982.

The evolution of the system of cities in a country is shaped by the way in which its economy develops. Cities as they emerge through the process of urbanization are an outcome of the functioning of economic and social factors. It appeared that economic factors were the major factors in urban development as industrialization led to the concentration of economic activities in the cities. These economic functions and social services which cities provide were seen to conform to some kind of hierarchy which was discussed in this study. This pattern could be discerned for the Philippines. Likewise, the pattern of distribution of certain types of social infrastructure was also examined.

The urban housing problem was only one of the many problems of the city. Though the housing problem was not confined to cities alone, much emphasis has been given to the issue of inadequate housing. Housing backlog continued to grow as a result of population influx into the cities. An overview of the extent of housing needs in the cities by type of urban centers was also presented.

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Marie Bernadette A. Trabajo, *Financing College Education: An Economic Analysis of the Government Loan Assistance Program,* University of the Philippines, School of Economics, 1981.

This paper argued for an expanded loan program to finance college education. It was felt that this program creates less market distortions than other policies to finance college education. We looked at the existing loan program and estimated, under varying assumptions, the cost to the government if the number of loan grantees were increased. Results showed that a substantial amount was needed to support such a program. The amount, however, was a small percentage of the total loans granted by financial institutions for various investments. This indicated the feasibility of financing an expanded loan program.

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Sharifah Seedah Alhamid, *ASEAN Demand for Singapore Goods and Effect of ASEAN Tariff Preferences,* University of the Philippines, School of Economics, 1982.

This study looked into the effects of trade liberation among ASEAN countries on Singapore exports. The study also estimated the import demand function and price and income elasticities of demand of each of the other ASEAN countries by commodity groups at the one-digit level of SITC. On the basis of the estimated elasticities, it also calculated the magnitude of the possible expansion of Singapore exports to each of the other ASEAN countries as tariffs in these countries were reduced in accordance with Preferential Tariff Arrangements, using as a basis of calculation the countries' 1979 import levels.

The estimates of the elasticities were obtained by means of simple and multiple least-squares regression, using the ratio of the commodity's own price to the price of the competing domestic commodity and real income as the explanatory variables.

The paper concluded that the effects on Singapore exports of ASEAN Preferential Tariff Arrangements were negligible for the following reasons. Firstly, the price elasticities were low and, in some cases, the price coefficients were not statistically significant. Secondly, the tariff reductions on goods imported from Singapore by the other ASEAN countries were concentrated on items with less than 20 per cent tariff rates. Thirdly, compared to price variables, income variables appeared to be the stronger stimulant to export expansion of Singapore goods to the ASEAN countries, as shown in the high income elasticities. It could be said that economic development as proxied by income growth in the other ASEAN countries was the main constraint to trade expansion rather than the tariff. Finally, the existing trade patterns of ASEAN countries and their dependence on developed countries were contributory to the retardation of trade expansion among them.

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Taslim Arifin, *Imports and Economic Growth in Indonesia: 1957-1979*, University of the Philippines, School of Economics, 1982.

This study attempted to: (i) estimate factors affecting the composition of Indonesian imports, using the Economic and the Standard International Trade Classification Systems; (ii) investigate import demand functions at aggregative and disaggregative levels, using prices and income as explanatory variables; and (iii) analyze the relationships between import structure and economic growth with focus on the role of capacity to import, import of capital goods, and gross capital formation, using data for the period 1957-79.

The findings suggested that: (a) there was a substantial change in import structure during the period covered by this study; (b) import demand tended to react to percentage changes of internal and external variables rather than to absolute changes in these variables; (c) prices played a less important role in the imports of Indonesia; (d) the imports had a higher elasticity with respect to the income variable of all commodity classes and total imports (on the other hand, certain imports were inelastic with respect to lagged relative prices); (e) the import of capital goods and gross capital formation indicated no relationship, while gross investment loomed as a key handle in stimulating gross domestic product; and (f) there was a systematic link between import of capital goods and capacity to import, and between income and capacity to import. This suggested that a basic requirement of economic growth, *ceteris paribus,* is the ability to import the external component of investment.

The policy implications of the above conclusions were that: (i) it is more appropriate to aim policies at income than at prices, because the income variable is more dominant than the price variable in determining the behavior of quantity of import demanded; (ii) in regard to economic growth, it is imperative to increase exports, maintain the growth of long-term capital inflow, and redirect sufficient investment to exchange-earning activities, in order to promote a more rapid rate of capital formation and hence, a higher rate of growth of output.

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Teresita G. Campos, *The External Debt Structure of the Philippines,* University of the Philippines, School of Economics, 1982.

This study was an attempt (1) to identify the factors that affected the behavior of the external debt of the Philippines (1964-1979) and (2) to examine the manageability of the external debt accumulated by the Philippines over these years. Identification of the factors affecting the behavior of external debt shall permit the country to influence the external debt structure and avoid its reaching crisis proportions. Examination of the manageability of the external debt shall be the basis for judging whether the country is capable of seeking more foreign assistance to further accelerate economic growth.

The factors affecting the behavior of external debt were identified through multiple regression analysis, while the manageability of external debt was measured using Solomon's debt to income limit, $\frac{kr-s}{r-i}$, as the criterion for manageability.

Changes in income, terms of trade, and government activity were found to influence the behavior of public external debt, while changes in income and current account balances helped determine the behavior of private external debt.

The economy indicated a tendency to go beyond Solomon's debt to income limit, $\frac{kr-s}{r-i}$. Thus, further increases in external debt should be controlled and carefully scrutinized to prevent an unmanageable debt situation.

The study recommended the following measures to check the growth of external debt: (1) raising income significantly by providing incentives for savings through higher bank interest rates and directing savings towards investments with high linkage effects on other types of investments; (2) improvement of the current account balance through export promotion via intensive advertising, more efficient production processes, policies aimed at production of exports at sufficient quantity and comparable quality; (3) intensification of tax collection and identification of new projects which are income generating; (4) maximization of returns from foreign loans through efficient allocation of these resources between the competing needs of the government and the private sector; and (5) shopping for loans with low interest rates by tapping nontraditional sources of foreign assistance, i.e., countries where interest rates may be low because their inflation rates are low, so that only loans with the lowest interest loans are contracted.

With the above measures, the country's level of external debt may be controlled and maintained at manageable levels.

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Elvigia S. Dompor, *Towards an ASEAN Free Trade Area: Some Implications for the Philippines,* University of the Philippines, School of Economics, 1982.

This paper presented some estimates of the possible effects of Philippine-ASEAN trade as a result of multilateral tariff reductions among members of the Association of South East Asian Nations (ASEAN). The emphasis of the study was on measuring the probable immediate effects of tariff reduction as an instrument of intra-ASEAN trade liberalization on the Philippines' exports to and imports from the ASEAN, the country's national output and employees' income.

Calculations showed that Philippine imports from ASEAN expanded faster than the country's exports to ASEAN (which can also be viewed as ASEAN's imports from the Philippines) under the liberalized trade policy through tariff reduction. Estimation results showed a corresponding decline in overall national output. This could imply a social loss in the short run.

However, it is expected that on a dynamic basis, regional trade liberalization can lead to a restructuring of the economy which will stimulate growth, maximize the favorable effects in the long run and cancel any short-run losses due to integration.

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Filipinas S. Echavez, *Output Growth and Structural Change in Postwar Philippine Manufacturing,* University of the Philippines, School of Economics, 1982.

Pursuit of the present study emanated from the fact that the Philippines had been lagging behind her Asian neighbors in economic performance. This paper examined the postwar trends of growth of output and employment in the manufacturing sector and analyzed the structural changes that accompanied growth.

For the whole period under study, 1950-1978, the findings indicated that the net value added in manufacturing grew at an average of 6 per cent a year and contributed within a fifth to a quarter of the whole economy's growth in net domestic product. The trend, however, showed that its contribution had been increasing at a decreasing rate. One implication of this is that efforts to make the manufacturing sector garner a larger share of the total net domestic product have not been very effective. A comparison with Southeast Asian countries showed that countries with fast (slow) rates of manufacturing growth also had fast (slow) rates of aggregate output growth.

Employment of labor had grown in the manufacturing sector but relative to the total economy's labor employment, the share of the manufacturing sector had gradually declined. The development and emergence of specific industries whose production structure tended towards less labor-using techniques had been one of the causes of poor labor employment generation in the manufacturing sector.

The accompanying structural shifts in production and size structures indicated the dominance of food and allied industries and showed the rapidly growing chemical and non-metallic industries. Moreover, large manufacturing industries were found to have grown faster than small manufacturing industries. Furthermore, growth in manufacturing had been brought about by the additions to labor input as reflected by the slow, if not declining, output per worker.

The study concluded that industries must be made more conscious of factor endowments so that the Philippines can industrialize in a manner more consistent with our comparative advantage to attain more economic growth.

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Susana M. Gavino, *An Inter-Industry Study of Primary Product Exports of the Philippines,* University of the Philippines, School of Economics, 1982.

This paper studied the effects on economic activity of an increase in demand for primary product exports of the Philippines. It aimed to evaluate the backward linkage-output and employment effects derived from exporting products in the unprocessed or partly processed state compared with the alternative of exporting products in processed or in manufactured form.

Direct and indirect backward linkage-output and employment effects arising from given changes in demand for said exports were estimated and analyzed through input-output analysis.

Estimation and analysis of results showed that for backward linkage-output effects, greater benefits would be derived if export expansion strategies were directed to the manufacture of food, beverages, and tobacco, manufacture of non-metallic mineral products, forestry and logging, and metallic mining. Thus, it was suggested that these industries be the focus of export promotion policies that aim to increase output not only in the export industries concerned but also in the other producing sectors.

In the case of employment effects, results showed that labor-intensive industries, e.g., agricultural crops production, production of livestock, poultry and other animals, fishery, manufacture of wood and wood products, including furnitures and fixtures, manufacture of non-metallic mineral products, n.e.s., and manufacture of fabricated metal products, machinery and equipment, had relatively larger employment effects than their corresponding less labor-intensive sectors. Consequently, fiscal policies biased towards industries with large employment effects should concentrate on the above-mentioned labor-intensive industries.

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Virginia C. Gonzales, *Determinants of Interregional Migration: Philippines, 1960-70 and 1970-75,* University of the Philippines, School of Economics, 1982.

This study presented the trends and patterns of population movements across regions and identified the factors that significantly influenced said movements for the periods prior to 1960, 1960-70 and 1970-75.

Migration streams prior to 1960 were largely toward the National Capital Region and the frontier areas of Mindanao and Cagayan Valley. Basically, the same trend was observed in the '60s but a shift from frontier-ward to urban-ward migration started to become apparent. This pattern became even more pronounced during 1970-75 with a substantial improvement in the in-migration rates of Southern Tagalog and Central Luzon. At the same time, Western and Central Mindanao and Cagayan Valley registered population losses for the first time.

The empirical results for 1960-70 brought to light the significant roles of economic opportunities at destination, farm density at origin and at destination, extent of irrigation at origin, level of education at origin, migrant stock at destination from origin and common ethnicity between origin and destination. Transportation access seemed to become immaterial in the presence of kinship ties at destination, and common ethnicity.

The results for 1970-75 were in accord with those of the preceding period except for farm density which seemed to lose its importance at destination. Meanwhile, poverty incidence at origin appeared to hamper the population's ability to move due to sheer lack of capital for the migration investment.

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Danilo C. Israel, *Export Incentives and Labor Productivity in the Philippine Manufacturing Sector, 1956-77,* University of the Philippines, School of Economics, 1982.

This work was a study of the effects of export incentives, granted by the Board of Investments through the Export Incentives Act (RA 6135), on labor productivity of manufacturing in the Philippines. The study covered a period of twenty-two years, from 1956 to 1977, and utilized both multiple regression and production function analyses as the main tools of investigation applied on time-series and cross-section data. The estimation technique used was the ordinary least squares (OLS) regression method.

Estimation and analysis of results showed that for the manufacturing sector in general, the implementation of export incentives had no significant effect on labor productivity growth over time. Moreover, it also had no significant influence on labor productivity variations across Philippine manufacturing industries.

For some specific industrial sectors however, the analyses showed that export incentives had indeed positively contributed not only to the growth of labor efficiency but also to the generation of additional labor movement. This observation was true for five industries, namely: Electrical Machinery, Apparatus, Appliances and Supplies; Chemical Products; Footwear; Machinery except Electrical Machinery; and Transport Equipment. For the rest of the sectors, on the other hand, the effects of export incentives had been insignificant.

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Florie M. Lejano, *A Simulation Model for Copper*, University of the Philippines, School of Economics, 1982.

The present interest to build a simulation model for copper exports came about partly because of the vogue over econometric commodity studies, and also because the current experience of copper companies as producers of a traditional commodity is both prevalent relative to the experience of producers of the other traditional exports, and at the same time unique with regards to its being a capital-intensive industry.

The basic criterion to validate the models surveyed here and that which was developed later was the ex-post simulation method wherein the model able to produce the computed estimates of copper exports with the least variance from the actual series of exports was valued as 'best.'

The 'best' model indicated that the Philippine copper exports supply is largely vulnerable to the activity index of only one market, which is Japan and that the real growth of exports in the future shall be pursued at the expense of the decreasing real copper price.

The pressure on copper companies is strong because their sunk costs and fixed investments are substantial. The writer, addressing both the copper companies and the government, suggested ways to possibly mitigate the ill effects of the validated structure on future operations.

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Kim-Liang Chuah, *A Simple Model of the Effects of Wealth and Deficit Financing on the Malaysian Economy*, University of the Philippines, School of Economics, 1982.

The objective of this paper was to study the effects of the government's different financing schemes on the multiplier. This entailed an investigation into the effects the stock of wealth had on private consumption and on the rate of interest. It further tested for the existence of any financial crowding-out of private investment demand. Crowding-out here meant the curtailing of private investment induced through the negative effect on investment due to the income-induced rise in the interest rate. The model used included the stock of wealth as a variable in the consumption function and the demand for money function. A government budget constraint was added to capture the crowding-out phenomenon. Due to the limited number of observations available, the ordinary least-squares method of estimation was used on the four behavioral equations.

The results showed that a significant influence was exerted by wealth on private consumption behavior, but its effect on interest rate was weakened by the numerous controls exercised by the Central Bank. Extreme crowding-out of the financial market was not pronounced in the analysis. On the contrary, government expenditures were expansionary, even when financed by new bond issues. The increase in money supply may also have contributed in counteracting the weak contractionary effect of bond-finance via the interest rate, if this existed.

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Harold Afamefauna Oji, *Sources and Allocation of Funds by the Government Service Insurance System (GSIS)*, University of the Philippines, School of Economics, 1982.

This paper was about the Government Service Insurance System. It dealt with the investment of its funds, the analysis of the GSIS as a savings form to the members, and its importance in the generation of domestic savings.

This paper showed the composition of its portfolio over the 1970-1980 period and assessed the efficiency in the management of its investible funds. This was done by comparing the profitability of GSIS investment to that of other giants in the social and life insurance industries such as the Social Security System (SSS), the Philippine American Life Insurance Company, and the Insular Life Assurance Company. The rates of return to investment were respectively, 5.76 (GSIS), 9.01 (Philam Life), 9.29 (Insular Life), and 9.51 per cent (SSS).

The profitability of GSIS as a saving form to the members was determined by benefit-cost analysis. The cost consisted of members' monthly contributions (premiums) and the benefit comprised retirement, survivorship and sickness benefit, medicare, disability insurance, compensation and death benefits, dividends and credit subsidies. The present values of net cost and benefits by annuity method were calculated for three categories of members—low income, middle income, and high income members. The estimated net benefit was found to be positive for all categories but the benefit/cost ratio tended to rise as income rose: 1.10 (low income), 1.29 (middle income) and 1.31 (high income).

The importance of GSIS saving (reserves) was determined by the relationship of GSIS reserve to domestic saving and GNP. For the 1969-1978 period, the percentages of GSIS saving to GNP and domestic saving were 0.46 and 4.11, respectively.

Major findings showed that GSIS had the lowest rate of return to the invested funds compared to SSS, Philam Life, and Insular Life. This may be explained by the fact that GSIS channeled a very large portion (75 per cent) of its investible fund to losing corporations, private as well as public. Of the major ones were the Philippine Air Lines and hotels. The system is considered a profitable savings form to members, assuming their alternative is saving deposit. The benefits could be very much improved by better management of investible funds.

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Cardozo M. Luna, *Agricultural Productivity and Urbanization in the Philippines*, University of the Philippines, School of Economics, 1982.

This study related agricultural productivity to urbanization in the regional economy. It aimed to determine (a) the extent to which regional differentials in agricultural productivity are significant, (b) the extent to which agricultural productivity is affected by urbanization and development of urban centers, and (c) the effect of urbanization on agricultural productivity at changing levels of development.

Using available provincial and regional data for 1960 and 1970, an analysis of variance and the multiple regression technique were performed. This study showed that urbanization and the level of development of urban centers affected the agricultural performance of the surrounding areas. Urban centers initially retarded agricultural output per worker at a lower stage of development; at a higher stage of development, urban centers tended to increase agricultural productivity. The latter stage implied the "spread effect" of the urban centers.

Regional urban centers were important determinants of the agricultural output per worker. This was due to the market orientation of agriculture not only for its output but also for its excess farm labor. The urban market had a strong effect on agricultural productivity due to the high purchasing power of high income groups. Agricultural output per worker was also positively associated with external economies provided by urban infrastructures. It was likewise positively associated with the size of land per worker and tractors per worker which represented capitalization in agricultural production. The fragmentation of land was also positively associated with agricultural output per worker, perhaps due to the intensity of land use. This was true for less developed regions while the reverse applied to the developed regions.

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Ma. Teresa U. Madrid, *The Productivity and Employment Effects of the Second IBRD Rural Credit Project on Large and Small Farms in the Philippines*, University of the Philippines, School of Economics, 1982.

This paper was about the impact of the Second IBRD Rural Credit Project on the productivity and employment of large and small farms in the Philippines. The objective of the study was to assess the comparative impact of the Credit Program on two groups of farms—the beneficiaries of the program and the non-borrowers—further segregated by farm sizes. Data used in this study were based on a NEDA-Central Bank survey conducted from August to October 1980 in eight provinces distributed nationwide which had the greatest number of target beneficiaries.

The impact on productivity was measured by using a Cobb-Douglas production model which indicated the percentage change in the quantity of output resulting from a percentage change in the quantity of input. The impact of non-measurable inputs associated with the farms' efficiency was also measured through a test for relative technical and price efficiencies for both rice and sugar. By using an input demand function, the least cost combination of two resources to produce a given level of output was arrived at. The amount of output that farms would wish to produce and sell given the level of inputs that would maximize profits was obtained from the supply function. The demand and supply functions were both derived from the Cobb-Douglas production function when translated to a profit function. The extent of product impact was imputed through the inclusion of the credit dummy and its corresponding production elasticity in the expressions.

The impact of employment was measured by obtaining the differences in labor employment on a "before-after" basis, and the differences were tested for significance. The extent of relationship between labor and the various contributory factors that may explain changes in labor employment was determined through a multiple regression technique.

Results obtained revealed that the Second IBRD Rural Credit Program had a positive impact on productivity and employment on both large and small farms, i.e., it increased the productivity and employment of farms.

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Teresita de Castro Manipon, *An Econometric Analysis of Population Growth, Investment Demand and Economic Growth in the Philippines*, University of the Philippines, School of Economics, 1982.

This paper was an econometric analysis of the role of population pressures on the aggregate investment demand and the effect of this demand on the economic growth, focussing on the Philippine condition and setting. The primary purpose of this study was to demonstrate the key role played by population on the aggregate investment demand by type of capital goods; secondly, it hoped to identify the economic variables that explained most of the changes; thirdly, it proposed to look into the effect of these investments on economic output; and lastly, it attempted to forecast the effects of alternative demographic and economic policies on investment and economic growth.

A small econometric model was built where the statistical investment demand functions by type of capital goods, i.e., residential, non-residential and government constructions, tranport equipment, and other durable equipment and machineries, were estimated and analyzed through the two-stage least squares (2SLS) and ordinary least squares (0LS) technique from time-series data from 1967 to 1981.

Empirical results of the model showed that population pressure was less likely to affect fixed investments in the Philippines and perhaps in other developing countries in as much as it did not guarantee an increased income and increased demand for housing and public utilities. In fact, there was a capacity for product growth rates significantly higher than population growth and thus, other technological and economic factors allowed sufficient margins to permit substantial and sustained investment and economic growth. Fixed investment, especially durable equipment and machineries, proved to be a determinant of the country's rate of growth.

Other indirect means, aside from the birth control program, affected the allocation of investment and in turn in some degree affected economic expansion, as shown by the simulation of the model. Several policies were suggested towards an increased output and further stimulation of investment, namely: an organized and focused export promotion, rising share of equipment and infrastructures, expansion of government spending, dismantling of barriers to investment, and rural industrialization and urbanization, side by side with the population program.

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Prabowo, *An Empirical Analysis of the Effects of Income and Education on Fertility in Indonesia*, University of the Philippines, School of Economics, 1982.

This paper examined the effects of family income and wife's education on human fertility in Indonesia. Many studies conducted in Indonesia as well as other LDCs revealed either positive or negative linear relationship between them. To reconcile such conflicting patterns, a non-linear model was adopted for this study. Following Encarnación (1974) who propounded the threshold model, the hypothesis was that below some subsistence level, an increase in income and education brings about positive impacts on fertility. It is only beyond the subsistence level that a negative relationship is expected.

Using the 1976 Intercensal Population Survey, the regression results showed empirical supports for the hypothesis except for rural Java and Bali where a positive relationship between education and fertility prevailed. It was observed that the wife's education exerted a more significant effect on fertility than family income.

Other variables affecting the fertility level were also considered. In particular, this study showed that the wife's age at marriage and her working activity had significant effects in reducing the number of children. If a lower fertility rate is to be attained, the enhancement of education for the women up to the primary level should be a crucial policy target. This would move them beyond the threshold level as well as raise the age at marriage and the labor force participation.

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Md. Abdul Quayum, *Fertility and Wife's Work Participation in Bangladesh: Threshold Hypothesis,* University of the Philippines, School of Economics, 1982.

This study attempted to apply an economic framework to analyze factors determining the household's decision pertaining to fertility and wife's work participation. Employing data collected in 1981 from 400 married women of the northern region of Bangladesh, we examined the quantifiable determinants of these two variables with a focus on the effects of income and wife's education. In addition, we examined the possible simultaneous relationship between wife's work participation and fertility.

The findings suggested that family income and wife's education affected fertility differently above and below certain thresholds. These two explanatory variables had positive effects on the cumulative fertility for the levels below the thresholds; beyond the thresholds, family income had a negative fertility effect only for the urban subgrouping, while education loomed as key handle in bringing down fertility rates.

The marginal effects of wife's education and her husband's income on her work participation were negative or positive depending on whether they fell below or above certain thresholds. At relatively low levels of income (below the threshold), the wife's work participation was closely tied with her husband's income; beyond the target subsistence level, more years of schooling appeared to induce a substitution effect in favour of market work.

In the simultaneous determination model, the wife's work participation exerted a negative effect on her fertility only for the urban subgrouping while the effect of the number of children ever born to a married woman on her work participation was significantly positive for all and for the rural subsample.

The findings of this study appeared to indicate that with regard to the determinants of fertility and wife's work participation in a less developed setting, one should go beyond the pure income and substitution effects: the conventional analyses of wife's work participation and fertility required some modifications and extensions in a setting where incomes are below the subsistence levels. From the policy standpoint, the findings emphasized the need to move majority of women to some educational levels above the threshold (at least up to secondary level) in order that the desired negative effect of increased years of schooling on fertility and the positive effect on her work participation can be achieved.

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Augusto San Agustin **Rodriguez**, *Comparative Advantage of Corn Production in the Philippines*, University of the Philippines, School of Economics, 1982.

The study attempted to resolve where the Philippines would be better off: by channelling scarce and limited resources in the development of the local corn industry or directly importing corn from abroad. The criterion used was the Domestic Resource Cost (DRC) concept which measures the efficiency in transforming domestic resources into foreign exchange. If the DRC is compared with the shadow price of foreign exchange, the ratio will indicate the comparative advantage in producing the commodity.

Three data sets were used: the traditional and commonly practiced technology in corn production, the *Maisan 77* government-sponsored technology, and the hybrid technology which was recently launched as the *Maisagana* Program. Results obtained pointed to favor domestic production over importation with DRC values less than the shadow price of foreign exchange for all three types of production system. Sensitivity analysis showed that DRC values were highly affected by the world price of imported corn and domestic yield.

The policy implication of the above finding was that the local corn industry could be further expanded given the relative factor prices assumed in the study.

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Abdul Madjid Sallatu, *Export Instability of Indonesia, 1972-1980,* University of the Philippines, School of Economics, 1982.

The main focus of this study was the export instability of Indonesia in the period 1972-1980. Firstly, it attempted to determine empirically whether a decreasing (therefore an improvement) or increasing export instability has been achieved in the last period compared to the previous periods. Secondly, it aimed to identify factors that were positively and highly associated with the export instability of Indonesia. Lastly, the study looked into the government policies which could reduce the effects of export instability on the economy as a whole.

The major findings of the study covered three consecutive periods, i.e., 1946-58, 1959-71 and 1972-80; the study showed that after a decline in the second period, the third period registered an increase.

Using single-variable and multi-variable analysis, both in the linear and log-linear regressions, some 29 explanatory variables considered to be related to export instability were tested. In the two forms of regressions, there were nine explanatory variables that were consistently significantly associated with the export instability of Indonesia in the period under study. These were: export price, raw materials import, balance of trade, value of petroleum and products, export value of wood, monetary reserves, and monetary reserves as a percentage of total outlays on import.

Since the findings showed that the significant explanatory variables were mostly related to the demand side of Indonesia's products abroad, then, this study suggested a focus of policy observations toward this direction. To be more specific, a further and more detailed study was called for, especially in relation to the demand for exportable products of Indonesia and the export promotion policy.

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Rudy P. Sitompul, *The Impact of Foreign Capital Inflow on Domestic Savings in Indonesia*, University of the Philippines, School of Economics, 1982.

The main focus of this study was to analyze the impact of foreign capital inflow on the domestic savings in Indonesia for the period 1971-1979. The main sources of data were the various publications of the Central Bureau of Statistics. The major thrust of the paper was to determine which constraint was binding in Indonesia's economy, through multiple regression analysis of the quantitative relationships: a) between gross investment and a set of explanatory variables, namely, gross domestic product, net foreign capital inflow and the total exports; b) between gross investment and the explanatory variables: net foreign capital inflow and the total exports; c) between gross investment and the explanatory variables: gross domestic product and the total imports; and d) between the total imports and the explanatory variables: gross domestic product and gross investment.

The major findings of the study were as follows:

The preliminary test of the regression of the investment functions indicated that Indonesia's case was that of a trade binding constraint. The trade binding constraint implied that the *ex post* imports were equal to the *ex ante* or required imports.

Gross investment explained the variations of imports better than gross domestic product. The coefficient of the gross investment implied that other things being equal, the increase in investment by one unit would increase import by 3.5 units. The coefficient of gross domestic product was negative and statistically not significant.

The binding trade constraint prevented *ex ante* savings from being fully realized *ex post*. The impact of foreign capital inflow on *ex post* savings was more likely to be positive, since external resources would then help to relieve the independent limitation on investment imposed by a shortage of specific required imports.

These findings suggested that a more detailed investigation should be carried out in the application of the Weisskopf model. The time lag may not be that important in analyzing the effect of capital inflows because inflows probably are fully requited within a year. Two-year moving averages could probably be applied as an alternative to the three-year moving averages and foreign capital inflow could probably be defined more specifically rather than using the aggregate measure.

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Ma. Aurora P. Tolentino, *An Analysis of Productivity Differentials in Philippine Manufacturing By Size of Industry*, University of the Philippines, School of Economics, 1982.

The labor and capital productivity performance of the Philippine manufacturing industry in 1975 and the prevailing productivity differentials across various industries and firm sizes at both national and provincial levels were first established in this study. A wide disparity in productivity performance was noted and was hypothesized to be influenced by differences in industry class or the choice of output type, plant scale, and development level of area where a firm was situated, in addition to factor intensity and technical change. The test of model using a regression framework disclosed that generally these variables affected productivity. The findings had implications on resource allocation, development of small and medium industries, regional concentration and development, and the government policy thrust in the manufacturing sector.

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Perfecto B. Abayan, *Conservation Rent in Philippine Mining: Empirical Measurements and Some Policy Implications*, University of the Philippines, School of Economics, 1983.

This paper presented an analysis of conservation rent in the context of the pure theory of exhaustion as it applied to Philippine mining for the decade 1970-1980. Emphasis was on the concept and measurement of conservation rent defined as the opportunity cost of producing minerals now instead of in the future.

Analysis of the data showed that the problem of mineral exhaustion was significantly considered in the pricing and profit maximizing decision of mineral producers in this country as the pure theory of exhaustion predicts. In effect, mineral producers, in the process of optimally exploiting mineral resources, allocated rationally within the lifetime of the nation's mineral deposits, the volume of minerals extracted. However, under extremely bad business times, mineral producers may relegate to lower priority the recovery of conservation rent to costs more essential to the survival of the mining industry.

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Richard R. Ancheta, *Government Policies and Imports in the Philippines*, University of the Philippines, School of Economics, 1983.

The incorporation of government policies in modeling import behavior was the central theme of this thesis. Specifically, the following objectives were pursued: (1) to show the effects of government policies on imports as the government endeavors to satisfy various conflicting goals, and (2) to develop and estimate a model which will illustrate the effects of foreign reserves constraint on total imports and the imports of rice. (3) As a corollary to the second objective, the model will also estimate the degree of adjustment between food imports as against all other imported items, the degree of adjustment between rice imports as against all other imported goods belonging to the food category, and the degree to which the price of rice in the domestic market is insulated from the price movements in the world market.

The methods used to estimate the equations were the Ordinary Least Squares (OLS), the Indirect Least Squares (ILS), and the Two Stage Least Squares (2SLS). The main findings of the thesis were as follows: Using the Hemphill model, it was found out that the government regarded adjustment to be a costlier alternative compared to financing a deficit in the balance of payments; it could be inferred from the extension of the Hemphill model that not satisfying food imports involved a higher marginal cost than not satisfying non-food imports. This suggested that a drain in foreign receipts had a smaller impact on food imports than all other imported items. This further implied that non-food imports served as a buffer for any change in foreign receipts; rice imports were seen to be unaffected by changes in foreign receipts; and that the effect of a change in the world price of rice on the domestic market price was found to be less than unity, suggesting that consumers were, to a certain extent, insulated from movements in the world price of rice.

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Denise Joyce Cryde, *Implications of Input Interventions on Production Efficiency in Philippine Agriculture,* University of the Philippines, School of Economics, 1983.

This paper primarily examined the efficiency implications of government interventions affecting major farm inputs in the Philippines. It reviewed such measures as minimum wage legislations, interest rate regulations, foreign exchange controls and tariffs, as well as specific programs on hybrid seed production, fertilizer subsidies, liberalized credit, and irrigation development. While these interventions encompass a variety of instruments that have throughout the years become increasingly prevalent, they were hypothesized to have various adverse effects on production efficiency in Philippine agriculture.

Using an open-economy methodological framework, this study established a considerable diversity in the relative efficiencies with which regions in the Philippines produced agricultural output. In contrast, agricultural policies were disclosed to have created a strong perversity in the direction of private incentives. More specifically, incentives have favored socially unprofitable food crops such as corn and inhibited the expansion of crops exhibiting comparative advantage. Though primarily stemming from constraints on output price, this perversity, moreover, has been shown to have been independently fostered and altogether aggravated by measures distorting input prices. More potent in this respect have been policies affecting farm wages, fertilizer prices, and short-term interest rates. Furthermore, differences in input intensities have been found substantially responsible for the variable impact of distortions on production efficiency.

At the policy level, results in this paper indicated that the government should institute less aggressive wage policies as these have unduly burdened producers at farm-gate and more so those growing the apparently highly wage-sensitive food crops and those engaged in large-scale farms and plantations. Similarly, trade policy has been biased against agriculture as it has more recently comprised measures that have gradually eroded the input incentive of peso overvaluation and provided disincentives through tariff protection of inefficient domestic industries. Fertilizer policy, in turn, though intended to provide incentives through subsidies, has done so within the constraint of inefficiency in local fertilizer manufacturing and inefficiencies in the input's retail network. Fertilizer pricing strategies, moreover, have been severely biased against efficient fertilizer-sensitive commercial crops, as subsidies were only granted to food crop fertilizer in the past.

With regards to credit policy, this study argued that while subsidized short-term credit had been a highly potent instrument for encouraging food production, its effectiveness had been severely limited by hidden costs and inefficiencies in the credit distribution and collection network. Rather than recommend greater credit support to any specific crop, this study emphasized the need to improve penetration of formal credit into the highly risky food farms. This would be especially noteworthy since such programs have been recently utilized to introduce yield-enhancing technological innovations into food production. On this point, hybrid seed production and irrigation programs were argued as necessary as these may together be a prerequisite to the successful diffusion of the "new" seed technology. Furthermore, while rehabilitation and construction of irrigation facilities may be desirable, more equitable methods for assessing irrigation fees in place of the current flat rate need be surveyed to reduce any undue strain on efficient crops. Indeed, success in the diffusion of high-yielding seed varieties supported by an equitable irrigation system appears imperative in the effort to raise comparative advantage in the food sector, given the government's priority objective of food self-sufficiency. Surely, changes of this sort would be necessary in order to sufficiently recover losses due to the government's interventions and constraints.

To conclude, this study reiterated the plea for a redirection of efforts towards a bottom-up approach to development, with pricing policies less discriminatory against agriculture and more compatible with regional production efficiencies. It suggested that pricing policies gradually move towards reflecting changing social values and costs. Furthermore, it called for rationalized regional development planning in agriculture complemented by a sufficient degree of decentralization in the implementation of plans. Given the food self-sufficiency objective coupled with output price constraints, moreover, it reemphasized the need to search for economically efficient channels for handling and distributing subsidized input and credit supplies to food farms. For this purpose, it recommended that cooperatives or producer organizations be mobilized. Concomitantly, it suggested that coordination between government agencies and producers be strengthened through improvements in the quality and administration of the agricultural extension system. Finally, it recommended that an information network be developed so that government strategies and policies transmitted to the farm through extension can be effectively monitored.

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Loreli C. de Dios, *Asset-Ownership and Tenure in Sugarcane Production*, University of the Philippines, School of Economics, 1983.

The literature showed that contracts arose to bring together agents with different endowments of physical and human capital as well as risk-bearing capacities. The coexistence of different contracts was shown to depend on worker characteristics, i.e., differences in the choice of contracts in a risky environment reflected an underlying distribution of means of production, with the more endowed laborers choosing to be tenants and the less endowed ones hired as wage-workers. The screening model was adopted to show that information was transmitted via contractual choice. The hypothesis was confirmed using both logit and OLS procedures to test survey data.

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Ma. Cristina G. Ginson, *Data Problems, Conceptual Issues and Philippine Income Inequality in 1971 and 1975*, University of the Philippines, School of Economics, 1983.

Despite government pronouncements of improved economic well-being during the early seventies, it was found that final distributions in income changed for the worse between the period 1970 and 1975. This paper presented the data for 1975 from a nationwide Integrated Census of the Population and its Economic Activities, Phase II and attempted to reconcile it with the 1971 Family Income and Expenditures Survey. To achieve consistency and comparability, we pinpointed the methodological and conceptual differences between the two surveys and analyzed their impact on the measurement of income distribution. Our analysis of the changes in the composition of income was made through a decomposition method of Fei and Ranis, tracing income inequality to various family income components.

Crucial factors which we noted that may help explain the tremendous jump in measured income inequality in 1975 included: the large sample size, the timing of the survey, the greater coverage of "economic" activities, especially family agriculture, and the understatement of income in kind.

Decomposition results showed that the greater importance of self-employment incomes in total income (compared to 1971) as well as its highly unequal distribution, reflecting largely the inequality in agriculture, accounted for 45 per cent of total income inequality in 1975, followed by the wages and salaries component of total income at 35 per cent and "other" incomes which contributed 20 per cent of total income inequality in 1975.

Further investigation into the effects of these changes in relative importance of these income types confirmed their role in the widening income inequality experienced in 1975.

Our findings conformed to the Kuznets' hypothesis on the predominance of self-employment incomes in the rising portion of the inverted U-shaped path of income inequality in the economic growth of nations.

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Syafruddin Karimi, *Exports and Economic Growth: A Study of Indonesia, 1960-1980,* University of the Philippines, School of Economics, 1983.

This study was an attempt to test statistically the validity of 'export-led growth hypothesis' in the economy of Indonesia for the 1960-80 period. It analyzed the effect of exports on economic growth and examined the importance of exports in financing the import of capital goods which, because of their significant effects on domestic investment, are necessary for rapid economic growth.

The present study found support for the export-led growth only in the natural logarithmic form of regression equation. This implied that an export stimulus does not have a constant impact on the economy over time. Empirical results also showed that the import of capital goods depended considerably on export performance. The significant positive relationship between the import of capital goods and export performance could be attributed to the fact that Indonesia lacks capital resources. The findings showed that domestic investment depended on capital goods imports, but had no positive effects on gross domestic product. This implied that the effect of capital goods imports on economic growth was not via investment but via other determinants of growth such as technical progress and resource allocation.

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Mary Ann Celeste I. Lachica, *The Linear Programming Approach in the Derivation of a Food Price Index,* University of the Philippines, School of Economics, 1983.

The mounting importance of price indices in the economic and socio-political spheres has highlighted the need for an accurate yet practical price index formulation. While price indices currently in use (e.g., Laspeyres, Paasche, etc.) satisfy the requisite that they be practicable, they yield indices which are either too low or too high from the "true" index. Price indices derived from utility functions on the other hand yield accurate measures of changes in the cost of living but its practical application is limited by the difficulty of specifying the utility function. Thus, not until a price index which satisfies both requisites of accuracy and practicality is developed will the search for better price indices end.

Recent studies in the field of applied linear programming have shown the feasibility of deriving a single index which is practicable yet more accurate than alternative indices currently in use. The linear programming price index is claimed to be the index which may finally end the search for theoretically sound yet useful measures of changes in the cost of living.

Whether or not the linear programming price index is indeed a more accurate and practical index than other alternative indices currently in use, was the subject of this study. Using a constrained cost minimization diet problem constructed from a purposive sample of one-hundred sixteen Metro Manila households, the linear programming food price index was derived from the optimal solutions yielded by the model. Three alternative price indices—the Laspeyres, Paasche, and Ideal Indices—were likewise calculated for the same points in time. The four indices were subsequently subjected to quantitative and qualitative tests to determine which of the indices was actually superior. Results of the comparative analysis showed that the linear programming index fared better than the Laspeyres and Paasche indices in the formula tests and fared just as well as the Ideal Index in one of the tests. The qualitative evaluation, on the other hand, showed that the linear programming index behaved in a manner similar to a "true" index of the cost of living. The linear programming index therefore was a more accurate measure of cost of living changes. Moreover, unlike other functional price indices, its practical application was feasible. These encouraging results therefore are hoped to serve as stepping stones to the final derivation of the desired welfare-oriented composite price index.

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Amelia M. Liwagan, *The Metro Manila Bus Firm and the Rate of Return Regulation*, University of the Philippines, School of Economics, 1983.

The transportation industry is a heavily regulated industry. Just like the other industries classified as public utilities, it is subject to various forms of control, one of which is the rate of return regulation. By virtue of several court decisions, all public utilities are entitled to a maximum 12 per cent rate of return on invested capital. This paper questioned the viability of the set rate since it was first enforced way back in 1932 by the then Public Service Commission and the applicability of the revenue-deficit approach in determining fare adjustments.

Based on the financial statements submitted to the Ministry of Transportation, ten Metro Manila bus firms were found to have earned returns less than the prescribed ceiling although in several cases, the firms earned returns of more than 12 per cent. Generally speaking, the rates accruing to bus operators have been very erratic. Moreover, compared to the other public utilities, transport services' rates of return were considerably lower.

The revenue-deficit approach used in determining fare adjustments based on a fixed rate of return was also found to have several shortcomings. For instance, it did not differentiate between the relative efficiencies or inefficiencies of various scales of bus operations. The current working definitions of the rate of return also had certain operational weaknesses. Returns can be under/overstated by either over/understating costs, under/overstating gross revenues or padding/shrinking the rate base. An estimate of the rate of return actually accruing to the bus operators was computed using 1980 MOTC statistics on gross revenues and load factor. A survey of bus dealers was conducted to come up with benchmark figures on the costs of brand-new and reconditioned buses, as well as major operating and maintenance expenses. Firms were classified according to bus fleet composition. In all the three cases, the firm was found to earn substantial returns on invested capital.

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Edna Reynoso-Makalinaw, *An Empirical Analysis of the Demand for Labor in the Manufacturing Sector,* University of the Philippines, School of Economics, 1983.

The study attempted to analyze the impact of the various determinants of the demand for labor on the employment in the manufacturing sector in general and in selected export-oriented and non-export-oriented manufacturing industries in particular. Similarly, it estimated the elasticity of factor substitution in each of these industries. The analysis was developed on the basis of a labor demand equation using the constant elasticity of substitution (CES) production function.

A least square multiple regression using data for the period 1956-75 revealed that the variables factor price ratio and output are very important determinants in the demand for labor in the entire manufacturing sector and in both export-oriented and non-export-oriented manufacturing industries although the importance was more pronounced in the export-oriented group of industries.

An estimate of the elasticity of factor substitution in the various export-oriented and non-export-oriented industries underscored the varying ability of each industry to substitute labor for capital and vice versa.

A simulation of the effects of the changes in the user cost of capital and the cost of labor confirmed the negative effects of the various BOI incentives with capital cheapening bias on the demand for labor in the industries. A direct subsidy on labor cost encourages employment growth. The overall assessment of the BOI incentive package was still restricting as far as labor absorption was concerned.

The findings of this paper suggested a need to formulate more incentives neutral in their effects on the relative use of capital and labor in production. Moreover, the varying responsiveness of employment to various economic variables underscored the need for a different set of incentives for different types of industries.

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Azhar Makmur, *Labor Force Participation of Married Women in Indonesia: The Threshold Hypothesis,* University of the Philippines, School of Economics, 1983.

This study attempted to explore quantitatively the determinants of labor force participation of married women in Indonesia. This study also examined the effects of family income and wife's education on labor force participation and tested the income and education threshold hypothesis. Following Encarnación's model of 1974, our hypothesis suggested that there is a threshold level of income such that the effect of income on the labor force participation of married women is negative below it, and positive beyond it. Similarly, there is also a threshold level of education such that the marginal effect of wife's education on the labor force participation is likewise negative below the threshold level, and positive beyond it.

One of the findings of this study was that the effects of the wife's education on the labor force participation of married women were stronger and more significant than the effects of family income. The wife's educational attainment had differential effects on labor force participation below and above certain threshold levels. The marginal effect of wife's education on her work participation was negative below some threshold level and was positive beyond it. Similarly, family income had a negative effect on the labor force participation below some threshold and a positive one above it.

This study also tested the threshold level of family income and wife's educational attainment on the number of hours worked of married working women. The regression results showed that the effects of family income and wife's education on the number of hours worked were consistent with the threshold hypothesis.

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Tomas F. Molina, Jr., *Philippine Manufactured Exports and the Generalized System of Preferences,* University of the Philippines, School of Economics, 1983.

The Generalized System of Preferences (GSP) was adopted by the United Nations Conference on Trade and Development (UNCTAD) in 1968 primarily to expand exports of the developing countries. This paper estimated the effects of such a system of preferences on Philippine manufactured exports to the U.S., Japan and EEC.

Export expansion resulting from the GSP has been estimated to be minimal. In addition, product categories benefiting most from the GSP were found to be those with relatively high tariff elasticities. Most other products and especially those of particular interest to the Philippines tended to be excluded from GSP coverage.

Actual performance of GSP exports (1975-1981) however was favorable relative to non-GSP exports. Correlation analyses further revealed the lack of any consistent relationship between GSP margins and GSP export variables. These findings indicated that price advantages alone may not be a significant factor in predicting the performance of GSP exports.

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Zamzami Munaf, *An Empirical Study of Aggregate Consumption Function of Indonesia, 1960-1980,* University of the Philippines, School of Economics, 1983.

The aggregate consumption function construct serves the purpose of identifying the passive, or determined, component of aggregate demand. It is at the heart of modern macroeconomic analysis after Keynes made it a cornerstone in the *General Theory.* This study aimed at explaining the consumption behavior in Indonesia by utilizing time-series data on aggregate income, consumption and other macroeconomic variables for the period 1960 to 1980.

This study mainly used the simple Keynes model and Duesenberry hypotheses to test empirically whether aggregate consumption is a stable function of aggregate income, and whether it is influenced by improvements in the Indonesian economy.

The high marginal propensity to consume (0.837) found in this study was important for induced-investment to attain an increase in income and employment. In order to observe such changes, the patterns of consumption before and during the new order government were examined. The stability of the estimated behavioral relationships and the concerned parameters was also tested.

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Tadjuddin Parenta, *Inflation and Economic Growth in Indonesia: The Evidence from the Time Series,* University of the Philippines, School of Economics, 1983.

In this study, an attempt was made (1) to find out the determinants of inflation in Indonesia during the period 1960-1980; (2) to identify which of the determinants have more influence on inflation; and (3) to test whether or not there is a significant relationship between inflation and economic growth in Indonesia during the period under study.

The cost of living index and GDP deflator were both used to measure the inflation rate. However, the latter was shown to yield better results than the former.

Findings showed that changes in income, money supply, price of imported goods and money wages were the determinants of inflation. However, the changes in income and money supply exerted more influence on inflation than the price of imported goods and money wages.

Furthermore, in relation to economic growth, the expected rate of inflation gave better results than the actual rate, both by using the cost of living index and the GDP deflator to measure the inflation rate. Although the findings showed that an inverse relationship existed between inflation and economic growth, thus supporting the view that inflation did not favor economic growth, the marginal effect of inflation on economic growth, however, implied that inflation and economic growth in Indonesia had no significant relationship.

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Rey Eduardo U. Quipit, *Sources of Growth of the Philippine Economy: A Comparative Study Between Two Periods, 1955-1965 and 1971-1979,* University of the Philippines, School of Economics, 1983.

This study viewed the sources of growth of the Philippine economy and their contribution to the growth of national income during two periods: 1955-1965 and 1971-1979. Further emphasis was placed on the role of the predominant development policies in each of the periods and the effects of these policies on the respective period's growth performance.

By employing the Denison methodology on growth accounting and the earlier Lampman study on the sources of growth of the Philippine economy, this paper compared and analyzed the growth performance of the economy and its sources during the two periods.

This study has found, using the aforementioned methodology, that the national income growth rate of the latter period (1971-1979) was lower than that of the former—a somewhat surprising outcome since the latter period's policies were geared towards greater growth performance. The contribution of each factor input holds the key to this phenomenon. By comparing the growth performance of each of the factor inputs and their contribution to the national income growth rate, it was found that labor growth was slower in the latter period relative to capital growth. The Philippine economy being characterized by labor surplus, a greater usage of capital relative to labor could have indeed hampered growth. This led to the conclusion that the policies in the latter period, by promoting a highly capital-intensive production function, artificially cheapened the price of capital relative to labor. This may then have prompted the production sector to substitute more capital for labor, hence bringing about unemployment of labor, an abundant resource. This inefficiency may have thus caused the lower growth performance in the 1971-1979 period.

Different people may have different viewpoints regarding the situation. This being so, the author recommended a more thorough study, *a la* Denison, in order to accurately come up with a detailed account of the sources of growth of the Philippine economy and the effects of governmental policies on these sources of growth over time.

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Juan Mayo M. Ragragio, *Towards a Method for Delineating Areas for Integrated Planning and Program Implementation*, University of the Philippines, School of Economics, 1983.

The paper addressed itself to the problem of delineating sub-regional areas where integrated area development planning and project identification may be carried out. The workability of a method based on an analysis of the existing transport system was investigated. The method was essentially a modified version of Milton Harvey's functional approach to sub-regional delineation. Presently, there is only one other alternative method for systematically delineating areas: Librero's "ecological zoning" system which relies on extremely detailed topographic data.

The study incorporated choice of area centers, a modification commonly overlooked by government planners in the effort to stress productivity. This production-bias or orientation in planning undermines one economic consideration: distribution of goods and services the efficiency or inefficiency of which partly determines prices, and subsequently income differentials across space.

The study advanced the following hypothesis:

1. Integrated areas can be delineated by identifying service and/or market subcenters and the clusters of municipalities they service;
2. these clusters can be defined by connectivity analysis using existing road networks; and
3. these clusters correspond to production-based area delineations.

The method proposed by the study was applied to the provinces of Quezon and Cavite. Municipal centers were chosen as nodes and road distances between these were used as edge characteristics. The analysis identified six (6) clusters for Quezon and four (4) for Cavite.

Although the clusters corresponded highly with existing trade patterns, a low correlation with Librero's areal delineations for the same places was observed. The apparent discrepancy was attributed to differences in socioeconomic characteristics between the two provinces.

The approach, if applied to planning, would have three salient impacts:

1. the aspect of distribution is accorded some prominence in defining socioeconomic objectives;
2. there is separate treatment of distribution or market development-related programs in prioritizing investment packages; and
3. center-planning is incorporated in the entire project identification process of NEDA, whereby specific socioeconomic establishments are planned for identified centers.

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Gilda B. Reyes, *The Effects of Macroeconomic Policies on Spatial Development: A Historical Review,* University of the Philippines, School of Economics, 1983.

This study described the history of government policies, focusing on their direct and indirect effects on the location in the space economy of major industrial and trade activities. It provided a perspective for an understanding of the development pattern of the country and served as an input into spatial development policy planning. It showed the relationships between changing economic policy thrusts from one period to another and the spatial distribution of economic activity. Regional shares and intercensal growth rates of the number of establishments, employed workers and census value added of the major industry groups for the 13 regions were determined to serve as measures of the spatial patterns of economic activity through time.

The following observations emerged: First, during the Colonial Period (1903-1939), the locational pattern of economic establishments in the country was biased in favor of the Bicol, Ilocos, Cagayan Valley and Western Visayas regions. Second, during the Import Substitution Period (1948 to 1960), the major policies which included exchange and import controls, tax incentives and tariff protection accentuated the concentration of industries in Metro Manila. Third, a similar locational pattern of establishments as that of the Import Substitution Period prevailed during the Decontrol and Devaluation Period (1960-1968), with the National Capital Region taking the lead, followed closely by Southern Tagalog and Central Luzon. The existing tariff structure and tax incentives unconsciously favored these regions. Fourth, the 1970s ushered in the Regional Awareness Period as manifested in the various policies instituted during the period. However, the effects of these policies will probably not be apparent until the next few years.

The study suggested the following: First, government policies need to be reassessed for their built-in, though unintended, biases favoring the existing industrial activities in Metro Manila. Second, policies which provide for monitoring of investments in those industries which are located in the regional and provincial sites must be considered vis-à-vis possible requirements for increase of investments to some viable level. Third, certain incentives to answer such needs as adequate infrastructure, marketing facilities and provisions for the presence of appropriate services must be considered; thus, a more holistic and multisectoral approach to economic development may allow the pursuit of spatial goals for a more desirable and effective industrialization program of the country.

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Elizabeth S. Tan, *A Money Supply Model for the Philippines: 1970-1980,* University of the Philippines, School of Economics, 1983.

The study sought to analyze money supply by looking into the conduct of monetary policy, the behavior of the nonbank public and the commercial banks, and the role of the external sector and the government.

The theoretical framework used was the reserve-multiplier, which defines money supply as the product of the money multiplier and the monetary base. The multiplier captured first the behavior of the nonbank public as it chooses to hold currency versus demand deposits and demand savings and time deposits versus demand deposits; secondly, the behavior of the banks as it hold excess reserves; and thirdly, the reserve requirement policy for traditional deposits of the Central Bank. The domestic source of the monetary base was the main policy instrument and it was specified as a reaction-function to find out how monetary authorities react to the movement of certain variables in the economy.

The regression results showed that the nonbank public tended to demand less currency, but more savings and time deposits relative to demand deposits as its real income increased. The public will hold more savings and time deposits also as the short-term interest represented by the 91-day Treasury Bills rate increases. The estimated reaction-function showed that the monetary authorities have tended to create base money to sustain growth; however, it has tried to sterilize the foreign source of base money. Qualitative analysis for the period 1970-1980 showed that monetary policy has used the rediscount window to control money supply rather than the reserve requirement tool against traditional deposits more often. Although it has exercised the reserve requirement against margin deposits and deposit substitutes, it appeared that it was prompted by policy objectives different from the control of money supply.

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Hans Brinker M. Sicat, *Regional Savings and Loans,* University of the Philippines, School of Economics, 1983.

This study basically tried to answer the question: "What factors are responsible for the differences in interregional saving and borrowing patterns?" It also used regionally based data to look at national saving and borrowing trends.

The discussion centered on three main areas—saving behavior, loans patterns and the flow of funds between regions. The following were the important points covered:

1) Regional saving levels have been growing only marginally, and there was a slight decline in savings mediation by banks.

2) Estimated saving behavior between households differed among regions as well as between years. Expenses increased over the years, and the marginal propensity to save (mps) in many regions declined. Households in Central

Luzon, Cagayan Valley, and Western and Central Visayas registered the highest mps. The household data also yielded surprising and highly improbable savings rates since these were negative for the whole country.

3) The regional average propensity to save (aps) was computed using aggregate measures; Metro Manila had the highest average saving rate in the nation.
   a) Most regional rates declined with time, partly due to the price performance of major commodity produce of the regions.
   b) Real aggregate saving levels were positively responsive to regional income. Saving, however, was generally unresponsive to small upward movements in interest rates. The high interest elasticities observed for some regions could only be explained by the money illusion of depositors under the interest rate schemes. Unemployment levels did not have significant effects on savings.
   c) Bank presence had an insignificant influence on regional savings due to the relatively low demand faced by banks in the less developed areas, coupled with accessibility problems. The insignificant influence of regional population levels, on the other hand, was attributed to the relatively small share of income earners relative to total population size.

4) Regional credit levels have been growing at fast rates and bank credit has been increasingly used to finance investments. The decline of the banking sector's investment intermediation in some regions was said to be caused by high NBFI mediation, continued patronage of the non-formal credit market and an increase in foreign-funded government projects not coursed through banks.
   a) Despite the escalating cost of funds and due to prioritized credit policies and the relatively low real price of borrowing, the check on the growth in loans was not as constraining as the nominal rates would suggest.
   b) Credit extended by the various financial sectors has also increased.
   c) Actual investments were estimated to be poor determinants of the banking system's loan levels.
   d) Regional bank densities were demonstrated to be directly related to credit disbursement. Increased access to banks also boosted the system's business.
5) The flow of funds in most regions resulted in deficit situations. Net deposits were generally short of loans granted because of the varying responses to certain factors on both the saving and lending sides. Regions which experienced surplus cases were not able to to make up for the lack of funds in other areas.

Some of the study's findings posed interesting questions on financial policy. For one, in view of the finding that saving levels are insensitive to a slow upward crawl in interest rates, policymakers have to pinpoint at what interest rate real saving levels will become interest elastic. It would also have to be considered that while liberalized deposit rates are assumed to be "freely" determined in a competitive market, the banking industry remains oligopolistic.

On the lending side, floating interest rates benefit borrowers and lenders as supply and demand dictate. However, if the supply side remains unresponsive, credit will become unreasonably tight. It was pointed out that the traditional response of granting more credit subsidies so as not to stifle growth would be counterproductive to any interest liberalization scheme.

Finally, the relative unimportance of bank presence in generating deposits and its great impact on credit disbursement in many regions also suggested some points. The Central Bank regulation prohibiting the setting up of new banks or branches in certain bank-overpopulated areas may be uncalled for. Moreover, the high sensitivity of credit to office distribution insures these institutions of business.

The study recommended that more studies be increasingly focused on regional and loan behavior, based on longer time periods; that the Central Bank disaggregate its data into regional levels farther than the time series currently available; that NEDA calculate the regional accounts using all three approaches; and that household income consumption surveys be continued and improved upon, being very rich data sources.

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Murari Prasad Uphadyay, *Supply Response to a Price Change of Some Major Cereal and Cash Crops of Nepal*, University of the Philippines, School of Economics, 1983.

The study attempted to examine the supply responsiveness of Nepali farmers to agricultural/nonagricultural prices. It was directed towards the analysis of both types of response behavior, namely; 1) 'shift' effect of prices—shift of hectarage from one crop to another, and 2) the "overall effect on the aggregate agricultural production. The multiple regression technique has been adopted to evaluate farmers' response behavior to price and non-price variables.

The results indicated that farmers were positively responsive to aggregate price change and that agricultural terms of trade exerted significant influence on their aggregate supply response behavior. The results of the study implied an urgent need to construct an integrated agricultural price policy which would take into account the impact of both agricultural as well as nonagricultural price situations.

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Wiwied Widjanarko, *Demand for Money in Indonesia: The Evidence from the Time Series*, University of the Philippines, School of Economics, 1983.

This study analyzed the constraints imposed by less-developed financial and capital markets and the possible adverse effects of certain policies on long-term financial development by estimating the stability of the demand for real (money) balance, both narrowly and broadly defined.

The method used in this study was regression analysis, using Ordinary Least Square (OLS) in a partial adjustment model. The model was estimated in double-log linear terms using 1969-1981 quarterly data.

The findings of this study showed that:

(1) Income proved to be the most significant determinant of the demand for real balances; an attempt to include interest rate as an explanatory variable seemed to give a better description. When weighted-average interest rate was used, a marginal improvement was given.

2) The stability of the demand for money in Indonesia exists when it is narrowly (defined (M1).

3) In the absence of a well-developed capital market, the public and private sectors held their idle balances in the form of time deposits.

A further implication of this study seemed to support an agreement for low degree of monetary absorption in the Indonesian economy as shown by a low coefficient of income elasticities. Hence, a policy to slow down the monetary expansion was recommended to maintain economic stability.

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