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ABSTRACTS OF DISSERTATIONS AND THESES

Ph.D. Dissertations

Henry C. Co, *Lot Sizing in Requirements Planning System — A Stochastic Extension*, College of Business Administration, University of the Philippines, 1981.

The recent emergence of Materials Requirement Planning (MRP) stimulated the shift from traditional interests in the classic problem of economic order quantity to lot sizing in an environment of discrete period demands. A number of new techniques in lot sizing have been evolved. The more popular approaches include: Fixed Order Quantity, Lot for Lot, Fixed Period Requirement, Periodic Order Quantity, Part Period Balancing, Least Unit Cost, Least Total Cost, and the Wagner Whitin Algorithm. These approaches are formulated based on one common assumption, i.e. the demand patterns for the net requirements are deterministic.

This study presented an alternative lot sizing technique which explicitly recognizes the dynamic, discontinuous and non-deterministic nature of demands for raw materials and purchased parts. The economic advantage of this lot sizing formula was evaluated through a systems simulation study.

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Luke Kho, *Technological Substitution: An Extended Model and Its Application to the Plain Paper Copier Study*, College of Business Administration, University of the Philippines, 1983.

This paper reviewed the various technological substitution models, their efficacy as well as limitations, and attempted to expand the conceptual framework of the existing one-dimensional temporal Technological Substitution models to N dimensions, making it possible to study the behavior of the market share of new technology as a function of relevant variables such as size of investment, profit, cumulative experience, scale of technology, etc. An application to the conceptual framework of the N dimensional model was presented in the form of a two $(N=2)$ dimensional extended technological substitution model. In the light of the "Skimming the cream" hypothesis, the additional dimension X_1, namely, the size of user's investment was incorporated into the existing mathematical framework in addition to the time dimension t. An empirical illustration related to recent advances in the field of the plain paper copier technology, using regression analysis was presented. Model limitations as well as applications were also considered.

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Filomena M. Cantoria, *An Analysis of the Behavior of Short-Term Interest Rates in the Philippines*, College of Business Administration, University of the Philippines, 1984.

The purpose of this dissertation was to understand the role of expectations in the determination of interest rates in the Philippines. A deeper understanding of their behavior in the financial markets would help in the areas of policymaking, and in the decisions of savers and investors affecting the allocation of the country's resources. This was intended to contribute to the literature of interest rates in the Philippines which continues to be scanty, specifically on the role of expectations in the determination of short-term rates, and the identification of variables that explain their levels.

The study focused on the interest rates of Philippine Treasury Bills, from 1970 to 1980. The results showed that the market makes forecasts of the future levels of interest rates. It was also seen that the market participants revise these expectations in a manner consistent with the error-learning behavior. The changes in expectations as measured by the forward rates were a positive function of the forecasting errors. It was seen, however, that the forward rates are biased estimates of future rates, due to the presence of a liquidity premium on longer-term maturities. This made the Treasury bills of varying maturities non-substitutable.

The factors that determine interest rates were the demand and supply of loanable funds, and inflation. The variables measuring these factors which were found to contribute significantly in explaining the behavior of Treasury Bill Rates were: outstanding securities of the national government, outstanding securities of monetary authorities (Central Bank Certificate of Indebtedness), balance of payments, stock price index, U.S. discount rate, demand deposits and their turnover rates, and the Consumer Price Index.

The equations developed explained the levels of Treasury Bill rates, with a high degree of significance, but also displayed positive serial correlation. As a consequence, the predictive power suffered from this limitation. However, the close relationship between the estimates for 1980 and 1981 using the regression coefficients of the equations and the forward rates implied by the term structure could not be ignored.

Since major changes in the financial system took place during the period under study, more recent data should be analyzed and used as the basis for making forecasts. The framework developed and the methodology used in this study can be applied for the analysis of other markets. Likewise, other areas need to be studied to gain a fuller understanding of interest-rate behavior. The shapes of the demand and supply curves for funds and what factors cause the change in their shapes, or their shifts, are fertile areas for further research.

Needless to say, monetary policy can benefit from studies on interest-rate behavior, even if its control is not one of the policy instruments. Surely, this phenomenon that can seriously affect the behavior of the goods sector should be of prime consideration in the design of monetary policy.

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Syed Nayeemul Huda, *Structural and Time Series Analysis of Inflation in the Philippines*, School of Economics, University of the Philippines, 1984.

The objective of this study was to find out the causes and origin of inflation in the Philippines for the years 1960-1980. Events in the 1970s have shown the profound limitations of the current state of inflation theory. It is no longer the case that economists in policymaking positions could draw upon existing theory with confidence to help them solve this serious problem troubling the national economy.

There is no simple explanation for this price behavior which was the most extraordinary in almost a generation and which confounded businessmen, common people and policymakers alike.

Since the state of the theory was unsettled, all sorts of ad hoc factors were adduced to account for this phenomenon. Political, psychological, institutional and sociological 'explanations' were invoked regularly. Therefore, this study aimed at searching for a more comprehensive diagnosis of the inflation problem by applying three popular approaches, namely:

a) Monetarist and structuralist synthesis approach
b) Time series approach
c) Macroeconometric approach.

In the first approach we tried to synthesize the two conflicting views, namely, the monetarist and structuralist views into one. Then we applied the synthesis approach to the Philippine data (1960-80).

The second approach, i.e. the time series approach is basically based on recently developed econometric methodology to test the direction of causation. We applied this methodology to detect the causes of inflation. With regard to this, a series of causality tests (Granger's and Sim's) were performed.

And finally, the third approach is a reduced form of the macroeconometric model. We developed a macro-model along the lines of Barro-Fischer (1976) to trace the transmission of shocks originating from outside and inside the country, to the domestic inflation. Six shocks were identified namely: the monetary, fiscal, food price, exchange rate, import price and export quantity shocks. The last two items were termed external shocks.

The overall performance of the approaches across the data lent support to the conclusion that the causes of inflation in the Philippines were basically of external origin. It supported the cost-push explanation of inflation in the country. At the same time it rejected the monetarists' proposition regarding inflation.

M.A. Theses

Salic, S. Amer, *The Performance of Manufactured Exports in a Developing Economy: The Philippine Case*, School of Economics, University of the Philippines, 1984.

This paper attempted to provide an empirical assessment of the Philippines' manufactured export expansion. Two analytical tools were employed. Firstly, the Constant-Market-Share (CMS) model was used to test whether the commodity or market composition of the country's manufactured export expansion from 1962-1978 had a favorable or unfavorable effect on their growth. Secondly, ordinary least squares (OLS) regressions were used to analyze some of the macroeconomic factors behind the Philippines' manufactured export expansion from 1951-1980.

Although there was a relatively high concentration of both commodity and market destination, it was found that this factor has had a little effect on the aggregate growth rate of the Philippines' manufactured exports, even though the value was negative. Using the CMS model, the performance of the country's manufactured exports showed that it was above the world average during the 1962-1978 period, and had been much more pronounced in the 1970s than in the 1960s. It indicated also that this favorable growth rate could not have materialized without the remarkable improvement in the competitive power of the country's manufactured exports.

The increased competitiveness of the Philippines' manufactured exports can be traced to several supply side factors. We found out that:

1. The country's manufactured exports responded positively to changes in the real exchange rates, reaffirming the fact that price does matter, although it has an insignificant value.
2. The industrial production index (as a proxy for the capacity to produce) had a strong positive relationship with the country's manufactured exports and appeared to be the most dominant factor in explaining their growth.
3. Increase in domestic demand pressure, as measured by the level of capacity utilization rates, significantly affected the country's manufactured exports competitiveness negatively.
4. The capacity pressure effect on the country's manufactured export supply was not captured by the rate of change in capacity utilization rates, but rather by its level.
5. The dependent lagged variable effect had a significant positive association with the country's manufactured exports performance. An omission of the time lag resulted in a downward bias on the estimates of the price elasticity of export supply.

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Ariel Ramelan Karseno, *Bilateral Export Performance Between Indonesia and Japan*, School of Economics, University of the Philippines, 1984.

The study empirically analyzed the bilateral trade performance of Indonesia with Japan during the period 1969-80. Using the bilateral trade flow approach and constant market share analysis, this study attempted to determine the factors influencing the trade between the two countries.

The following hypotheses were tested:

1) The volume of principal exports of a country depends on its economic size.

2) Export volume varies with the market size of the importing country.

3) The growth of Indonesia's exports to Japan is influenced by resistance factors like transport cost and price variables.

4) The extent of bilateral trade involvement between Indonesia and Japan affects the composition and specialization of Indonesia's export commodities.

Test of these hypotheses for six of Indonesia's primary export commodities namely: fish, rubber, rough wood, shaped wood, petroleum and petroleum products was done using linear regression method. Among the important findings were:

1) Transport cost, the trade resistance variable, played a pivotal role in determining the volume of Indonesia's principal exports to Japan.

2) Price showed significant correlations with the export volume of fish, rough wood, petroleum and petroleum products.

3) Direct Japanese investments in Indonesia resulted in preferential treatment of fish and pretroleum in Japan but tended to reduce export volume of rubber due to the expansion of domestic demand for the commodity.

4) Exogenous factors such as the size of Japanese market principally determined the growth of major export commodities except shaped wood.

5) The composition and export specialization of Indonesia tended to concentrate on fish, rough wood, petroleum and petroleum products as the country's trade destination increasingly veered towards Japan. Rubber used to be the primary export product of Indonesia to the United States, which was its most important buyer before Japan.

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Armando Ochangco, *The Political Economy of Imperialism and Underdevelopment: A Critical Appraisal,* School of Economics, University of the Philippines, 1984.

This work is about imperialism and underdevelopment. The ideas propounded here are essentially in response to Benjamin Cohen's critique of some of the more influential ideas on the subject. So I start by discussing these ideas he criticizes; his critique follows; my own analysis of the various ideas presented and the conclusions which derive from them follow.

The following are the major ideas presented in this work: (1) Imperialism as a system of domination is a phenomenon whose basic driving forces are economic; (2) Articulation with imperialism on the part of peripheral social formations is a dialectical process which involves their subordination to its more powerful logic; (3) Thus it involves the transformation of these economies to respond to the needs and requirements of the center instead of to the needs and requirements of their people; (4) Hence, to serve the genuine development needs of the masses of their peoples, these societies must break away from these relations and establish structures that are responsive to their needs and requirements.

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Ma. Arlene M. Tadle, *Domestic Credit and the Balance of Payments: Empirical Evidence for the Philippines, 1960-1980*, School of Economics, University of the Philippines, 1984.

The study attempted to evaluate the relationship between domestic credit and the balance of payments within the framework of the new approach to the theory of the balance of payments and adjustment process -- the question of the balance of payments being a monetary phenomenon.

A model of the demand and supply functions of money was used to establish the relationship between domestic credit and balance of payments. One interesting implication of the model was that for a balance of payments deficit to be reduced, expansion in credit should not exceed the rate of growth of the demand for money. Any expansion in credit which is greater than the rate of growth in the demand for money will most probably manifest itself as increases in demand for imports. As far as this model is concerned, the study implied that the balance of payments situation in the Philippines was explainable in monetary terms.

The empirical evidence of the study was consistent with the view that there is an inverse relationship between domestic credit and the balance of payments. The different measures of domestic credit expansion showed significant effects on both the current account balance and the balance of payments. For the Philippines, the credit variable that was shown to have the most significant effect on the country's balance of payments was D_1, defined as Central Bank's net credit to the public sector, banking institution and the private sector. This finding was consistent also with the view that the best definition of domestic credit is the net domestic assets of the Central Bank. This made D_1 a good policy instrument in bringing about a possible remedial effect on the country's balance of payments deficit.