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**PUBLIC EXPENDITURE
IN MULTIETHNIC SOCIETIES:
AN EMPIRICAL MODEL
OF CAUSAL DETERMINANTS**

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Abstract

This paper looks at the role of the State in ethnically diverse societies, focusing on the relationship between ethnic diversity and the size and development of the public sector. Following the approach of a cross-national multivariate data analysis, with a sample that includes countries at different levels of economic development and with dissimilar patterns of ethnic composition, the most prominent finding of the study is the establishment of a statistical link between the size of the public sector and the factor of ethnic diversity, more robust and consistently significant than that found in previous researches on the subject.

1. Introduction

The objective of this paper is to look at the role of the State in ethnically diverse societies, focusing on the relation between ethnic diversity of a country and the size of its public sector. While there have been many studies on the determinants of government size, little research on the impact of ethnic diversity has been undertaken. One such study by Mueller and Murrell (1986) hypothesized that the greater the ethnic fractionalization, the smaller the expected size of government due to the greater difficulty of reaching collective decisions (the higher the transaction costs involved). Three alternative dependent variables were used to measure government size: total government outlays, total tax revenue and government final consumption, all as a percentage of GDP. Ethnic fractionalization is one of the independent demographic variables they included in the basic equation to test their hypothesis that the relative size of government is positively related to the number of organized interest groups¹.

Another study by McCarty (1993) investigated the possibility that diversity in income, religion, and ethnicity affects the decisions to provide goods as well as make cash transfer

¹ Besides the number of interest groups and ethnic fractionalization, the other independent variables included are population, mean income, median income, political fractionalization, income distribution, degree of enfranchisement, governmental centralization, educational level, and average of the years in which a country began the political and economic modernization processes.

payments publicly. She estimated a reduced-form model resembling those in the extensive literature on the determinants of the size of the public sector (Oates, 1985a, 1989; Wallis and Oates, 1988; Mueller and Murrell, *op.cit.*). The sample of 46 countries with democratically elected governments² includes developed and developing countries. Unlike Mueller and Murrell, McCarty considered the possibility that ethnic diversity affects centralized, explicitly redistributive expenditure differently from other public sector spending.

Two dependent variables are included in her study - the share of GDP devoted to social security and welfare payments made by central government ("transfers"), and the share of GDP devoted to other public sector expenditure, except defense, at all levels of government. The independent variables include measures of three types of demographic diversity - "ethnic diversity", "religious diversity", and the extent of pre-transfer inequality in the distribution of income. The first two are measured by ethnic and religious "variance" using percentages of a countries' populations that fall into various ethnic and religious groups, as well as an alternative measure of the percentage of a country's population that belongs to the largest ethnic/religious group. Income inequality is measured by a pre-transfer Gini coefficient. Other independent variables include GNP per capita (which Wagner's Law predicts to have a positive relationship with the size of the public sector), population (which Mueller and Murrell [*op.cit.*] predicted to be inversely related to the relative cost of public goods due to scale economies), and the degree to which government is centralized.

On the other hand, various recent papers have attempted to analyse specific aspects of the influence of ethnic diversity. Focusing on local public finances in U.S. cities, metropolitan areas and urban counties, Alesina, Baqir and Easterly (1998) found that the shares of spending on productive public goods (education, roads, sewers and trash pickup) are inversely related to ethnic fragmentation. On sectoral expenditure, a recent paper by Kuijs (2000) looked at the impact of ethnic diversity on the amount of public spending on health and education. With

² As McCarty admitted, her study erred on the side of being inclusive in cases in which the democratic process may not be fully formed since ambiguities abound in judging whether or not a particular country has a democratic election process (p.237). Such restriction is also based on a questionable assumption that racial/linguistic/religious fragmentation has no role to play in the public decision making process of an authoritarian ruling hierarchy. This paper will refrain from making such an assumption, opting instead for the use of a more inclusive variable of political fractionalization (see below).

partial evidence showing that more heterogeneous societies spend less on public goods, his results also pointed to the effect of ethnic diversity on the efficiency of public expenditure outcomes in terms of various social indicators. From a different perspective, Easterly (2000) found that institutional factors interact with ethnic diversity, which has a more adverse effect on economic policy and growth when institutions are poor. Good institutions not only mitigate the adverse effect of ethnic diversity on economic policy or growth, but also the risk of wars and genocides that might have resulted from such fragmentation.

2. Research hypothesis

As noted above, while there is an vast literature on public expenditure determination, studies that focus on the link between ethnic diversity and the size of the public sector are rare. As regards the few studies directly related to this subject that was reviewed in §1, the approach of the present endeavour differs mainly from them in three aspects.

First, this paper utilizes a larger sample than the others. McCarty, for instance, limited her sample to 46 countries that have democratically elected governments (the problems and ambiguities with the "democratic" criterion have been pointed out in footnote 2 above, and will be brought up again later in the paper), while Mueller and Murrell's study (which included an ethnic variable though it is not the focus of their investigation) took into consideration only 24 OECD countries and 10 non-OECD countries. Thus, by including a total of over a hundred countries, the present study represents a far more comprehensive attempt than these existing works.

Secondly, there has not been any serious attempt to make intergroup comparison of country categories in these studies. McCarty, while including both developed and developing countries in her sample, has not attempted a breakdown by level of development. The main concern of Mueller and Murrell's work lies in the OECD countries since their point of interest is the role of interest groups felt to be lacking in the developing countries that have rarely attained a sufficiently high level of democracy. Although they also attempted an expanded sample to include non-OECD countries, it was subject to various limitations, including the existence of "sufficiently" democratic institutions and income per capita not lower than that of Turkey, which

has the lowest figure for any OECD count, and the total number selected (10) is small. This paper, on the contrary, focuses on the comparison not only between developed and developing countries, but also between developing countries at relatively low level of development (the term "underdeveloped" may be more appropriate to distinguish these countries from others) and those that have attained a relatively higher level of economic development.³

The last, but probably the most important feature to distinguish this study from the others is its treatment of the variable here labelled as "ethnic fractionalization". The definition of this term was given in great detail in Yeoh (2001a). It comprises all three major types of non-class cleavages in society - racial (phenotypical), linguistic and religious. While the previous studies either employed only one of these components (linguistic groups were used as the units of measurement by Mueller and Murrell) or regarded them as separate variables (McCarty's "ethnic variance" and "religious variance"), the present paper considers these components as different manifestations of one single characteristic, designated as "ethnic fractionalization" or "socio-racial diversity" (*à la* Hoetink, 1975). In other words, racial (phenotypical), linguistic and religious characteristics represent different markers of ethnic distinction ("ethnic markers"). To treat them as separate variables or to employ one to the exclusion of the others inevitably leads to the mismeasurement of the degree of fragmentation, which may in part explain why none of these previous studies was able to establish any significant relationship between the so-called "ethnic"/"religious" diversity and the dependent variable.

With the above in mind, this paper thus set out to test the following hypothesis:

Research hypothesis

Ethnic diversity is one of the determining factors of the size of the public sector. Public spending decisions reflect not only the conflict between classes and class-based political parties, but also ascriptive divisions that cut across class boundaries, such as racial, linguistic and religious cleavages. The higher the degree of ethnic fractionalization, the greater the difficulty of reaching collective decisions and therefore the smaller the expected size of government.

³ For rationale of country categorization in this paper and further details of sample description, see Yeoh (2001b), §3, and Corollary Hypothesis 1 below.

3. Corollary hypotheses

In addition to the research hypothesis stated above, this paper also sets out to test the following corollary hypotheses. The first is related to the effect of the economic environment on the relationship between public policy and ethnic conflict. That economic situations play an important role in interethnic conflict seems obvious. Collins (1975:389-390) believed that the more severe a (political/economic) crisis, the greater the tendency for groups to coalesce along the lines of collective interests and the society to polarize into two-sided conflicts. Van Evera (1994:9) claimed that public become receptive to scapegoat myths (which are more widely believed) when economic conditions deteriorate. Rex (1970) noted that scapegoating is a means to restore social equilibrium, a mechanism whereby resentment may be expressed and the existing power structure maintained. It is "the social process *par excellence* that literally fulfils Parsons' description of one of his functional subsystems as pattern maintenance and tension management" (*ibid.*:45). Baimbridge, Burkitt and Macey (1994:432) observed that the deflationary impact of the Maastricht Treaty may intensify nationalism, racism and anti-Semitism "as the economically insecure seek weaker scapegoats to blame for the economic problems confronting them". Hauser and Hauser (1972) stated that scapegoats occur when there is an imbalance between power and citizens' rights and are "often an élite's safeguard in its dealings with a dissatisfied and potentially dangerous majority" (p.330). In other words, the repressed, negative and hostile feelings of the majority *vis-à-vis* its own ruling élite are transferred on to the scapegoat. The anti-minority outbursts in the history of many Southeast Asian countries were in the main rooted in the lower-class masses' resentment directed at their own ruling élite who was perceived to cooperate with and protecting rich minority interests. Similar phenomenon can be observed amidst the anti-Suharto campaigns in Indonesia in the late 90s in which minority commercial institutions were attacked. In the extreme case, the scapegoat may seem to be totally unrelated to the initial cause of the feelings of hostility. The term "free-floating aggression" has been used in this case while the more general concept of "scapegoating" is reserved for the transfer of hostility towards any object (Turner and Killian, 1957:19). The pattern of ethnic conflict caused by scapegoating may not be solely a racial problem, but may partly result from social class differential and the economic environment.

Mauzy (1993) noted that rapid economic growth⁴ could be the most important variable in explaining the absence of ethnic violence in Malaysia (as occurred in Lebanon and Sri Lanka) in response to preferential policies which led to growing ethnic polarization. Every subject she interviewed between October and December 1990 "cited the continued possibilities of making money as the chief reason why there has been no ethnic violence in Malaysia, despite more polarisation, less accommodation" (*ibid.*:127).⁵

The above observations, in the light of the hypothesis posited in the preceding section, give rise to the following corollary hypothesis:

Corollary hypothesis 1

The effect of ethnic diversity on the size of the public sector is more pronounced among the economically less affluent countries than among more affluent ones.

The second corollary hypothesis concerns the distinction between transfer expenditure and non-transfer expenditure. According to McCarty (*op.cit.*), since people tend not to help those whom they perceive as being different from themselves, voters in diverse populations may choose lower levels of public spending to avoid redistribution. While most government expenditure programmes redistribute income, this effect of demographic diversity is likely to be more pronounced for programmes which primarily aim to redistribute income and those that are widely perceived as being redistributive (*e.g.* welfare) than for programmes that provide goods uniformly to residents (*e.g.* public infrastructure). In addition, demographic diversity will

⁴ Measured by the rate of expansion in gross domestic product per capita, "economic growth" used to be synonymous with "economic development" and "economic progress" in general (Sen, 1988). However, it bypasses the problem of how national income is distributed. To grasp the true meaning of "economic development", Lane and Ersson (1990:49) noted the importance of separating, (i) the level or rate of growth in GDP total or per capita; (ii) the level or rate of change in a set of social indicators measuring average individual well-being; and (iii) the distribution of income and wealth.

⁵ However, it is interesting to note an opposite view posited by Harris in his study of ethnicity in Latin America (1964:98) that "the price which the underdeveloped countries or regions ... have paid for relative racial tranquillity is economic stagnation". Economic stagnation, he believed, may lead to less ethnic conflict than economic expansion "by virtue of the fact that there has not been too much to fight for" (*ibid.*:97). While not denying the possibility that ethnic conflict may increase with economic expansion, Hoetink (1973:111-2) argued that it is not the expanding economy *per se* that disturbs racial tranquillity but rather the presence of poorer members of the dominant ethnic group, "who are not objectively different from the other poor racial groups and hence tend to exploit their ascriptive distinctions *à outrance*". In other words, economic expansion leads to a decline in economic differentiation and therefore results in an emphasis on other dimensions of social distinction, especially racial characteristics.

discourage redistributive public spending by central government but may not affect public expenditure funded by local governments and spending on programmes that are not particularly redistributive. This paper intends to test this assertion under the following corollary hypothesis:

Corollary hypothesis 2

The effect of ethnic diversity on transfer expenditure is more pronounced than that on other, non-transfer, expenditure.

An important element that is often overlooked in studies on ethnic diversity and the State has been the numerical structure of the multiethnic countries⁶. Out of a sample of 132 states⁷, Said and Simmons (1976:10) noted that only 9.1 per cent can be considered "ethnic-free". A total of 18.9 per cent contain an ethnic group which represents more than 90 per cent of the population, and another 18.9 per cent with the largest ethnic group constituting 75-89 per cent of the population. However, in 23.5 per cent of the countries the largest ethnic group accounts for only 50-74 per cent of the population, and in 29.5 per cent of the states it does not constitute half the population. Moreover, in 40.2 per cent of the countries the population consists of five or more significant ethnic groups. According to what he calls "nation-group attributes", Nielsson (1985) classified the world's population into "single nation-group states", "one nation-group dominant states", "one nation-group dominant states with fragmented minorities", "bi-national states", and "multinational states", none of which, however, represents a total congruence of "nation-group" and "state". With the exception of rare cases like Iceland and the two Koreas, as well as some tiny island states (see Table 1 in Yeoh, 2001a), there is no country in the world which can claim to be ethnically homogeneous; even Nielsson's "single nation-group states" are defined as those in which the nation-group accounts for between 95 and 99.9 per cent of the population.

More significantly, Nielsson's taxonomy points out the importance of the numerical

⁶ Based on the "critical mass" theory - advanced, among others, by Semyonov and Tyree (1981) - societies are considered multiethnic only if minorities constitute more than ten per cent of their population.

⁷ A distinction is made here between "State" which refers to the central body politic of a civil government and "state", a country or a political territory forming part of a country (Yeoh, 2001a:2).

structure of multiethnic states. A distinction can be made between bi-ethnic states (with two major ethnic groups of significant proportions) and states with more than two major ethnic groups.⁸ Lijphart (1977:56) remarked, "The notion of a multiple balance of power contains two separate elements: (1) a balance, or an approximate equilibrium, among the segments, and (2) the presence of at least three different segment." However, cooperation among groups becomes more difficult, as the number participating in negotiations increases beyond three or four. On the other hand, a moderately multiple configuration is preferable to a dual segmentation as the latter entails a constant tension between "a [majority] hegemony or a precarious balance ... [and it leads] easily to an interpretation of politics as a zero-sum game" (*ibid.*). Bi-ethnic states are thus a special, problematic type of multiethnic state. In a bi-ethnic state, a gain for one ethnic group is easily perceived as a loss for the other. By contrast, in societies with more than two major ethnic groups it may not be apparent who loses when one ethnic group improves its position. This can lead to a logrolling situation, in which each group cares primarily about its own gains and nobody is conscious of the possible costs of a policy decision. The scenario is outlined in Steiner's study on consociationalism in Switzerland (Steiner, 1974). It also implies that ethnic tension could be more easily aroused by preferential policies in bi-ethnic states than in those with more than two ethnic groups. In addition, a related aspect of the numerical structure of ethnicity refers to the role played by the relative size of ethnic groups in the societal power structure (see, e.g., Stone, 1985; van Amersfoort, 1978; Schermerhorn, 1970). It exerts a crucial bearing on the degree of ethnic conflict and pluralism - a concept for which public expenditure represents a strategic area of analysis.

Besides the numerical structure of ethnicity, other factors also act to influence ethnic intensity. Among them are whether the ethnic divisions are territorially based, the historical geography (homeland v immigrant) of the ethnic groups, and whether the ethnic cleavages are crosscutting or mutually reinforcing. The variables of territoriality and historical geography of ethnicity, though basically also related to ethnic intensity, can be seen from a different angle.

⁸ The term "multiethnic" (or "polyethnic") has been generally used in the literature to mean "consisting of more than one ethnic group", *i.e.* including the bi-ethnic case, although occasionally it is also used in contradistinction to (and thus excluding) the bi-ethnic case. In this paper the term "multiethnic" is often used in the latter sense (*i.e.* in contradistinction to and excluding the bi-ethnic case). The context will serve to avoid any confusion between this narrower definition of the attribute "multiethnic" from the broader one. An option may be to reserve arbitrarily the term "polyethnic" for this narrower sense. This, however, risks creating more confusion as this word has always been used interchangeably in the literature with the term "multiethnic".

Territorial division along ethnic lines may put an upward pressure on public spending as central governments respond to ethnic demands via regional spending, which is not applicable in a country where ethnic groups are dispersed and intermingling in residence. A country where the population consists of both homeland and immigrant ethnic groups, due to the imbalance in ethnic intensity and legitimacy (claims to the land), is more conducive to the use of public spending to implement ethnic preferential policies, resulting in the expansion of the public sector. Examples of such countries are Malaysia, Fiji, Sri Lanka (where part of the Tamil population are immigrants from the Indian state of Tamil Nadu), various states of India, Indonesia, Uganda, Guyana, Trinidad, *etc.*

Crosscutting or mutually reinforcing nature of cleavages can be seen in the same light as the historical geography of ethnicity. In his analysis of Dutch politics, Lijphart (1968) proposed that if a society is too heterogeneous *or* too homogeneous over racial, linguistic and religious cleavages, democratic political organization is not likely to be stable. A stable democracy must have both a minimum of ethnic homogeneity and a minimum of heterogeneity. This implies that both F1 and F2, as stated later in footnote 21 later in this paper, must not be either too low or too high, with the resulting low value of XC (Rae and Taylor, 1970:110). While the extent of crosscutting may be important for the stability of a democracy, it can be equally important as a factor influencing public expenditure, since government spending can be seen to be a political process whereby the collective political action of groups furthers their own interests (Pampel and Williamson, 1989:40). Furthermore, the intensity of ethnic conflict depends on both the intensity of group membership ("ethnic intensity") and the degree of crosscutting (XC). The more the cleavages reinforce one another, the more intense the conflict will be (Rae and Taylor, *op.cit.*:112). Conversely, the intensity of conflict declines with increasing degree of crosscutting. In a society where fragmentation in all cleavages is high (hence low XC), the high intensity of conflict may lead to the adoption of preferential policies or similar measures, which implies a greater level of public spending. This is not inconsistent with the basic research hypothesis that higher ethnic diversity leads to smaller public sector although at first sight the low crosscutting

nature of cleavages seems to compound the effect of ethnic fragmentation⁹, for the issue of crosscutting involves the relationship between cleavages rather than the cleavages themselves. Therefore, if expanded public spending is associated with relatively homogeneous societies, as suggested by McCarty (*op.cit.*) and Mueller and Murrell (*op.cit.*), it follows that increased public spending may be associated with a low degree of crosscutting among cleavages, *i.e.* as Rae and Taylor showed, when fragmentations such as F1 and F2 are both very high (near 1) or both very low (near 0).

The validity of the above propositions will be tested under the following corollary hypotheses:

Corollary hypothesis 3

Near ethnic homogeneity or the existence of a numerically dominant ethnic faction is favourable to a larger public sector since it reduces the difficulty in reaching collective agreement caused by ethnic fragmentation.

Corollary hypothesis 4

Territorial division along ethnic lines has a positive effect on public sector size.

Corollary hypothesis 5

Homeland-immigrant division of ethnicity in a population has a positive effect on public sector size.

Corollary hypothesis 6

Crosscutting nature of ethnic cleavages has a negative effect on public sector size.

The prevailing view of the impact of ethnic diversity on government size from the economic perspective, as illustrated in the literature reviewed in § 1 above, is that it is negative. If such view is reliable, the results of the cross-national analysis to be presented below, if proven to be supportive of the hypothesis in the preceding section, can be expected to show a negative effect from the variable EF (ethnic fractionalization).

⁹ While Corollary Hypothesis 6, in line with Corollary Hypotheses 4 and 5, focuses on the crosscutting nature's negative effect on public sector size, its potential positive influence via reducing the "real" degree of ethnic fragmentation may not be ruled out. The sign of the relevant estimated coefficient in the regression results will show the relative weight of these two opposite influences.

This paper, therefore, represents a modest attempt to examine the possible relationship between a country's ethnic fractionalization (EF) and the size of its public sector (as has been partially indicated by the preliminary evidence from the correlation analysis in Yeoh, 2001b) with an empirical model using data from a wide spectrum of countries at various stages of economic development. The testing of the research hypothesis, as set forth on page 4, that ethnic fractionalization is one of the determining variables of the level of public expenditure, will be followed by the testing of the first and second corollary hypotheses stated on pages 6-7. Various other variables will be included in the model so as to derive a more detailed understanding of the effect of demographic diversity on government size in the presence of additional institutional complexity. The following sections will begin with sample description and classification, followed by regression model specification and variable description, and finally presentation of empirical results and discussion of the findings of the analysis. The paper ends with an extended ACOV model testing the last four corollary hypotheses proposed on page 10.

4. Ethnic diversity and public spending: a cross-sectional multivariate analysis

In order to derive a better understanding of the influence of ethnic fragmentation on public spending in the presence of additional institutional complexity, the following sections set out to test an empirical model that includes various other variables that are also the possible determinants of public expenditure.

i) Age and socioeconomic inequality

Besides ethnic fractionalization as defined above, two other variables of demographic diversity are included in the model. These are the age composition of the population and the general level of socioeconomic inequality. The size of the aged population plays a role in determining the direction and size of public expenditure mainly through its social security and welfare component. This should be particularly relevant in the advanced industrialized countries (the "welfare states") in which benefits paid for retirement, old age and medical care constitute the major source of expenditures. Pampel and Williamson (1989:5), for example, noted that over 60 per cent of all social welfare expenditures in the advanced industrial democracies in 1980 went for two programmes - pensions and medical care.

Meltzer and Richard (1981, 1983) suggested that the size of the public sector depends not only on the level of income but also its distribution. Assuming that all government activity involves only redistribution and that its amount is related to the skewness of income distribution, they used the median voter theorem to argue that the lower the income of the median voter relative to average income, the more government activity will be, due to increased redistribution.

With similar assumptions, Peltzman (1980), however, predicted the reverse and claimed empirical support for his hypothesis. Based on the evidence he found mainly in the time-series data of the United States, Canada, United Kingdom and Japan, supplemented by data from the LDCs (less-developed countries), he came to the conclusion that while his results did detect a stimulative role of inequality this is only true where the population is least capable of articulating support for more government spending. The net effect of higher inequality on the size of government, as his data from the U.S. states and LDCs showed, is positive only at below average levels of "ability" which refers to level of education (political "ability") measured by the average years of schooling (see Peltzman, *ibid.*:267ff.). As this capability (of articulating support for more public spending) increases, homogeneous interests become a more important source of government expansion:

... the leveling of income differences across a large part of the population - the growth of the "middle class" - has in fact been a major source of the growth of government in the developed world over the last fifty years. On our interpretation, this leveling process, which has characterized almost every economically developed society in the latter stages of industrialization, created the necessary conditions for growth of government: a broadening of the political base that stood to gain from redistribution generally and thus provided a fertile source of political support for expansion of specific programs.

(ibid.:285)

There are various measures of inequality such as the Gini coefficient, Theil index and Atkinson index. However, as Bigsten (1983:63) remarked, data problems are notorious in income distribution analysis (especially for the less developed countries) and consequently various other measures of inequality have been proposed as viable alternatives to the Gini type indices (see, *e.g.*, Ward, 1978). In the present analysis the variable used to approximate the extent of inequality (or rather, equality) is the percentage of national income received by the poorest 20 per cent of the population.

ii) Decentralization

The degree of government centralization as a variable in the present analysis is measured by the ratio of current central government expenditure, less intergovernment grants, to total current government expenditure at all levels of government.¹⁰ For the diverse views on how decentralization affects the size of the public sector, see Brennan and Buchanan (1980) and Oates (1985a, 1989) on the Leviathan hypothesis; Mueller and Murrell (1986) on potential for interest group influence; Orzechowski (1977) on behaviour (and proliferation) of bureaucratoc organisms; Cameron (1978) on fragmentation of government units and bureaucratic behaviour; Crain, Tollison, Goff and Carlson (1985) on legislative specialization; Mueller (1987), Goetz (1977), Oates (1975, 1985b), Wagner (1976) and Hewitt (1986) on fiscal illusion; and Monasterio Escudero (1988) on how decentralization may isolate expenditure from the mechanism of "fiscal irresponsibility" (*maximización política e irresponsabilidad fiscal*).

iii) Other explanatory variables

The other main independent variables included in the size of government equation are population, the level of economic development, the extent of political fragmentation, *etc.* Each of these is discussed in turn below.

Mueller and Murrell (*op.cit.*:130) argued that scale economies associated with public goods cause the relative cost of them to decline as population increases:

By definition public goods have significant scale economy attributes. [Their] price per capita ... should fall as the population of a country increases ... As the demand for public goods is likely to be price inelastic, probably infinitely so for goods such as legislative activity, the fraction of total income devoted to government should decline as population increases.

However, some goods such as the threat of aggression (*i.e.* the demand for defence) and the level of crime may vary directly with population size. McCormick and Tollison (1981) also predicted a positive correlation between population and government size. Assuming all government activity consists of wealth transfers, they hypothesized that the greater is citizen free-riding (which tends to increase with population), the more successful will interest groups be

¹⁰ See, *e.g.*, McCarty (1993). Alternatively, it can be measured as the percentage of tax revenues collected at the central government level (Mueller and Murrell, 1986).

in using government to make these transfers. Taking into consideration McCormick and Tollison's view, Mueller and Murrell suggested that the coefficient on population can be used to test whether total government activity appears more as a public good or a wealth transfer. Mueller and Murrell also hypothesized that population size exerts a positive impact on the number of interest groups (*op.cit.*:138). Countries with larger populations, which are expected to be more heterogeneous, require additional interest groups to represent the diverse interests of the polity. Assuming some scale economies are attached to interest group formation, holding heterogeneity constant, the larger the population the more interest groups of optimal size a society can accommodate (Pauly, 1967). If Mueller and Murrell's findings are correct that interest groups can influence public policies in such a manner as to lead to government expansion, population size may exert a direct impact on government size through its positive relationship with interest group formation.

The level of economic development is usually measured in terms of gross domestic product (GDP) per capita¹¹. A per capita measure is important as it is necessary to distinguish between countries with similar GDPs but different population levels. According to Wagner's Law, a positive relationship exists between income per capita and the size of the public sector.¹² However, criticisms of GDP as a summary measure of economic development are often made. Derived from data on market transactions, GDP does not take into consideration many important non-market activities. By aggregating different activities in terms of money values, GDP is derived on the assumption that the price signals set by the market reflect accurately the various contributions of these activities to welfare (Tilak, 1992:31). Another shortcoming of GDP is its neglect of distribution, as has been pointed out above. The recognition of the importance of social factors in development led to the search for social indicators and to attempts at constructing development indices incorporating them. A recent example of such measures is the Human Development Index prepared by the United Nations Development Programme.

¹¹ An alternative measure to use is gross national product (GNP) per capita.

¹² This refers to what Wagner (1883) termed the "law of increasing expansion of public, and particularly state, activities". The "state" here refers to central government, as distinguished from the public sector as a whole, which includes local governments and public enterprises (Gemmell, 1993:120). There are various interpretations of Wagner's Law, which came into the English traditions of modern public finance mainly through Bird (1970, 1971) and Herbert (1975) who, in the words of Gemmell (*ibid.*:109), "in seeking to illustrate it ... perhaps unwittingly, encourages a rather narrow interpretation". A comparison between these two main interpretations will be given later in §7.

Another possible influence on the size of public spending that has been proposed in the literature comes from the number of political parties in parliament. There are two possible effects of the number of political parties on public expenditure. In so far as political parties are a means by which different voter interests are weighted in the political process, especially when the parties are closely associated with given interests (*e.g.* a labour party, a peasant party), government size should be larger the larger the number of political parties, since these parties are *de facto* organized interest groups capable of adding additional expenditure items to the public budget. However, as Lijphart (1977) and Mueller and Murrell (*op.cit.*) pointed out, multiparty systems are often less stable than two party systems. From this perspective, the larger number of political parties in the parliament can have a dampening effect on public spending since, although states with multiparty parliaments may make more promises to more interest groups, they may be less effective at delivering on their promises. The sign of the coefficient of this variable should show the relative strength of these two opposite effects. The variable itself is represented here by a measure of party fractionalization, defined as the probability that two randomly selected members of parliament belong to different parties and computed with the procedure identical to that for the index of ethnic fractionalization. Needless to say, one-party states and countries where political parties are banned (mostly under absolute monarchies or military regimes) have PF indexes equal to zero.

Also included in the model is the rate of unemployment. This variable is expected to be directly related to public expenditure due to its link with welfare payments and related social expenditures.

All the independent variables discussed above are listed and defined in the following summary table. All data are for the year 1991, with variations within one to two years in the case of unavailability. For data sources and detailed sample description and classification, see Yeoh (2001b), §3.

Table 1 The Explanatory Variables

Variable name	Concept measured	Predicted sign of coefficient	Variable definition
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1. PCY	Income	+	GDP per capita
2. POP	Population	+ / -	Size of the population
3. EF	Ethnic fractionalization	+ / -	The probability that two randomly selected members of the population will be from different ethnic groups
4. SNR	Senior population	+	Population of the age group above 64 years as proportion of total population
5. PF	Political fractionalization	+ / -	The probability that two randomly selected members of parliament will be from different political parties
6. EQU	Equality	+ / -	Proportion of national income received by the poorest 20 per cent of the population
7. CEN	Governmental centralization	+ / -	Ratio of central government expenditure, less intergovernment grants, to total government expenditure at all levels of government
8. UNE	Unemployment	+	Unemployment rate

Data sources, by variable number:

1. IMF, *International Financial Statistics Yearbooks*; CIA, *The World Factbooks*.
2. IMF, *International Financial Statistics Yearbooks*; CIA, *The World Factbooks*.
3. Computed with data from Katzner (1995, 1986); Gunnemark and Kenrick (1985); Kurian (1990); Williams (1991); Crystal (1993); Minority Rights Group (1990); CIA, *The World Factbooks*; The Economist, *The World in Figures*; *The World Almanac and Book of Facts*; *The World Book Encyclopedia*; *The Europa World Year Books and Regional Surveys of the World*.
4. IBRD (World Bank), *World Development Reports*.
5. CIA, *The World Factbooks*.
6. IBRD, *World Development Reports*.
7. Computed with data from IMF, *Government Finance Statistics Yearbooks*.
8. United Nations, *Statistical Yearbooks*; CIA, *The World Factbooks*.

Finally, a note on the dependent variable. Although the variable that should rightfully be used is the expenditure at all levels of government, reliable data for such "general" government expenditure are not available for a large number of developing countries. IMF provides only a maximum of 68 countries (out of the 119 countries in the full sample, including both developed and developing countries) where general government expenditure data are available:

Table 2 Comparison of Central and General Government Expenditure (as proportion of GDP)

	Mean	Max	Min	CV
Central government expenditure (CGE)	0.33	0.59	0.12	0.38
General government expenditure (GGE)	0.37	0.63	0.13	0.37
$r_{CGE, GGE} = 0.92$				

To maximize the number of observations in order to enhance the quality of the analysis, in particular in view of the need to break up the total sample into several country groups for the testing of corollary hypothesis 1, central government expenditure, which is found to be highly correlated with general government expenditure (as reflected in the correlation coefficient = 0.92, as well as their closely related mean, maximum and minimum values, and the coefficients of variation), is used in the following analysis instead of the latter.

5. Empirical results

The following function is tested for the total sample of 119 countries and the four categories of countries introduced earlier.

$$GE = f(PCY, POP, EF, SNR, PF, UNE, EQU, CEN) + u$$

The stochastic disturbance term, u , in the above multiple regression equation acts as a surrogate for those variables omitted from the equation because of data limitation. In a linear model the above function can be expressed as

$$GE = c + a_1PCY + a_2POP + a_3EF + a_4SNR + a_5PF + a_6UNE + a_7EQU + a_8CEN + u$$

where u is the error term and c the constant.

A cross-sectional approach is deemed more appropriate for the present purpose compared to a time-series analysis due to the fact that ethnic diversity is a factor that exhibits a high degree of temporal stability. Barring exceptional instances of large-scale demographic transfers or movements of "ethnic cleansing", as witnessed in the India-Pakistan partition, the Nazi's

destruction of European Jewry, the expulsion of Sudeten Germans, or the more recent events in Bosnia-Herzegovina and Krajina, ethnic composition of most countries rarely experiences drastic changes over time.

The ordinary least squares (OLS) method was used to estimate the parameters of the model. Besides the linear model, various other functional forms were also attempted. Due to the reason that not all variables are always available for each observation, there emerges a trade-off between the number of observations and the number of variables in any equation. Rather than arbitrarily select a given subset of variables and sub-sample of countries, a spectrum of results are presented in the following tables ranging from maximum number of observations and fewest explanatory variables to fewest observations and maximum number of variables. Even when such a limitation does not exist, it is sometimes also impossible to include all these variables due to the consideration on degree of freedom in the light of limited sample size.¹³ Due to the small sample size, the category of high- and upper-middle-income developing countries is excluded from the present stage of analysis. The countries in this category will be included in an expanded sample through regrouping in a further analysis later in the paper. Another category which also has a limited sample size, that of the advanced industrialized countries, cannot be subjected to a similar regrouping due to the special nature of these countries (see Yeoh, 2001b:5-6) that marks them apart from the others. They are therefore included in the present stage of analysis despite the above reservations. However, a number of variables have to be excluded due to limited number of observations.

The regression results show the fit of the equations to be generally good for the total sample as well as in the case of the developing countries. The significance of the regressions is further confirmed by the *F*-statistics which are highly significant for almost all of the equations tested, at the 0.01 level.¹⁴ The tests for heteroscedasticity and the other statistical problems have not found any major problem of concern.¹⁵

¹³ Space limitation makes a presentation of the results here impossible, the detailed results of the analysis are available on request from the author.

¹⁴ The combined presentation of both R^2 and the *F*-statistic is here preferred to the frequently used adjusted R^2 , the potential abuses of which is highlighted in Cameron (1993).

¹⁵ See footnote 13 above.

Ethnic fractionalization (EF) appears to be an important variable determining the size of public spending, with coefficients highly significant at 0.01 level. This is true for both the lower-middle- and low-income country groups and valid with the equations expressed in various functional forms. The significance of the coefficient of EF only diminishes with the reduction in sample size in order to accommodate variables with low numbers of observations, including EQU, CEN and UNE (CEN cannot be included in the low-income country group due to sample size limitation). For the low-income country group, the coefficient of EF ceases to be highly significant in some equations when the sample size is reduced from 37 to 19 and below, though in most cases it still has a significance level ranging from 0.01 to 0.10. The coefficient of EF is notably weakened for the lower-middle-income country group when the sample size falls from 35 to 23 and below though it is still significant at 0.05 to 0.10 levels in most log-linear and semilog equations. The sign of the coefficient is negative in all equations of all functional forms, supporting the hypothesis that ethnic fractionalization makes it difficult to reach agreement on public expenditure allocation that satisfies all segments. Since the samples include both democracies and non-democracies, similar influence of EF appears to be present in different regime types. The strong and persistent negative effect of EF on public expenditure also suggests that its positive influence through the State's policy response in certain countries' socioeconomic development, mainly in the form of State-sanctioned preferential policies (*e.g.* Malaysia) or federalization (*e.g.* Belgium and Spain), is not strong enough in the broad country spectrum to neutralize or reverse the said negative influence of the variable.

The same cannot be said for the advanced industrialized country group where the fit of the equations appears weak, though the coefficient of EF still emerges to be significant, in most cases at 0.025 to 0.05 levels. The lower significance of the coefficient of EF in this group points to the earlier suggestion (corollary hypothesis 1) that the more stabilized and well-organized structure of these advanced economies may reduce the effect of the primordial sentiments by replacing them with a modern, professional process of decision-making. It is however difficult to derive any conclusion for this group not only due to its small sample size but also the lack of significant variation of some of the other variables. Following the convention of taking a CV of

0.25 as indicating substantial variation¹⁶, regression results reveals clearly the lack of variation in quite a number of variables for this country group. For instance, the variable PCY has a CV of only 0.17 for this country group compared to 0.41 and 0.37 for the lower-middle-income and low-income countries respectively. This may partly explain why PCY which has coefficients that are highly significant in almost all equations tested for the two developing country groups has performed badly for the advanced industrialized country category. Given the low CV, it is difficult to derive any conclusion on it in the case of the latter category. On the other hand, it emerges to be the most important variable for the developing country groups and its positive sign as predicted is a vindication of Wagner's Law (following Bird's more inclusive interpretation¹⁷).

The age variable, SNR, has performed poorly for the developing country groups. Contrasting this with the fact that the coefficient of SNR is significant in almost every equation tested for the advanced country group seems to reflect the relative weight of welfare policy in these advanced "welfare states". However, given the low CV of SNR in the advanced country category, such implication should be viewed with caution. Population size appears to be inversely related to public spending at least in the developing country groups, suggesting that scale economies associated with public goods cause the relative cost of them to decline as population increases. However, unlike PCY and EF, the coefficient of the population variable is only significant in some equations. It is not significant for the advanced country group but, again, the small sample size has to be taken into consideration.

The variables PF and EQU have not performed well though PF is found to be highly significant in some equations for the reduced sample (23) of the lower-middle-income group, with negative sign showing that the adverse effect of political party fractionalization on expenditure decision may outweigh the positive influence on spending from certain parties as interest groups. Population size is found to be (inversely) related to GE for the all-country category, as well as the lower-middle-income countries, but its coefficient is only significant for certain sample sizes (above 68) and model specifications, with the dependent variable in log form. The results also show that the unemployment variable is positively related to GE, as

¹⁶ See Lane and Ersson, 1990:58.

¹⁷ Further explanation of this is given towards the end of §7 below.

predicted, for the all-country category and separate country groups, although for the all-country category its coefficient is significant only in equations with the dependent variable in log form for the reduced samples with 68 observations and below. It is however not found to be significant for the category of advanced industrialized countries. The small sample size of this group may have hampered the derivation of reliable results.

The variable CEN has coefficients which are highly significant in equations with GE in log form for the total sample. The significant coefficients all carry the positive sign, suggesting that the net effect of the various forces at work mentioned above is not one of expanding government sector due to the process of decentralization. Out of the various factors that may bring about public spending expansion after decentralization (bargaining power of government agencies, legislative specialization *etc.*), fiscal illusion has long been given a prominent role in public finance theories. Recalling the conventional hypothesis that financing multiple levels of government calls for a more sophisticated mechanism of finance which may lead to a higher degree of fiscal illusion, it should be noted that the existence of fiscal illusion by itself is inadequate to explain the growth of public spending; or in the words of Mueller (1987), although fiscal illusion shows why the public sector *can* grow beyond what the citizens would have preferred, it does not provide an explanation about why it *would* do so. Such an explanation can only be found in other theories of public sector expansion. Buchanan and Wagner (1977) offered an explanation of the process of public spending growth based on the functioning of the institutions in a democracy and the motives of political action. In political terms, budget spending creates benefits and increases the number of potential voters. On the contrary, the collection of taxes brings costs in the form of unpopularity, thus reducing the electoral base. In other words, it is always possible to increase the political gain (increasing expenditure) without having to incur political costs (deficit, not tax, financing), setting in motion an inefficient expansion of spending (see Monasterio Escudero's model illustrated in Yeoh, 2001b:27-8). Besides, in the case of the tax structure, there exists also a tendency to hide the real weight of the fiscal burden by concealing the costs through the use of complex fiscal structures, the proliferation of indirect taxes obscured under prices and the systems of retention at the source which lighten the burden of direct taxes. Together with the aforesaid analysis with respect to the phenomenon of fiscal illusion, the process of political competition can be the motivation which induces the politicians to make use of financing instruments that create fiscal illusion.

Depending on the institutional structure of a country with various levels of government, if fiscal federalism not only decentralizes a part of public expenditure and the corresponding financial instruments, but also creates entities with certain degree of political autonomy, it would enlarge the scenario of electoral confrontation and strengthen the effects of the aforesaid mechanism. The empirical results obtained in this section clearly do not point to such a phenomenon. However, results from past studies vary. Cameron (1978) and Schmidt (1983), for example, found evidence pointing towards a smaller expansion in public expenditure in countries with federal structures, using data from their respective samples of countries. On the contrary, Gould (1983) presented evidence that the growth rate of expenditure at the level of local government exceeds that at the central government level in some countries. Due to sample size limitations, comparison between country groups on the performance of the variable CEN cannot be made. In the next section, a new country category will be created with an expanded sample to partly overcome this problem.

Table 3 Descriptive Statistics of the Variables

Regressand: GE (US\$)	Mean	Max	Min	CV
Advanced industrialized countries ($N=20$)	6796.80	12270.00	2963.00	0.40
Lower-middle-income countries ($N=35$)	390.94	977.00	79.00	0.52
Low-income countries ($N=37$)	101.27	453.00	23.00	0.83
Regressor: PCY (US\$)	Mean	Max	Min	CV
Advanced industrialized countries ($N=20$)	17347.75	22470.00	11200.00	0.17
Lower-middle-income countries ($N=35$)	1225.71	2300.00	630.00	0.41
Low-income countries ($N=37$)	356.08	615.00	120.00	0.37
Regressor: POP (inhabitants)	Mean	Max	Min	CV
Advanced industrialized countries ($N=20$)	31921708	250000000	259012	1.75
Lower-middle-income countries ($N=35$)	17786688	200000000	87035	2.03
Low-income countries ($N=37$)	40609086	890000000	9494	3.60
Regressor: EF	Mean	Max	Min	CV

Advanced industrialized countries ($N=20$)	0.25	0.71	0.01	0.81
Lower-middle-income countries ($N=35$)	0.48	0.85	0.04	0.51
Low-income countries ($N=37$)	0.64	0.89	0.02	0.37
<hr/>				
Regressor: SNR	Mean	Max	Min	CV
<hr/>				
Advanced industrialized countries ($N=20$)	0.14	0.18	0.10	0.15
Lower-middle-income countries ($N=38$)	0.04	0.07	0.03	0.30
Low-income countries ($N=35$)	0.03	0.05	0.02	0.21
<hr/>				
Regressor: PF	Mean	Max	Min	CV
<hr/>				
Advanced industrialized countries ($N=19$)	0.68	0.85	0.44	0.17
Lower-middle-income countries ($N=35$)	0.46	0.89	0.00	0.71
Low-income countries ($N=37$)	0.20	1.00	0.00	1.61
<hr/>				
Regressor: UNE (%)	Mean	Max	Min	CV
<hr/>				
Advanced industrialized countries ($N=20$)	8.09	20.40	1.30	0.59
Lower-middle-income countries ($N=30$)	15.57	40.00	3.00	0.66
Low-income countries ($N=16$)	19.76	55.00	2.00	0.83
<hr/>				
Regressor: EQU	Mean	Max	Min	CV
<hr/>				
Advanced industrialized countries ($N=19$)	0.06	0.08	0.04	0.19
Lower-middle-income countries ($N=23$)	0.04	0.07	0.02	0.33
Low-income countries ($N=19$)	0.06	0.10	0.03	0.36
<hr/>				
Regressor: CEN	Mean	Max	Min	CV
<hr/>				
Advanced industrialized countries ($N=20$)	0.68	0.92	0.42	0.21
Lower-middle-income countries ($N=17$)	0.90	1.00	0.66	0.11
Low-income countries ($N=12$)	0.89	1.00	0.57	0.39
<hr/>				

6. The "higher-income developing countries": re-estimation with combined sample

One obvious problem confronted here is the limitation of sample size that not only prevented the inclusion of certain variables (*e.g.* CEN for the low-income category) but also the exclusion of the high- and upper-middle-income developing country category from analysis. In order to overcome this deficiency, countries in this category are combined with those in the lower-middle-income country group to form a new set of "higher-income developing countries". The category of low-income developing countries, however, remains unchanged. The

regression equations are re-estimated and the results are as follows¹⁸.

An expansion in sample size through regrouping appears to have improved substantially the fit of the equations, many of which produced coefficients of determination (R^2) close to or exceeding 0.90. The results confirm the earlier finding that GDP per capita and ethnic fractionalization are the most important among the variables included in influencing public spending. Although it is still significant in most log-linear and semilog equations, the role of EF in the linear equations appears weak, suggesting possible sensitivity to functional form. The fact that this group of countries now include those that belong to the former high- and upper-middle-income developing country category supports the earlier assertion that the influence of ethnic fragmentation is weaker in economically more advanced countries than in the more backward ones where primordial sentiments still play a major role within a less mature politico-economic regime (corollary hypothesis 1). All the significant coefficients still carry the negative sign, thus confirming the finding with former categories.

For this new category the coefficient of POP is only significant for certain equations, suggesting that the relationship between population size and public expenditure may not be a linear one. Most of significant coefficients of POP have the negative sign, supporting the earlier observation that the negative effect of this variable on GE more than offsets its positive impact.

The variable SNR has also improved its performance after the expansion of the sample with recategorization. It is interesting to find that while in almost none of the equations tested for the former lower-middle-income category the coefficient of the age variable SNR turns out to be significant, this same variable plays a notable role in a number of equations for the new higher-income developing country category. Since the inclusion of countries from the former high- and upper-middle-income developing country group means that many members of this new category now have an economic affluence approaching those of the advanced "welfare states" (where SNR performs well), the notable difference in the performance of SNR between this group and the former "lower-middle-income" country set strongly suggests the increasing importance of social welfare policy with the increasing level of affluence. The convergence of

¹⁸ See footnote 13 on page 18.

socioeconomic policy of these more advanced developing countries to that of their role models, the advanced industrial nations, as well as their financial ability to do so may be only part of the reason. A scrutiny of the SNR statistics in Tables 3 and 4 shows that while the difference in mean value between the two country groups is minor, given the relatively high data variation ($CV=0.45$) within the higher-income group, it obscures the fact that the group has a maximum value of 11 per cent compared with the former lower-middle-income country group and the low-income countries where the aged population constitutes at the most only 7 and 5 per cent of the total population respectively. A comparison of this with the 18 per cent maximum of the advanced industrialized countries (where the mean value of 14 per cent and the low CV of 0.15 imply the prevalence of such uniformly high level among them) indicates that the more affluent members in the higher-income developing country group are approaching the advanced countries in the age composition of the population. Also revealed is the growing gap between these countries and those in the low-income category. That nations age with growing affluence is an accepted demographic fact under the combined effect of the preference for smaller family size, lower fertility and increased life expectancy, and the resulting implication for increased weight of social welfare spending including care for the aged shows in the varied performances of SNR across country groups.

Table 4 Descriptive Statistics for the "Higher-Income Developing Countries" Group (N=50)

	Mean	Max	Min	CV
<i>Regressand</i>				
GE (US\$) (N=50)	787.92	3619.00	79.00	1.08
<i>Regressors</i>				
PCY (US\$) (N=50)	2304.00	9900.00	630.00	0.95
POP (inhabitants) (N=50)	17188825.00	200000000.00	40061.00	1.95
EF (N=50)	0.46	0.87	0.04	0.55
SNR (N=49)	0.05	0.11	0.03	0.45
PF (N=50)	0.48	0.89	0.00	0.60
UNE (%) (N=44)	15.08	40.00	1.80	0.67
EQU (N=34)	0.04	0.08	0.02	0.37
CEN (N=30)	0.92	1.00	0.66	0.10

The performance of political fractionalization clearly improves with this expanded sample. However, the coefficient of PF is only significant in some equations with the reduced samples of 34 observations and below where its negative sign reveals, as observed before, its net adverse influence on public spending. There may be expectation that this factor is somehow linked to the variable of ethnic fractionalization (EF) for which influence it acts as a conduit. However, correlation matrices¹⁹ reveal no such strong link between the two variables, with $r_{PF,EF}$ equal to |0.31| or below, at least with PF as defined in this model in the form of political party fractionalization. It can also be noted that any link between EF and PF thus defined should involve political parties' role as interest groups acting on behalf of the ethnic segments. Given that the influence of the parties in this regard appears to be weaker than the effect of political party fractionalization as an impediment to public expenditure expansion, as manifested in the negative sign of the coefficient, such a link between these two variables thus cannot hereby be established. The inclusion of both variables hence needs not raise concern on the risk of multicollinearity, in addition to the low correlation coefficients found between them.

¹⁹ See footnote 13 on page 18.

One of the reasons to recategorize the countries is to achieve sample sizes in which the inclusion of variables with fewer observations, EQU and CEN in particular (especially the inclusion of *both* of them), is possible, without having to reduce the sample size to too low a level. In general, the influence of the degree of socioeconomic equality appears to be more prominent for the higher-income developing country group (as well as the former "lower-middle-income" category) than among the low-income countries. For the low-income group its coefficient has not been significant in any of the equations tested. Since these significant coefficients all carry the negative sign, the finding appears to support Peltzman's claims and contradict Meltzer and Richard's argument that the lower is the income of the median voter relative to average income, the more government activity will be due to increased redistribution (see §4 above).

Governmental centralization (CEN), here defined in fiscal terms, does not appear to be a significant variable in the case of the former "lower-middle-income" country set, except in some equations with much reduced sample sizes. Similar results are obtained for the new higher-income developing country group. The significant coefficients, however, as previously for the total sample, all have positive signs, lending support to the Leviathan hypothesis which states that centralized governments, having less incentive to be efficient when compared to decentralized ones who could lose residents to other jurisdictions, tend to spend more (Brennan and Buchanan, 1980; Oates, 1985a, 1989). Nevertheless, even in equations where the coefficients of CEN are significant, the performance of this variable still remains relatively weak. Furthermore, given the doubt on the applicability of the Leviathan hypothesis to the case of developing countries that tend towards more centralized government structures, the limited sample sizes and low CV as shown in Tables 3 and 4 for this variable, any such conclusion should be taken with care.

7. Further analysis of empirical results

To determine the relative importance between the independent variables, elasticity tables are constructed for all the equations that have been tested above. Read in conjunction with the regression results presented earlier which indicate the significance of F and t , the elasticity

tables²⁰ show that for the all-country sample, EF, PCY and SNR are important determinants of GE, though their relative effects on the dependent variable vary with respect to functional form. The influence of UNE, CEN, PF and to a less extent, EQU, is also considerable. The findings also support the first corollary hypothesis that the influence of ethnic diversity is greater among economically less-affluent countries with the elasticity coefficient of EF showing a clear steady decline moving up from the low-income country group to the advanced industrialized countries regardless of functional form. Expanding the sample of the lower-middle-income countries to include the "high- and upper-middle-income developing countries" (thus forming the new category of "higher-income developing countries") also logically reduces the elasticity coefficient of EF. On the contrary, the age variable SNR has elasticity coefficients much higher for the advanced industrialized countries than the developing countries, especially the low-income ones.

While the highly significant and positive coefficients of PCY in almost all of the equations tested (for the all-country sample and the developing country groups)²¹ lend support to Wagner's Law under the more "inclusive" interpretation like Bird's (1971:2) ("as per capita income rises in industrializing nations, their public sectors will grow in relative importance"), the elasticity coefficients of this variable, which in a large proportion of equations exceed unity and in most others are close to unity (with the exception of the advanced industrialized country group), to a certain extent provide supportive evidence for a "narrow" interpretation like Herber's, which sees in Wagner's Law the implication that public goods are income-elastic in demand:

This means that the real per capita output of public goods is increasing at a more rapid rate than is real per capita income as industrialization and economic growth take place. Such is the essence of the Wagner hypothesis.
(Herber, 1975:147)²²

In other words, according to Herber's interpretation, *ceteris paribus*, a small change in

²⁰ See footnote 13 on page 18.

²¹ The problem of this variable for the advanced industrialized country group has been highlighted earlier in §5 above.

²² For a detailed treatment of the different interpretations of Wagner's Law, see *e.g.* Gemmell (1993).

income should lead to a more than proportional (small) change in demand for government activities. Both Herber and Bird saw Wagner's Law as referring to a relative, rather than absolute, expansion of government. However, Wagner's Law has also been interpreted in terms of the absolute increase in government activities (see Gemmell, 1993:109). Musgrave (1969:73) acknowledged that there is no explicit statement in Wagner's work that his law relates to the share rather than the absolute level of public expenditure, which is employed in this analysis in per capita form. In the comparison of the research findings in this paper with Wagner's Law, care should be taken regarding the exact scope of the latter. Although it has often been argued that Wagner's Law was not intended to apply to military spending or transfer payments (which Wagner did not envisage when developing his law), Gemmell (*op.cit.*:111) was of the opinion that there is no sufficient reason to ignore them. Similar approach has been followed in this paper, although an attempt is made to separate transfers from non-transfer expenditure in the next section. A government spending variable excluding defence expenditure was utilized as part of the correlation analysis in Yeoh (2001b), albeit showing no significant difference in results from one inclusive of such expenditure. It has also often been noted that Wagner's Law is essentially a time-dependent phenomenon. While the hypothesis that cross-sectional differences approximate long-run time-series changes (*i.e.* at a particular point in time, a country has a higher government expenditure than another country due to its higher level of average income per capita) remains controversial regarding its validity, it is widely practised and many recent studies using the same data set for both cross-sectional and time-series tests of the law tend to find consistent results for both methods (*ibid.*:112). It is notable that some cross-sectional studies (e.g. Musgrave, 1969, Abizadeh and Gray, 1985, cited in Gemmell, *ibid.*:116) found support for the law only for "middle-income" country samples but not for "poor" or "rich" country groups. The cross-sectional results obtained in this paper show little such differences between country groups, with elasticity of PCY close to or exceeding unity for all except the advanced industrialized country category. The problem of low CV (coefficient of variation) for this variable among countries of the latter category, however, has already been pointed out earlier.

The performance of GDP per capita here appears better than that in a recent study by Lindert (1996) which separated social and nonsocial expenditure, using the pooled data of 19 countries over 22 years. Lindert's variable of GDP per adult aged 20-64 (in log form) did not have significant coefficients for all equations of social or nonsocial spending, nor those of the

total government expenditure. Only in a squared-log form did the variable have coefficients significant at the 5 and 7 per cent levels for the social and nonsocial spending equations respectively, although it remained insignificant for the total government expenditure equations. However, only in the social spending equations this variable (in squared-log form) has an elasticity significantly above unity.

8. Ethnic diversity and transfer/non-transfer expenditures

To test the second corollary hypothesis stated in §3, that ethnic fractionalization has a more pronounced, negative effect on expenditures the primary purpose of which is income redistribution (or widely perceived as being redistributive) than on other expenditures, the following analysis uses a model similar to that in the foregoing investigation but defines, instead of one single dependent variable GE, two such variables TE and EE, *i.e.* "transfers" and other ("exhaustive") public sector expenditures. In practice, the data used for TE and EE are the proportions of GDP devoted to social security and welfare payments made by the central governments and those devoted to all other public expenditures.²³

The fit of the regression for equations having TE as the dependent variable, with R^2 ranging from about 0.50 to 0.90, is found to be better than that for the EE equations which have R^2 of around 0.50 and below. F -statistics show that all regressions for the TE equations and almost all those for the EE equations are significant, mostly at 0.01 level of significance. None of the statistically significant coefficients of the explanatory variables has sign which is contrary to *a priori* expectation, with the exception of PCY in the EE equations. Since the variable EF in the equations with TE as the dependent variable is mainly found to be significant in the semilog models, comparison can only be made with the EE equations in this functional form. For equations where the ethnic diversity variable is significant, the results clearly reveal that the influence of this variable on transfer expenditure is greater than that on the non-transfer expenditure. Whereas the elasticity coefficients of the variable EF in the EE equations have absolute values of about 0.30 or below, almost all of the elasticity coefficients of this variable in the TE equations where it is found to be statistically significant have absolute values of 0.70 or

²³ For the OLS results and the elasticity coefficients, see footnote 13 on page 18.

above. Despite the functional form restriction, there is thus strong supportive evidence for the second corollary hypothesis that the influence of ethnic fragmentation on transfer expenditure is greater than that on non-transfer expenditure.

A comparison of the elasticity coefficients for the TE and EE equations also shows stronger impact from the age variable SNR on transfers than on other expenditures. This is expectable since the proportion of senior citizens in the population should have a strong influence on social security and welfare spending. Two other important explanatory variables in both the TE and EE equations are GDP per capita and unemployment rate, both persistently significant in their coefficients and robustly elastic in most of the equations tested. However, the coefficients of GDP per capita carry negative signs in the EE equations, contrary to *a priori* expectation. They have signs that are persistently positive, on the other hand, in the "transfers" equations.²⁴ Nevertheless, in contrast with the results for GE equations (where TE and EE are not separated), in none of the TE or EE equations tested does the elasticity of PCY exceed unity.

The measure of the extent to which government operations are centralized, on the other hand, is only found to have an impact on expenditures other than "transfers". Almost all of the EE equations tested have significant coefficients for this variable with elasticity of between 0.50 and 0.60 which is much higher than that of the other variables, but CEN is not found to be significant at 0.05 level of significance in any of the TE equations tested. In contrast, political

²⁴ These results can be compared with two recent studies. Karras (1996), using data from the Penn World Table which do not include transfer payments, also found a decline in world government size and that in North America and South America during 1960-1985 (see footnote 1 in Yeoh, 2001b). Lindert (1996), mentioned earlier, found better performance of GDP per capita in equations with social spending as the dependent variable than in nonsocial spending equations.

The negative coefficients of PCY in the EE equations can be due to the possibility that a higher proportion of government expenditure is devoted to TE (welfare benefits *etc.*) in the more affluent countries, with EE reaching a certain saturation level. A cluster of such countries can statistically turn the overall positive relationship between PCY and EE into a negative one. Given that the variable EE in our equation is a ratio (non-transfer expenditure to GDP), and since all the negative PCY coefficients in the EE equations have absolute values of less than one, it is possible to derive a positive coefficient for GDP (but not a per capita measure) by converting the EE/GDP ratios into absolute levels of EE, *e.g.*

$$\text{if } EE/GDP = aX1^b \cdot GDP^c \cdot POP^{-c} \cdot POP^d$$

$$\text{then } EE = aX1^b \cdot GDP^{c+1} \cdot POP^{-c} \cdot POP^d$$

fractionalization is found to be highly significant, and with high degree of elasticity next only to SNR, in most of the semilog equations for TE but does not seem to have an effect on EE.

9. Comparison with findings of previous studies

It has already been pointed out above that although there were many studies on the determinants of the size of public sector, little research has been done on the influence of ethnic fragmentation. Unlike the persistently strong performance of the ethnic fractionalization variable in the present study, the "ethnic fractionalization" regression coefficients in Mueller and Murrell's 1986 study, while having the expected sign in all specifications, are not consistently significant. They differ significantly from zero only in some specifications of the model using a sample of OECD countries (the highest being -0.17); they never differ significantly from zero with an expanded sample incorporating non-OECD countries (ranging from -0.002 to -0.11).

Like Mueller and Murrell, McCarty (*op.cit.*) was unable to obtain sufficient evidence for accepting the hypothesis that ethnic diversity leads to a smaller public sector. With respect to national government transfer payments, while his coefficient for religious variance is not significantly different from zero, that for ethnic variance is strongly significant, with a *t*-statistic of -4.47. Ethnic diversity seems to be associated with smaller transfer payments. Such findings are similar to those of the present study which show evidence that the effect of ethnic diversity is more pronounced on central government transfer expenditure. McCarty cited as evidence the relatively small size of transfer programmes that transfer income across races in the United States - the fact that the Social Security programme, which mostly transfers income within the middle class, is much larger than the Welfare programmes and Driessen's (1982) finding that the benefit structure of the former is biased against the blacks. However, with respect to other forms of public expenditure (excluding defence), the coefficients for ethnic and religious variance are close to zero, while the Gini index has a coefficient that is significantly different from zero, implying that greater pre-transfer income inequality is associated with less public provision of goods and services²⁵. Therefore McCarty's study suggests that, while aggregate expenditure

²⁵ Mueller and Murrell also included skewness of income distribution as one of their independent variables but their skewness measure is post-transfers.

excluding transfers does not seem to be affected by ethnic and religious diversity, particular types of expenditure may be influenced. The coefficient of determination (R^2) is also significantly different between transfers and other expenditures, 0.81 and 0.34 respectively. Due to the unavailability of data for the degree of centralization and Gini coefficient for a number of countries, the above results were estimated with a rather small sample of 17 observations. By omitting these two variables, McCarty was able to enlarge the sample size to 46 for the transfers equation and 26 for the other government expenditure equation. With this modification, ethnic variance was still a significant determinant of transfers but not of other government expenditure, and religious variance remained insignificant in both equations.

For comparability with Mueller and Murrell's study, McCarty also tried a dependent variable that measures the overall size of the public sector. The resulted ethnic diversity coefficient was not significantly different from zero, suggesting that the relationship between ethnic diversity and transfers may be obscured by the presence of other government expenditures. McCarty also found that, while the estimated coefficients of the three measures of diversity were insensitive to changes in sample size and to changes in other variables included in the model, they were sensitive to functional forms. When the dependent variable was not in logarithmic form, the coefficients for the measures of ethnic diversity in the transfer equation no longer differ significantly from zero, suggesting that the relationship between ethnic diversity and the size of cash transfers is not a simple linear one.

In McCarty's model, demographic diversity may affect the size of the public sector in two ways, directly through the ethnic and religious variance variables and the Gini coefficient, and indirectly through the effects of decentralization. His contention is that, if the centralization variable has a coefficient significantly different from zero, the three "diversity" variables may not capture the entire effect of demographic diversity on public sector size. However, his measure of the extent to which government operations are centralized is not significantly different from zero in either the model for transfers or that for goods. This suggests that, across countries, greater decentralization is not associated with smaller public sectors. His study is unable to establish whether demographic diversity promotes decentralization; even if it does, the results of his analysis imply that the size of the public sector is not affected. Nevertheless, his finding that ethnic and religious diversity does not affect the level of spending on programmes

other than central government transfers raises the possibility that decentralization may occur along ethnic and religious lines, allowing different preferences for public spending to be reflected in different levels of local spending.

10. Further analysis with qualitative variables

To test corollary hypotheses 3-6, variables that have not been statistically tested before in previous studies would need to be brought in. Since these involve qualitative rather than quantitative variables, an extended analysis-of-covariance (ACOV) model²⁶ is used with four dummies representing the four main factors of numerical structure, territoriality, historical geography and crosscutting/reinforcing nature of ethnic cleavages²⁷:

D1 = 1 if the population is near homogeneous in ethnic composition (with over 90 per cent belonging to a single ethnic group) or consists of only one numerically significant ethnic group (with the rest being fragmented, each constituting less than 10 per cent of the population - see footnote 6 above)
 = 0 otherwise

D2 = 1 if the ethnic division is territorial in nature
 = 0 otherwise

D3 = 1 if the population consists of both homeland and immigrant ethnic groups
 = 0 otherwise (*i.e.* if the population consists of only homeland or only immigrant ethnic groups)

D4 = 1 if the ethnic cleavages are crosscutting
 = 0 otherwise (*i.e.* if the ethnic cleavages are non-crosscutting, or are mutually reinforcing)²⁸

²⁶ A regression model that contains an admixture of quantitative and qualitative variables.

²⁷ Data sources for these four variables are similar to those for EF.

²⁸ Rae and Taylor (1970) defined "crosscutting" (XC) as the proportion of all pairs of individuals whose two members are in the same group of one cleavage but in different groups of the other cleavage:

$$XC = \frac{A+B}{N'(N'-1)/2}$$

All these four variables, except D4, are expected to have positive coefficients (see §3 above). The other variables in the equation are unchanged as before (see Table 1 on page 16). OLS regression is conducted on the following function for the total sample of 119 countries:

$$GE = c + a_1PCY + a_2POP + a_3EF + a_4SNR + a_5PF + a_6UNE + a_7EQU + a_8CEN \\ + a_9D1 + a_{10}D2 + a_{11}D3 + a_{12}D4 + u$$

where u is the error term and c the constant.²⁹ The performance of the non-dummy variables is similar as before. The only dummy that has persistently significant coefficients is D2, regardless of functional form and sample size. The coefficients of D3 and D4, while having the right sign, are significant only with certain specifications of the model and with certain sample sizes. Coefficients of the variable D1 are neither always having the expected sign nor consistently

where A is the number of pairs whose members are in the same group of the cleavage X1 but in different groups of X2 (*i.e.* matched on X1 but mixed on X2), B is the number of pairs whose members are in different groups of X1 but in the same group of X2 (*i.e.*, mixed on X1 but matched on X2), and $N' (N' - 1) / 2$ is the total number of pairs (N' = the number of individuals in the overlap) (Rae and Taylor, 1970:92). Examples of X1 and X2 most relevant to the present study are language and religion, race and religion, or language and race. Like the fragmentation index employed here, the measure XC also varies between limits of 0 and 1. XC is zero when cleavages are "completely reinforcing" - all the matched pairs on X1 are matched on X2 and all the mixed pairs on X1 are mixed on X2. XC is equal to one in the hypothetical case of complete crosscutting if all matched pairs on X1 were mixed on X2 and all mixed pairs on X1 were matched on X2.

Rae and Taylor showed that the above equation can be rewritten as

$$XC = 2FC - F1 - F2$$

where F1 is the fragmentation of cleavage X1, F2 is that of cleavage X2, and FC is the probability that any two individuals are in different groups in at least one of the cleavages (*ibid.*:96). The derivation of F1 or F2 (following the computational procedure of Rae and Taylor's index of fragmentation, see Yeoh, 2001a) is relatively straightforward. However, to calculate FC, more detailed data will be required, for instance the proportion of members in each linguistic segment who belong to each religious category and *vice versa*.

The last equation above ($XC = 2FC - F1 - F2$) is important in showing how crosscutting is in fact closely related to the fragmentation of the relevant cleavages. Since FC can take on several values for given fixed values of F1 and F2, the latter do not completely determine XC. However, F1 and F2 do constrain the possible values of XC. Rae and Taylor showed that if F1 and F2 are both very low (*i.e.* the cleavages are not very fragmented), FC must also be low. Conversely, FC is high if both F1 and F2 are very high. Hence, from the relation $XC = 2FC - F1 - F2$, the measure XC must be low in both of these cases. This means that there cannot be much crosscutting whenever F1 and F2 are both very low (near 0) or both very high (near 1). High values of XC can only occur when one of the cleavages has low fragmentation and the other has high fragmentation (*ibid.*:99-103). This point has been taken into consideration in deriving the variable D4.

²⁹ See footnote 13 on page 18.

significant. The extent of the influence of ethnoterritoriality can be seen in the size of the coefficients of the dummy variable D2. Almost all of the significant coefficients show a percentage difference in the dependent variable of between 40 and 50 per cent.

11. Summary of findings

The results obtained so far in this paper strongly support the hypothesis of this study that ethnic fractionalization plays an important role in influencing the size of the public sector. Some of the more significant findings are highlighted below:

◆ *The two most important variables explaining government size prove to be GDP per capita and ethnic fractionalization, especially among the lower income countries.*

◆ *GDP per capita is found to be positively related to the level of public expenditure, a phenomenon in line with the Wagner's Law³⁰.*

◆ *Ethnic fractionalization is inversely related to the size of public spending and the relationship is particularly strong for the developing country categories. The consistently negative relationship is noteworthy since it not only supports the hypothesis that higher ethnic fractionalization increases the difficulty in reaching agreement on public expenditure allocation that satisfies all fractions, but also implies that the potential or real upward pressure on government size from the State's response to conflicts engendered by such fragmentation, whether through the implementation of State-sanctioned preferential policies or fiscal federalism³¹, is not strong enough to offset or reverse the said negative influence of the variable from a generalized multinational perspective.*

◆ *The influence of ethnic fractionalization varies according to country group. As supportive evidence for the first corollary hypothesis, this influence is found to be strongest among countries backward in economic development and weakens as we move upwards to categories of countries higher in economic affluence wherein the influence of such primordial attachments like race, tongue and religion on public decision-making gradually gives way to more modern, professional procedures.*

◆ *The proportion of the aged in the population (SNR) is found, as expected, to be positively related to public spending. The link is observed to strengthen moving up from the lower income*

³⁰ See §7 above for the various different interpretations of Wagner's Law.

³¹ See Yeoh (2001b:25-30).

categories to countries higher in economic affluence. Despite the demographic fact that increasing economic affluence inevitably brings about an aging population, such finding is logical from the theoretical perspective since welfare spending, including that on senior citizens, is expected to be positively related to the percentage of the aged in societies not only where such citizens form a substantial part of the population but also where economic deprivation is no longer a constraint on the implementation of welfare policies.

◆ *Statistical analysis specifying two separate public expenditure variables also provides support for the second corollary hypothesis that the effect of ethnic diversity is more pronounced on central government transfer expenditure, i.e. that with the explicit purpose of income redistribution. This finding is also in line with that of McCarty (op.cit.) who considered this as precisely the reason the US Social Security programme, which mostly transfers income within the middle class, is much larger than the US welfare programmes which transfer income across races.*

◆ *The empirical results provide strong evidence supporting the fourth corollary hypothesis that territorial division along ethnic lines is positively related to public sector size. The results also support the fifth and sixth corollary hypotheses that the homeland-immigrant division of ethnicity and the crosscutting nature of ethnic cleavages have a positive and negative effect respectively on public sector size. However, the coefficients of the relevant variables are only significant for certain model specifications and sample sizes. On the other hand, there is a lack of strong and consistent evidence supporting the third corollary hypothesis that the existence of a numerically dominant ethnic group leads to larger public sector.*

Table 5 gives a brief summary of the main findings with respect to the research hypothesis and corollary hypotheses presented earlier in this paper.

Table 5 Summary of Empirical Findings

Dependent variable	Explanatory variable	Hypothesized relationship	Relationship found
<i>Research hypothesis</i>			
Government expenditure	Ethnic fractionalization	Negative	Negative
<i>Corollary hypothesis 1</i>			
Government expenditure	Ethnic fractionalization	Link weakens with rise in affluence	Link weakens with rise in affluence
<i>Corollary hypothesis 2</i>			
Government expenditure	Ethnic fractionalization	Link stronger with "transfers" component of expenditure	Link stronger with "transfers" component of expenditure
<i>Corollary hypothesis 3</i>			
Government expenditure	Existence of a numerically dominant group	Positive	Lack of strong supportive evidence
<i>Corollary hypothesis 4</i>			
Government expenditure	Ethnoterritoriality	Positive	Positive
<i>Corollary hypothesis 5</i>			
Government expenditure	Homeland-immigrant division of ethnic composition	Positive	Positive (with certain model specifications and sample sizes)
<i>Corollary hypothesis 6</i>			
Government expenditure	Crosscutting ethnic cleavages	Negative	Negative (with certain model specifications and sample sizes)

12. Limitations and concluding remarks

This paper has set out to investigate the possible influence of ethnic fractionalization on government size, in particular to test the research hypothesis and corollary hypotheses stated in §2 and §3 utilizing the approach of a cross-national comparative data analysis. The results of the analysis, given the various limitations, have in general proven to be supportive of these

hypotheses, with the exception of Corollary Hypothesis 3. The fact that there is no strong evidence supporting Corollary Hypothesis 3 suggests a need for rethinking about the whole concept of dominant-subordinate group relations. The restriction that neither can minorities occur apart from majorities that outnumber and dominate them, nor can dominant "élites" occur without complementary "mass subjects", implied by Schermerhorn's intergroup configurations (Schermerhorn, 1970), has been criticized by Smith (1987:345):

... neither does the dominance of an ethnic elite or numerical minority require or imply that the subordinate majority forms a single ethnic group, nor is it the case that disadvantaged demographic minorities always owes their disabilities to dominant demographic majorities.

It is a fact that many Third World countries containing disadvantaged demographic minorities are without clear complementary majorities. Yet ethnic minorities in these countries are rarely equal in power, *e.g.* Malaysia, Nigeria, Fiji. Furthermore, the subordinate majorities in many countries dominated by a minority (*e.g.* formerly the tropical colonies of the European powers) are divided among a plurality of ethnic groups, and even the dominant minorities themselves may not be internally homogeneous (*e.g.* former white ruling class of South Africa). To think of the dominant group as something akin to a monolithic block is probably too simplistic in theoretical reasoning and may therefore lead to inaccurate results.

The possible sensitivity of the estimated regression coefficients to sample size and functional form has also been examined and the estimated coefficient for ethnic fractionalization is in general found to remain remarkably robust throughout. The results also vindicate the holistic approach adopted in this study to use a measure which, as explained earlier, regards race, language and religion as merely different markers of a single variable of ethnic diversity. This is in contradistinction to the approach taken in similar studies done previously, as reviewed above, which either included only one of these components to the exclusion of the others or considered them as separate and distinct variables. Such approach may lead to inaccurate measurement of the degree of fragmentation, which together with other factors such as sample categorization, explains to a large extent the contrast between the supportive findings of the present study and the lack of empirical evidence from previous attempts, as observed earlier.

The most prominent finding of the paper is the establishment of a statistical link between the size of the public sector (reflected in the level of public spending) and the factor of ethnic diversity, more robust and consistently significant than that found in previous researches on the subject. The relationship has been found to be negative, supporting the hypothesis that higher ethnic fractionalization increases the difficulty in reaching agreement on public expenditure allocation that satisfies all factions. Such apparently simple objective fact should not however obscure a more complex relationship that may emerge looking at the socioeconomic history of individual countries. A close look at Malaysia would reveal the way the interrelated forces at work to bring about an expansion of the public sector over time as the State expresses its response towards the exigencies engendered by increasing ethnic conflict. The most prominent among these forces are a homeland-immigrant mix of ethnic composition, a bi-ethnic numerical structure (as has been noted, a most problematic type of multiethnic structure) and a political regime Mauzy (1993) termed "coercive consociationalism" (or what Smootha [1990] called "ethnic democracy"). The positive effect on public sector over time coming indirectly from ethnic diversity, evident in the Malaysian case, should not be taken as contradictory to the persistently negative sign of the EF coefficient obtained from the cross-sectional analysis presented in this paper. First, not many countries have a State-sanctioned preferential policy in favour of the politically dominant ethnic group as consistent and persistent as that of Malaysia. In many countries, the economy is not dominated by the politically subordinate ethnic group and preferential policies implemented by the politically and economically dominant group need not go as far as that in terms of such use of public spending. It is interesting to note again Driessen's finding that the benefit structure of the US Social Security system is biased against blacks (1982) and the relatively small size of transfer programmes that transfer income across races in the US compared to the country's Social Security programme that mostly transfers income within the middle class (*ibid.*; McCarty, *op.cit.*), despite the fact that the "affirmative action" policies have already gradually evolved since as early as the 1960s. Also unlike the explicit way preferential policies have been legislated, both in terms of directions and tools, in Malaysia (commencing on a specific date, generating specific benefits for a specific group by means of specific fiscal and other instruments), preferential policies have seldom been explicitly legislated in the US. Group preferences in the US have instead emerged gradually and unevenly since the 1960s, and not always openly (Sowell, 1990:109). The explicit positive impact of preferential policies on public sector size experienced by Malaysia from early 1970s to mid-1980s is, in other words, not

always true for all countries with certain forms of ethnic preferential policies. Secondly, such effect of ethnic diversity-induced policy on public sector size has a time dimension, as theories of the determinants of public spending should not only be problem specific but also period specific (Hage, Hanneman and Gargan, 1989:89-91). Different countries, even if they have adopted similar policy response, implemented them at different stages in their economic history. Such policies also do not last forever with the same vigour due to changing socioeconomic reality, backlash from the unpreferred groups and other factors. Malaysia's New Economic Policy (NEP) was supposed to span two decades, from 1970 to end of 1980s. However, economic difficulties in the mid-1980s had already greatly mitigated public sector expansion after 1985. Besides changing socioeconomic situation, backlash from the unpreferred groups can also cause policy reversals, more possibly in countries where preferential policies have been for the economically subordinate minorities and the unpreferred group or groups are in politically dominant position to effect change (for an exposition of the backlash argument and the erosion thesis, see Grove, 1993).

Reference

- Abizadeh, S. and J. Gray (1985), "Wagner's Law: A Pooled Time-series, Cross-section Analysis", *National Tax Journal*, Vol. 38.
- Alesina, Alberto, Reza Baqir and William Easterly (1998), *Public Goods and Ethnic Divisions*, Working Paper, Washington, DC: The World Bank.
- Baimbridge, Mark, Brian Burkitt and Marie Macey (1994), "The Maastricht Treaty: Exacerbating Racism in Europe?", *Ethnic and Racial Studies*, Vol. 17, No. 3, July.
- Bigsten, Arne (1983), *Income Distribution and Development: Theory, Evidence, and Policy*, London: Heinemann.
- Bird, R.M. (1970), *The Growth of Government Spending in Canada*, Toronto: Canadian Tax Foundation.
- Bird, R.M. (1971), "Wagner's law of expanding state activity", *Public Finance*, Vol. 26.
- Brennan, Geoffrey and James M. Buchanan (1980), *The Power to Tax: Analytical Foundations of a Fiscal Constitution*, Cambridge: Cambridge University Press.
- Buchanan, J.M. and R.E. Wagner (1977), *Democracy in Deficit: The Political Legacy of Lord Keynes*, New York: Academic Press.
- Cameron, David R. (1978), "The Expansion of the Public Economy: A Comparative Analysis", *American Political Science Review*, Vol. 72, No. 3, September.
- Cameron, Samuel (1993), "Why is the R squared adjusted reported?", *Journal of Quantitative Economics*, Vol. 9, No. 1, January.
- Collins, Randall (1975), *Conflict Sociology: Toward an Explanatory Science*, New York: Academic Press.
- Crain, M., R. Tollison, B. Goff and D. Carlson (1985), "Legislator Specialization and the Size of Government", *Public Choice*, Vol. 46, No. 3.
- Crystal, David (ed.) (1993), *The Cambridge Factfinder*, Cambridge University Press.
- Driessen, Patrick (1982), "The Race Factor in Social Security", *Review of Black Political Economy*, Vol. 12.
- Easterly, William (2000), *Can Institutions Resolve Ethnic Conflict?*, Policy Research Working Paper, Washington, DC: The World Bank.
- Gemmell, Norman (1993), "Wagner's Law and Musgrave's Hypotheses", in Norman Gemmell (ed.), *The Growth of the Public Sector: Theories and International Evidence*, Aldershot, Hants.: Edward Elgar.
- Goetz, Ch.J. (1977), "Fiscal Illusion in State and Local Finance", in T.E. Borcharding (ed.), *Budgets and Bureaucrats: The Sources of Government Growth*, Durham: Duke University Press.
- Gould, F. (1983), "The Growth of Public Expenditures: Theory and Evidence from Six Advanced Democracies", in Charles Lewis Taylor (ed.), *Why Governments Grow: Measuring Public Sector Size*, Beverly Hills: SAGE Publications.
- Grove, D. John (1993), "Have the Post-Reform Ethnic Gains Eroded? - A Seven-Nation Study", *Ethnic and Racial Studies*, Vol. 16, No. 4, October.
- Gunnemark, Erik and Donald Kenrick (1985), *A Geolinguistic Handbook*, 2nd. ed., Kungälv, Sweden: Goterna

(printer).

Hage, Jerald, Robert Hanneman and Edward T. Gargan (1989), *State Responsiveness and State Activism: An Examination of the Social Forces and State Strategies That Explain the Rise in Social Expenditures in Britain, France, Germany and Italy, 1870-1968*, London: Unwin Hyman.

Harris, Marvin (1964), *Patterns of Race in the Americas*, New York: Walker.

Hauser, Richard and Hephzibah Menuhin Hauser (1972), "Who's to Blame?", in Ben Whitaker (ed.), *The Fourth World: Victims of Group Oppression*, London: Sidgwick & Jackson.

Herber, B.P. (1975), *Modern Public Finance*, third edition, Homewood, Ill.: Richard D. Irwin.

Hewitt, D. (1986), "Fiscal Illusion From Grants and the Level of State and Federal Expenditures", *National Tax Journal*, Vol. 39, No. 4, December.

Hoetink, Harmannus (1973), *Slavery and Race Relations in the Americas: Comparative Notes on Their Nature and Nexus*, New York: Harper & Row.

Hoetink, Harmannus (1975), "Resource Competition, Monopoly, and Socioracial Diversity", in Leo A. Despres (ed.), *Ethnicity and Resource Competition in Plural Societies*, The Hague: Mouton Publishers.

Karras, Georgios (1996), "The Optimal Government Size: Further International Evidence on the Productivity of Government Services", *Economic Inquiry*, Vol. 34, April.

Katzner, Kenneth (1986), *The Languages of the World*, revised ed., London: Routledge and Kegan Paul.

Katzner, Kenneth (1995), *The Languages of the World*, new ed., London: Routledge.

Kuijs, Louis (2000), *The Impact of Ethnic Heterogeneity on the Quantity and Quality of Public Spending*, IMF Working Paper, International Monetary Fund.

Kurian, George Thomas (1990), *Encyclopedia of the First World*, Vol. I and II, New York: Facts On File.

Lane, Jan-Erik and Svante Ersson (1990), *Comparative Political Economy*, London: Pinter Publishers (repr. with revisions 1993).

Lijphart, Arend (1968), *The Politics of Accommodation*, Berkeley and Los Angeles: University of California Press.

Lijphart, Arend (1977), *Democracy in Plural Societies: A Comparative Exploration*, New Haven: Yale University Press.

Lindert, Peter H. (1996), "What Limits Social Spending?", *Explorations in Economic History*, Vol. 33.

Mauzy, Diane (1993), "Malaysia: Malay Political Hegemony and 'Coercive Consociationalism'", in John McGarry and Brendan O'Leary (eds), *The Politics of Ethnic Conflict Regulation: Case Studies of Protracted Ethnic Conflicts*, London: Routledge.

McCarty, Therese A. (1993), "Demographic Diversity and the Size of the Public Sector", *KYKLOS*, Vol. 46.

McCormick, R.E. and R.D. Tollison (1981), *Politicians, Legislation, and the Economy*, The Hague: Martinus Nijhoff.

Meltzer, Allen H. and Scott F. Richard (1981), "A Rational Theory of the Size of Government", *Journal of Political Economy*, Vol. 89, No. 5.

Meltzer, Allen H. and Scott F. Richard (1983), "Tests of a Rational Theory of the Size of Government", *Public*

Choice, Vol. 41.

Minority Rights Group (MRG) (ed.) (1990), *World Directory of Minorities*, Harlow, Essex: Longman.

Monasterio Escudero, Carlos (1988), «Federalismo fiscal e incremento del gasto: El caso de las Comunidades Autónomas», *Papeles de Economía Española*, n.º 37.

Mueller, Dennis C. (1987), "The Growth of Government: A Public Choice Perspective", *IMF Staff Papers*, March.

Mueller, Dennis C. and Peter Murrell (1986), "Interest Groups and the Size of Government", *Public Choice*, Vol. 48.

Musgrave, Richard A. (1969), *Fiscal Systems*, New Haven: Yale University Press.

Nielsson, Gunnar P. (1985), "States and 'Nation-Groups': A Global Taxonomy", in E.A. Tiryakian and R. Rugowski (eds), *New Nationalisms of the Developed West: Toward Explanations*, London: Allen & Unwin.

Oates, Wallace E. (1975), "Automatic Increases in Tax Revenues: The Effect on the Size of the Public Budget", in Wallace E. Oates (ed.), *Financing the New Federalism*, Baltimore: Johns Hopkins University Press.

Oates, Wallace E. (1985a), "Searching for Leviathan: An Empirical Study", *The American Economic Review*, Vol.75, No. 4, September.

Oates, Wallace E. (1985b), "On the Nature and Measurement of Fiscal Illusion: A Survey", Working Paper, 85-13, Department of Economics, University of Maryland.

Oates, Wallace E. (1989), "Searching for Leviathan: A Reply and Some Further Reflections", *American Economic Review*, Vol. 79.

Orzechowski (1977), "Economic Models of Bureaucracy: Survey, Extensions and Evidence", in T. Borcherding (ed.), *Budgets and Bureaucrats: The Sources of Government Growth*, Durham: Duke University Press.

Pampel, Fred C. and John B. Williamson (1989), *Age, Class, Politics, and the Welfare State*, Cambridge and New York: Cambridge University Press (ppb. ed. 1992).

Pauly, M.V. (1967), "Clubs, Commonality, and the Core: An Integration of Game Theory and the Theory of Public Goods", *Economica*, Vol. 35.

Peltzman, S. (1980), "The Growth of Government", *Journal of Law and Economics*, Vol. 23, No. 2.

Rae, Douglas W. and Michael Taylor (1970), *The Analysis of Political Cleavages*, New Haven: Yale University Press.

Rex, John (1970), "The Concept of Race in Sociological Theory", in Sami Zubaida, (ed.), *Race and Racism*, London: Tavistock.

Said, Abdul A. and Luiz R. Simmons (eds) (1976), *Ethnicity in an International Context*, New Brunswick, New Jersey: Transaction Books.

Schermerhorn, R.A. (1970), *Comparative Ethnic Relations: A Framework for Theory and Research*, New York: Random House.

Schmidt, Manfred G. (1983a), "The Welfare State and the Economy in Periods of Economic Crisis: A Comparative Study of Twenty-three OECD Nations", *European Journal of Political Research*, Vol. 11.

Schmidt, Manfred G. (1983b), "The Growth of the Tax State: The Industrial Democracies, 1950-1978", in Charles Lewis Taylor (ed.), *Why Governments Grow: Measuring Public Sector Size*, Beverly Hills: SAGE Publications.

- Semyonov, Moshe and Andrea Tyree (1981), "Community Segregation and the Costs of Ethnic Subordination", *Social Forces*, Vol. 59:3, March.
- Sen, A. (1988), "The Concept of Development", in H. Chenery and T.N. Srinivasan (eds), *Handbook of Development Economics*, Amsterdam: North-Holland.
- Smith, M.G. (1987), "Some Problems with Minority Concepts and a Solution", *Ethnic and Racial Studies*, Vol. 10, No. 4, October.
- Smootha, Sammy (1990), "Minority Status in an Ethnic Democracy: The Status of the Arab Minority in Israel", *Ethnic and Racial Studies*, Vol.13, No. 3.
- Sowell, Thomas (1990), *Preferential Policies: An International Perspective*, New York: William Morrow.
- Steiner, Jürg (1974), *Amicable Agreement versus Majority Rule: Conflict Resolution in Switzerland*, rev. ed., Chapel Hill: University of North Carolina Press.
- Stone, John (1985), *Racial Conflict in Contemporary Society*, London: Fontana/Collins.
- Tilak, Jandhyala B.G. (1992), "From Economic Growth to Human Development: A Commentary on Recent Indexes of Development", *International Journal of Social Economics*, Vol. 19, No. 2.
- Turner, Ralph H. and Lewis M. Killian (1957), *Collective Behavior*, Englewood Cliffs, New Jersey: Prentice-Hall.
- van Amersfoort, J.M.M. (Hans) (1978), "'Minority' as a Sociological Concept", *Ethnic and Racial Studies*, Vol. 1, No. 2, April.
- van Evera, Stephen (1994), "Hypotheses on Nationalism and War", *International Security*, Vol. 18, No. 4, Spring.
- Wagner, Adolf (1883), "The Nature of the Fiscal Economy", repr. in Richard A. Musgrave and Alan T. Peacock (eds) (1983), *Classics in the Theory of Public Finance*, London: Macmillan.
- Wagner, R. (1976), "Revenue Structure, Fiscal Illusion and Budgetary Choice", *Public Choice*.
- Wallis, John J. and Wallace E. Oates (1988), "Does Economic Sclerosis Set in with Age? - An Empirical Study of the Olson Hypothesis", *KYKLOS*, Vol. 41.
- Ward, Michael Don (1978), *The Political Economy of Distribution: Equality versus Inequality*, New York: Elsevier North-Holland.
- Williams, Colin H. (ed.) (1991), *Linguistic Minorities, Society and Territory*, Clevedon: Multilingual Matters.
- Yeoh K.K. (2001a), *Towards an Index of Ethnic Fractionalization*, FEA Working Paper, Kuala Lumpur: Faculty of Economics and Administration, University of Malaya.
- Yeoh K.K. (2001b), *Ethnic Fragmentation and the Size of the Public Sector*, FEA Working Paper, Kuala Lumpur: Faculty of Economics and Administration, University of Malaya.