JOURNAL OF ECONOMIC DEVELOPMENT
Volume 23, Number 2, December 1998

Government Expenditure and Economic Growth in Malaysia*

Dipendra Sinha**

This paper studies the relationship between GDP and government expenditure in Malaysia using Penn World Table annual data for 1950-92. Two types of analyses are performed. First, we study the long run relationship between GDP and government expenditure in their various forms. We find the existence of long run relationship between GDP and government expenditure. Second, we perform augmented Granger causality tests between the growth rates of two sets of the variables. Here, we do not find any evidence that the growth of government expenditure contributes to the growth of GDP. There is no evidence of any reverse causality either.

I. Introduction

Before the second World War, Malaysia (then called Malaya) (West Malaya) and Singapore were under British rule. After the War, a Malayan Union was set up comprising the Malay States and the settlements of Penang and Malaca (Ann (1974)). In the face of strong protests from the Malay community, the British instituted a federal government arrangement in 1948 giving more autonomy to the states and their sultans. The Federation gained independence on 31 August 1957.

The government expenditure increased after the War as population grew and demographic changes took place. The government expenditure on education and health and other public services increased. Another factor was responsible for the increase in government expenditure during the 1950s and the 1960s. The government had to introduce emergency to battle the communist terrorists. The government also had to get heavily involved in the rubber industry which was in trouble. The government invested in re-planting and new planting. An important characteristic of the government spending in Malaysia is that the domination of the Federal government. The Federal government expenditure has been over 80% of total government expenditure of the Federal and State governments. Per capita government expenditure in Malaysia is much higher than in neighboring countries. For example, the Federal government per capita expenditure in Malaysia is almost ten times, that in Indonesia, five times that in the Philippines and three times that in Thailand (Chee (1990)). Chee believes that non-economic factors have been more important in explaining the growth of public expenditure in Malaysia than economic factors. Among the economic factors, Chee considers the relative openness of the Malaysian economy one of the important reasons for the growth. The political activation of ethnicity has been the most important non-economic factor according to Chee. First, the

* The author thanks an anonymous referee for many helpful comments on an earlier draft of the paper.
** Department of Economics, Macquarie University, Sydney, NSW 2109, Australia.

perceived social market failure (i.e., the failure of the private sector to produce goods and services with public goods properties) has increased the scope of the government sector. The perception of the social market failure of the dominant Malay community accounts for a substantial increase in the public economy. Second, in a multi-ethnic community such as Malaysia, the government expenditure must benefit all ethnic communities since avid comparisons are constantly made of relative ethnic gains and losses. Third, political competitors have been engaging in unrealistic promises to ethnic communities. This type of outbidding each other by politicians tends to escalate government spending. Fourth, politicians are interested in vote maximization. Thus, they are too eager to initiate programs for spending. But once, the programs have been adopted and bureaucrats are in place, it is virtually impossible to abandon such programs. There has been a tremendous growth of Non-Financial Public Enterprises (NFPEs) since the 1960s.

A number of studies have focused on the relationship between government expenditure and economic growth in OECD countries. In recent years, economists are beginning to study the relationship for the developing countries. This paper studies the relationship between government expenditure and economic growth in Malaysia. To our knowledge, no such study exists for Malaysia. The roles of the state and of the government expenditure are becoming a crucial issue especially for the developing countries. The subject matter is also receiving greater attention from the economists. For example, the theme of the *World Development Report 1997* of the World Bank (1997) is the "the state in a changing world". The *Report* does not advocate a minimalist state but an effective state.

Malaysia has sustained one of the highest rates of growth in the world. Malaysia has a rapidly developing manufacturing sector. Since 1988, real GNP has grown at an annual average rate of growth of 8.5 percent (World Bank (1996)). The Fifth Plan (1986-90) made important policy changes. These included the promotion of the private sector as the driving force for economic growth. A number of measures were adopted to reduce regulation in the economy. How important is the public spending in promoting economic growth in Malaysia. Will Malaysia be able to sustain the economic boom if cuts the size of the government? Is there any long run relationship between government expenditure and GDP? If there is, is it positive or negative? Does the growth of government expenditure promote economic growth in Malaysia? Or does the causality run in the reverse direction? Time series data are likely to shed light on these issues. A modern approach to these issues is lacking for Malaysia. This paper attempts to fill this void.

We take the modern approach to studying the relationship between government expenditure and economic growth. First, we study the unit root properties of the variables. Next we examine whether the pair of variables have any long run relationship or not. Third, we study causality among the variables.

II. Theories of Public Expenditure

One can distinguish among three different theories about government spending. These are (1) the public choice theory of bureaucracy, (2) the displacement effect hypothesis and (3) Wagner's Law.

The theory of bureaucracy proposed by Niskanen (1971) emphasizes the role of self-interest of the bureaucrats. The bureaucrats are interested in maximizing their own utility. Their utility function consists of salary, perquisites, prestige, power etc. But these items are a direct function of the budget of the bureaus or departments. Thus, the bureaucrats are mainly interested in maximizing the bureau's budget. However, this theory probably overemphasizes the role of the bureaucrats. In the ultimate analysis, the bureaucrats have to depend upon the politicians for their budgets. In that sense, it is the politicians who have the real power with regard to the budgets.

The displacement effect hypothesis was propounded by Peacock and Wiseman (1961). In the literature, it has been closely linked to the Wagner's law although there are some difference between the two. Peacock and Wiseman argue that under normal conditions of peace and economic stability, changes in public expenditure are rather limited. These changes are bounded by "tolerable" limits of taxation. However, during crises and calamities, such as wars, people do not mind higher taxes and their threshold level of taxation rises permanently. Thus, government expenditure over time appears to outline a series of plateaus separated by peaks. However, empirical studies by Borcherding (1965) and others do not find much support for the hypothesis. Peacock and Wiseman also have a formulation for the Wagner's law which we test.

Adolf Wagner was probably the first scholar to recognize a positive correlation between economic growth and the growth of government activities. As pointed out by Henrekson (1993), Wagner saw three main reasons for the increase in the government's role. First, industrialization and modernization would lead to a substitution of public for private activities. Expenditures on law and order as well as on contractual enforcement would have to be increased. Second, an increase in real income would lead to an expansion of the income elastic "cultural and welfare" expenditures. Wagner cited education and culture to be two areas in which the government could be a better provider than the private sector. Thus, the public sector would grow after basic needs of the people are satisfied and consumption pattern of people expands towards activities such as education and culture. Third, natural monopolies such as the railroads had to be taken over by the government because private companies would be unable to run these undertakings efficiently because it would be impossible to raise such huge finance that are needed for the development of these natural monopolies.

It must be noted that studies of Wagner's Law have not really dealt much with Wagner's original propositions. These have been more concerned with the general trend that he predicted. With the increase in data availability for developing countries, the Law has also been increasingly tested for developing countries. Results have been mixed and examination of the Law has been continuing with increasingly sophisticated econometric methodology. The earlier studies such as Martin and Lewis (1956) have used cross section data primarily because time series data for a reasonable length of time was not available for many countries. Most of the recent studies have used time series data sometimes along with cross section data. Bird (1971) strongly argued that cross section studies are not relevant because "there is nothing in any conceivable formulation of Wagner's "law" which tells us country A must have a higher expenditure ratio than country B simply because the level of average per capita income is higher in A than B at a particular point in time," (p.10).

The literature on the Wagner's Law has been enormous. For developing countries, a number of studies have begun to appear. These include studies on Cyprus (Afxentiou (1986)), on India (Mohsin, Naidu and Kamaiah (1995) using data for different states in India and Murthy (1981)), a number of studies on Mexico (Mann (1980), Nagarjun and Spears (1990), Murthy (1993 and 1994), Ashworth (1994), Hayo (1994) and Lin (1995)), on Taiwan (Pluta (1979)), on Pakistan (Khan (1990)), on South Korea (1996)) and on Turkey (Krzyzaniak (1974)).

Different interpretations of the Wagner's Law have been tested. Afxentiou and Serletis (1992) summarize these different interpretations.

(a) $G = f(Y)$	Peacock-Wiseman (1961)
(b) $GC = f(Y)$	Pryor (1968)
(c) $G = f(Y/N)$	Goffman (1968)
(d) $G/N = f(Y/N)$	Gupta (1967) and Michas (1975)
(e) $G/Y = f(Y)$	Mann's (1980) "modified Peacock-Wiseman version,

where G, GC, Y and N stand for total government expenditure, (total) government consumption expenditure, gross domestic product and population respectively. We use the Penn World Table (Version 5.6) for Malaysia. Annual data are for 1950-92. The newer studies such as Murthy (1994) and Lin (1995) also use Penn World Table data. The Penn World Table data developed by the International Comparison Project in cooperation with the World Bank are generally thought to be more reliable than data from other sources. A description of Penn World Table data and methodology are to be found in Summers and Heston (1991). Since the Penn World Table does not contain data on government consumption expenditure, we will limit our testing using all but (b) version.

III. Empirical Results

The first step in our study is to study the unit root properties of the variables. The results of the augmented Dickey-Fuller (ADF) unit root tests (see Dickey and Fuller (1979) and (1991)) for the variables in their levels and in their first differences are given in Tables 1 - 2. Table 1 gives the results for without trend and Table 2 gives the results for with trend. The results unequivocally show that all variables have unit roots in their level forms. The tables also show that all variables except log(G/Y) are stationary in their first differences. The next step, therefore, is to proceed with the Johansen multivariate cointegration tests (see Johansen (1988) and Johansen and Juselius (1990)) for the pairs of variables which do not involve log(G/Y). The results of maximal eigenvalue tests are in Table 3. The results of trace tests are in Table 4. The Johansen cointegration tests are sensitive to the lags used. The lags to be used were decided by using the Akaike Information Criterion (AIC) and Schwarz Bayesian Criterion (SBC). Both the criteria yielded the same results. In each case, the optimal lag turned out to be one. The Tables 3 and 4 both indicate that all four pairs of variables are cointegrated and the number of cointegrating vectors is equal to one in each case. Table 5 gives the estimates of the vectors. As expected, we find that all pairs of variables have a long run positive relationship.

Table 1 Augmented Dickey-Fuller Unit Root Tests (without trend)

Variable	Test Statistic	Variable	Test Statistic
$\ln(G)$	-1.2264(0)	$\Delta \ln(G)$	-4.1163(0)
$\ln(Y)$	0.0509(0)	$\Delta \ln(Y)$	-4.4043(1)
$\ln(Y/N)$	0.0237(0)	$\Delta \ln(Y/N)$	-4.4127(0)
$\ln(G/N)$	-1.1279(0)	$\Delta \ln(G/N)$	-4.1152(0)
$\ln(G/Y)$	-1.7460(0)	$\Delta \ln(G/Y)$	-1.5708(4)

Note: The critical values at the 95% level for the variables in levels and first differences are -2.9558 and -2.9591 respectively. For the test statistic, the number in parenthesis gives the number of lags. The lag was determined using the Akaike Information Criterion (AIC).

Table 2 Augmented Dickey-Fuller Unit Root Tests (with trend)

Variable	Test Statistic	Variable	Test Statistic
$\ln(G)$	-1.4147(1)	$\Delta \ln(G)$	-4.2474(0)
$\ln(Y)$	-2.6582(3)	$\Delta \ln(Y)$	-4.3219(1)
$\ln(Y/N)$	-2.7179(3)	$\Delta \ln(Y/N)$	-4.3304(0)
$\ln(G/N)$	-1.4583(1)	$\Delta \ln(G/N)$	-4.2070(0)
$\ln(G/Y)$	0.6851(4)	$\Delta \ln(G/Y)$	-2.3367(4)

Note: The critical values at the 95% level for the variables in levels and first differences are -3.5562 and -3.5615 respectively. For the test statistic, the number in parenthesis gives the number of lags. The lag was determined using the Akaike Information Criterion (AIC).

Table 3 Pairwise Maximal Eigenvalue Tests

Variables	Null Hypothesis	Alternative Hypothesis	Test Statistic
$\ln(G)$ and $\ln(Y)$	$r = 0$	$r = 1$	35.0421
$\ln(G)$ and $\ln(Y)$	$r <= 1$	$r = 2$	3.7696
$\ln(G)$ and $\ln(Y/N)$	$r = 0$	$r = 1$	31.0559
$\ln(G)$ and $\ln(Y/N)$	$r <= 1$	$r = 2$	7.2438
$\ln(G/N)$ and $\ln(Y/N)$	$r = 0$	$r = 1$	16.1281
$\ln(G/N)$ and $\ln(Y/N)$	$r <= 1$	$r = 2$	3.8563

Note: The critical values for the null hypotheses of $r = 0$ and $r <= 1$ are 15.8700 and 9.1600.

Table 4 Pairwise Trace Tests

Variables	Null Hypothesis	Alternative Hypothesis	Test Statistic
$\ln(G)$ and $\ln(Y)$	$r = 0$	$r >= 1$	38.8117
$\ln(G)$ and $\ln(Y)$	$r <= 1$	$r >= 2$	3.7696
$\ln(G)$ and $\ln(Y/N)$	$r = 0$	$r >= 1$	38.2997
$\ln(G)$ and $\ln(Y/N)$	$r <= 1$	$r >= 2$	7.2438
$\ln(G/N)$ and $\ln(Y/N)$	$r = 0$	$r >= 1$	19.9844
$\ln(G/N)$ and $\ln(Y/N)$	$r <= 1$	$r >= 2$	3.8563

Note: The critical values for the null hypotheses of $r = 0$ and $r <= 1$ are 17.8800 and 7.5300.

Table 5 Long Run Cointegrating Vectors between Pairs of Variables

Variable	Coefficient	Variable	Coefficient
$\ln(G)$	-1.000	$\ln(Y)$	1.0526
$\ln(G/N)$	-1.000	$\ln(Y/N)$	1.0838
$\ln(G)$	-1.000	$\ln(Y/N)$	0.6879

Note: The above table shows the cointegrating vector of (a) $\ln(G)$ and $\ln(Y)$; (b) $\ln(G/N)$ and $\ln(Y/N)$ and (c) $\ln(G)$ and $\ln(Y/N)$. The coefficients are normalized on the first variable in each case.

Now that we have established that all four pairs of variables have a long run relationship, we can proceed with augmented Granger causality tests. In particular, we conduct the Granger (1969) causality tests. When the variables are stationary or they are cointegrated, then causality tests can be conducted. However, Granger (1988) argues that when the variables are cointegrated, the standard Granger (1969) causality tests are not valid. We need to use the error correction model of the following form:

$$\Delta x_t = a_0 + a_1 z_{t-1} + \sum_{j=1}^{k} c_j \Delta x_{t-j} + \sum_{j=1}^{k} d_j \Delta y_{t-j} + \varepsilon_t, \tag{1}$$

$$\Delta y_t = b_0 + b_1 z'_{t-1} + \sum_{j=1}^{m} \alpha_j \Delta x_{t-j} + \sum_{j=1}^{n} \beta_j \Delta y_{t-j} + \upsilon_t. \tag{2}$$

In Equations (1) and (2), z_{t-1} and z'_{t-1} are lagged error terms of the following cointegrating equations respectively.

$$y_t = g_0 + g_1 x_t + z_t, \tag{3}$$

$$x_t = h_0 + h_1 y_t + z'_t. \tag{4}$$

Granger suggests that causality tests can be performed on the levels or on the first differences if the variables are cointegrated. We perform the augmented Granger causality tests on the first difference of the variables. Since the variables are in log form, the first differences give us the growth rates. The results for lags of 1 to 3 are in Tables 6 - 8. We also used the Finite Prediction Error (FPE) and Akaike Information Criterion (AIC) to choose the number of lags. However, the optimum number of lags never exceeded three. The results indicate that causality does not flow in any direction irrespective of the number of lags used. These results may not be surprising if commentators such as Chee (1990) are correct. If non-economic factors are more important than economic factors in explaining the growth of government expenditure, the causality may not run in either direction. The implementation of the New Economic Policy (NEP) during the 1970s and early 1980s led to a bloated bureaucracy, inferior services, economic inefficiency, high costs, low productivity and limited innovation according to Gomez and Jomo (1997). The poor performance of public enterprises is one of the reasons. The managers of public enterprises are expected to fulfill objectives which may be in conflict

with each other. For example, redistributive goals may in conflict with profit maximization. Surprisingly, these were among the two stated goals of the public enterprises that were formed because of the adoption of the NEP. In addition, managers and bureaucrats are required to follow directives from politicians who often use these enterprises for personal and political gain. Furthermore, *Bumiputera* Law required the employment of ethnic Malays and there was a serious shortage of competent managers among this group. Another contributing factor has been the heavy industrialization program launched by Prime Minister Mahathir during mid 1980s. The import substituting industrialization program involved huge public investment in heavy industries in which sufficient private investment was not thought to be forthcoming. The government had to borrow heavily from abroad to finance these ventures.

Table 6 Augmented Granger Causality Tests for Lag One

Cause	Effect	Test Stat.
$\Delta \ln(G)$	$\Delta \ln(Y)$	0.4071
$\Delta \ln(Y)$	$\Delta \ln(G)$	1.3503
$\Delta \ln(G)$	$\Delta \ln(Y/N)$	0.3026
$\Delta \ln(Y/N)$	$\Delta \ln(G)$	0.7639
$\Delta \ln(G/N)$	$\Delta \ln(Y/N)$	1.0978
$\Delta \ln(Y/N)$	$\Delta \ln(G/N)$	0.7643

Note: The table value is 4.143 at the 5% level of significance.

Table 7 Augmented Granger Causality Tests for Lag Two

Cause	Effect	Test Stat.
$\Delta \ln(G)$	$\Delta \ln(Y)$	1.5162
$\Delta \ln(Y)$	$\Delta \ln(G)$	2.1225
$\Delta \ln(G)$	$\Delta \ln(Y/N)$	2.9063
$\Delta \ln(Y/N)$	$\Delta \ln(G)$	0.1236
$\Delta \ln(G/N)$	$\Delta \ln(Y/N)$	1.5690
$\Delta \ln(Y/N)$	$\Delta \ln(G/N)$	1.5151

Note: The table value is 3.32 at the 5% level of significance.

Table 8 Augmented Granger Causality Tests for Lag Three

Cause	Effect	Test Stat.
$\Delta \ln(G)$	$\Delta \ln(Y)$	0.8308
$\Delta \ln(Y)$	$\Delta \ln(G)$	1.4265
$\Delta \ln(G)$	$\Delta \ln(Y/N)$	1.4590
$\Delta \ln(Y/N)$	$\Delta \ln(G)$	0.4712
$\Delta \ln(G/N)$	$\Delta \ln(Y/N)$	0.8589
$\Delta \ln(Y/N)$	$\Delta \ln(G/N)$	1.2073

Note: The table value is 2.962 at the 5% level of significance.

IV. Summary and Conclusions

This study uses the modern time series techniques to study the relationship between government expenditure and economic growth in Malaysia. First, we study the unit root properties of the variables. We find that logarithms of government expenditure and GDP in their various formulations (like total, per capita) are non-stationary in their levels. We also find that all variables except the log of government expenditure as a percentage of GDP are stationary in their first difference form. Next, we conduct Johansen cointegration tests for pairs of variables which do not involve log of the government expenditure as a percentage of GDP. The results indicate all three pairs of variables are cointegrated and the number of cointegrating vector is equal to one in each case. The cointegrating vectors show that all three pairs of variables have a long run positive relationship as expected. Finally, we conduct the augmented Granger causality tests between pairs of variables. The results show that no matter what lag is used, causality does not flow in any direction in any of the cases. Thus, the results indicate that the growth of GDP does not cause growth of government expenditure. This result is possible if non-economic factors are more important in explaining the growth of government expenditure than economic factors. Some writers like Chee (1990) opine that this is the cause in Malaysia. The results for causality tests also indicate that the growth of government expenditure does not cause the growth of GDP. Again, in the context of Malaysia, there seems to be some evidence that government expenditure did not lead to the growth of GDP as we have discussed earlier. The policy implication is that the present structure of government expenditure is not very conducive to economic growth. However, it is quite possible that a different structure of government expenditure can contribute more effectively to economic growth.

Thus, while the presence of a long run relationship between GDP and government expenditure (in their various forms) support the Wagner's Law, causality tests tell another story. However, it should be born in mind that while cointegration tests have been performed on the levels of the variables, the causality tests are performed on the first differences (which give us growth rates of the variables because all variables are expressed in their logarithmic forms). In other words, causality tests indicate the absence of short run relationship whereas the presence of cointegration indicates long run relationship.

References

Afxentiou, P.C. (1986), "Wagner's Law: The Experience of Cyprus," *Economic Notes*, Vol. 15(2), 158-72.

Afxentiou, P.C., and A. Serletis (1992), "Modeling the Relationship between Output and Government Expenditures in Canada," *Keio Economic Studies*, Vol. 29(1), 17-43.

Ann, L.S. (1974), *Economic Growth and the Public Sector in Malaya and Singapore*, Singapore: Oxford University Press.

Ashworth, J. (1994), "Spurious in Mexico: A Comment on Wagner's Law," *Public Finance*, Vol. 49(2), 282-86.

Bird, R.M. (1971), "Wagner's Law of Expanding State Activity," *Public Finance*, Vol. 26(1), 1-26.

Borcherding, T.E. (1965), "The Growth of Non-Federal Public Employment in the United States, 1900 to 1963," Ph. D. dissertation, Duke University.

Chee, S. (1990), "The Political Economy of Governance: Why the Malaysian Government has Grown," in *The Malaysian Economy in Transition*, ed. by Ambrin Buang, Kuala Lumpur: National Institute of Public Administration, 6.

Dickey, D.A., and W.A. Fuller (1979), "Distributions of the Estimators for Autoregressive Time Series with a Unit Root," *Journal of the American Statistical Association*, Vol. 74, Part I, 427-31.

_____ (1981), "Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root," *Econometrica*, Vol. 49(4), June, 1057-72.

Goffman, I.J. (1968), "On the Empirical Testing of Wagner's Law: A Technical Note," *Public Finance*, Vol. 23(3), 359-64.

Gomez, E.T., and K.S. Jomo (1997), *Malaysia's Political Economy: Politics, Patronage and Profits*, Cambridge: Cambridge University Press, 75-76.

Granger, C.W.J. (1969), "Investigating Causal Relations by Econometric Models and Cross Spectral Methods," *Econometrica*, Vol. 37(3), July, 424-38.

_____ (1988), "Some Recent Developments in the Concept of Causality," *Journal of Econometrics*, Vol. 39(1/2), September/October, 199-211.

Gupta, S.P. (1967), "Public Expenditure and Economic Growth: A Time Series Analysis," *Public Finance*, Vol. 22(4), 423-66.

Harvey, A.C. (1981), *The Econometric Analysis of Time Series*, Philip Allan, London.

Hayo, B. (1994), "No Further Evidence of Wagner's Law for Mexico," *Public Finance*, Vol. 49(2), 287-94.

Henrekson, M. (1993), "Wagner's Law - A Spurious Relationship," *Public Finance*, Vol. 48(2), 406-15.

Johansen, S. (1988), "Statistical Analysis of Cointegration Vectors," *Journal of Economic Dynamics and Control*, Vol. 12(2/3), June-September, 231-54.

Johansen, S., and K. Juselius (1990), "The Maximum Likelihood Estimation and Inference on Cointegration - with Application to Demand for Money," *Oxford Bulletin of Economics and Statistics*, Vol. 52(2), May, 169-210.

Khan, A.H. (1990), "Wagner's "Law" and the Developing Economy: A Time Series Evidence from Pakistan," *Indian Economic Journal*, Vol. 38(1), July/September, 115-123.

Krzyzaniak, M. (1974), "The Case of Turkey: Government Expenditure, the Revenue Constraint," *Growth and Change*, Vol. 30(1), April, 13-19.

Lin, Chi-Ang (1995), "More Evidence on Wagner's Law for Mexico," *Public Finance*, Vol. 50(2), 267-77.

Mann, A.J. (1980), "Wagner's Law: An Econometric Test for Mexico," *National Tax Journal*, Vol. 33(2), June, 189-201.

Martin, A.M., and W.A. Lewis, "Patterns of Public Revenue and Expenditure," *National Tax Journal*, Vol. 24(3), 189-201.

Michas, N.A. (1975), "Wagner's Law of Public Expenditure: What is the Appropriate Measurement for a Valid Test," *Public Finance*, Vol. 30(1), 77-84.

Mohsin, M.C.R., C.R. Naidu, and B. Kamaiah (1995), "Wagner's Hypothesis: Evidence from Indian States," *Indian Economic Journal*, Vol. 43(1), 76-95.

Murthy, N.R.V. (1981), "Wagner's Law of Public Expenditures: An Empirical Investigation Using the Appropriate Measure for a Valid Test," *Indian Economic Journal*, Vol. 28(3), January/March, 86-93.

_____ (1993), "Further Evidence of Wagner's Law for Mexico," *Public Finance*, Vol. 48(1), 92-96.

_____ (1994), "Wagner's Law, Spurious in Mexico or Misspecification: A Reply," *Public Finance*, Vol. 49(2), 295-303.

Nagarjan, P., and A. Spears (1990), "An Econometric Test for Wagner's Law for Mexico," *Public Finance*, Vol. 45(1), 165-68.

Niskanen, W.A. (1971), *Bureaucracy and Representative Government*, Chicago, Aldine.

Park, W.K. (1996), "Wagner's Law vs. Keynesian Paradigm: The Korean Experience," *Public Finance*, Vol. 51(1), 71-91.

Peacock, A.T., and J. Wiseman (1961), *The Growth of Government Expenditure in the United Kingdom*, Princeton: Princeton University Press.

Pluta, J.E. (1979), "Wagner's Law, Public Sector Patterns, and the Growth of Pubic Enterprises in Taiwan," *Public Finance Quarterly*, Vol. 7(1), January, 25-46.

Pryor, F.L. (1968), *Public Expenditure in Communist and Capitalist Nations*, London: George Allen and Unwin.

Summers, R., and A. Heston (1991), "The Penn World Table (Mark 5): An Expanded Set of International Comparisons, 1950-88," *Quarterly Journal of Economics*, 106(2), May, 327-68.

World Bank (1996), *Trends in Developing Economies*, Washington DC: The World Bank.

_____ (1997), *World Development Report 1997*, New York: Oxford University Press for the World Bank.