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MACROECONOMIC CONSEQUENCES OF SIZE: THE EFFECTIVENESS OF GOVERNMENT EXPENDITURES IN SMALLER DEVELOPING NATIONS

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INTRODUCTION

Of the 133 developing countries for which comparable data is available, 78 countries (World Bank, 1986) have populations below five million, while forty nine countries have populations of less than a million. Given the large number of relatively small countries, together with their often poor economic performance in recent years it is not surprising that an increasing amount of attention has been focused on the special problems of these countries (Selwyn, 1975; Sommen, 1980; Jalan, 1982a)[1].

Is the economic structure and resulting growth mechanisms of small nations so different from their larger counterparts that one should as Kuznets (1959):

> devise variants of a theory of economic growth for the many small national units different from those for the few large ones; or can one hope to establish significant general features of modern economic growth by treating countries or different size as comparable an equivalent units.

Should one assume that:

> the alternatives open to small countries are more narrowly circumscribed than those of large countries ... so much theorizing about growth assumes a large closed economy, that it is important to differentiate sharply between the growth process in a large closed economy and in a small open economy, and that the study of development could be enriched if we make a distinction

between large and small underdeveloped economies? (Demas, 1965, pp.39-42)

Interestingly enough, despite the increased academic attention devoted to the plight of smaller third world nations, economists – both theoretical and empirical – have had little to say about how size *per se* may affect the 'nature and causes of the Wealth of Nations' (Lallad Ghosh, 1982). If one looks at the literature, it is necessary to go back to the 1957 International Economic Association Conference as the first and perhaps only attempt to deal exclusively with this issue.

Among the latter studies, that of William Demas on Caribbean economies is the most significant. Demas paid some attention to the development of what he called a 'relevant analytical framework' without which a rational choice in the field of economic policy could not be made. An important point made by Demas was that the economic structure of small states was different from that of large countries, and that new analytical tools and concepts were necessary to consider their economic problems (Jalan, 1982b).

Studies since Demas's original work, particularly those undertaken by Chenery (1960),[2] have helped to enhance our understanding of the structural characteristics of small countries and also the problems that they face in promoting their economic development. There are however some important gaps. The 'relevant analytical framework' to which Demas referred is still lacking, and we do not have a plausible or consistent theory of size as an independent factor in development. In addition several newer, but closely related questions have been raised:

1. Given that *ceteris paribus* smaller economies are more open than their larger counterparts, does the government expenditure/income multiplier tend to be much lower than in the case of larger economies?
2. Given the need for most developing countries to assume more of their security burdens, have small countries been at a disadvantage economically relative to larger states? Put differently, given a common security threat is the burden of defence expenditures relatively greater for smaller nations than for their larger counterparts? (Espindola, 1987)
3. Given increased political independence, do smaller states have the same scope of choice in economic systems available to larger countries? Is socialism a viable economic system in smaller developing countries?[3]

The purpose of this paper is to shed some light on these questions. Specifically, is the economic environment in small economies such that governments in these states are constrained in aiding the development process in a manner unlike that found in larger nations?

Definition of Small Economies

Clearly, before proceeding a number of definitional matters must be resolved or at least addressed:

1. How is a small economy to be differentiated from a larger one?
2. Is smallness best referred to in terms of land, population, market size or levels of development?

Since there is a lack of uniform definition of 'smallness', most analysts have been compelled to use arbitrary cut-off points in terms of population to distinguish small from large countries. The use of different definitions and/or population cut off points[4] has created difficulties in testing the validity of propositions regarding the structure and process of development in these economies. More importantly, because of a lack of comparability due to different definitions of size, the conclusions of different writers on some important questions concerning the economic consequences of size are extremely difficult to interpret, let alone generalize from.

Several approaches have been utilised to overcome these difficulties. Jalan for example utilises (Jalan, 1982b) a simple classification of countries by size based on a composite index of population, area and total GNP (as a proxy for capital stock). His underlying hypothesis is that differences in economic structure and economic performance among developing countries due to the size factor are likely to be due to differences in the resource base of countries.

However, Lloyd and Sundrum (1982) have questioned the validity of combining separate indices of size on the ground that there is no logical basis for assigning weights to different factors. They point out that with few exceptions, small economies chosen on the basis of the combined index are countries with populations of less than five million (as there is a high correlation between population and the other measures of size). They suggest, therefore, that from a statistical point of view, it may be sufficient to classify countries by population alone and that a dividing line of five million population may be reasonable for distinguishing between small and other countries.

In a major conference on small economies alternative definitional approaches were discussed and several conclusions seem to have gained wide acceptance (Jalan, 1982a, p.7).

1. For a systematic examination of the problem and policies in small economies it is necessary to define the concept of smallness in a way which is likely to command general acceptance. In view of the difficulties involved in adopting a sharp and unique definition of small countries, it is also necessary to rely on a rough classificaiton of countries by size. The data provided in the conference papers broadly

supported the use of a working definition of five million population for studying the problems of small countries.

2. Within the group of small economies defined in this manner, there is a need to distinguish between very small or 'micro' states and other small economies. The problems of the micro states with very small populations and other resources were likely to be different and required separate consideration.
3. It was emphasised that generalisations regarding the problems of small economies as a group, should be avoided as far as possible because differences among countries within the group could sometimes be as marked as intra-group differences; and
4. The relative size of countries was likely to affect the development options available to them; however, it should be clearly recognised that in determining otherwise the development efforts, factors other than size were likely to be significant. It was also pointed out that in some regions, the inter-linkages between different countries within the region were so important that problems of individual countries could not be studied without reference to the economy of the whole region.

A cursory examination of the descriptive statistics for both small and large countries does indicate that a number of economic structure and performance variables do tend to vary systematically between both groups. If for argument sake we use five million population as the cut-off point between large and small economies,[5] it appears that:

1. Public consumption is somewhat higher in the small countries (19.3 per cent of GDP vs. 14.7 per cent of GDP for the large countries) and has expanded more over time relative to that in the large countries.
2. Gross Domestic investment as a share of GDP is relatively higher in the small countries, but gross domestic saving is considerably below the levels found in the large countries.
3. As might be expected, exports account for a significantly higher proportion of GDP in small countries (39.6 per cent vs. 21.9 per cent in 1983). However, a not so apparent fact is that, whereas exports have been a nearly constant share of GDP in the larger countries (21.2 per cent and 21.9 per cent for 1960 and 1982 respectively) they increased from 27.9 per cent in 1960 to 39.6 per cent in 1982 for the small country group as a whole.
4. Corresponding to the relatively large gap between savings and investment characterising the small countries is a relatively large inflow of external resources (as depicted here by the resource balance).
5. The large resource gaps characteristic of the small countries manifests itself in correspondingly higher debt burdens (46.6 per cent of GDP in 1982 versus 30.3 per cent for the large countries.
6. As might be imagined, the exports of the smaller countries are highly concentrated in fuels and minerals; whereas the larger countries have a proportionately greater share of manufactures in exports.
7. Overall the small countries grew faster in the 1960s, but slower in the 1970s than their larger counterparts. This is not only the case of over all growth, but perhaps, more importantly for their exports.
8. The relatively large drop in the growth of exports did not produce a corresponding reduction in consumption or investment.
9. The share of total government expenditures in GNP is not only considerably higher for the small countries, but it has been increasing relatively to the expansion taking place in the large countries; and
10. Exports tend to be slightly more concentrated in the small countries.

In short, it is clear that small and large developing countries do tend to differ in a number of significant areas in addition to the commonly mentioned ones of population size and export concentration. The contrasts in economic performance between small and large countries suggests that the size of a country may over time influence a number of economic relationships to produce a fairly homogenous environment in which growth takes place. The net result is the fairly distinctive performance patterns noted above.

An Operational Definition of Size

An important question at this point is whether and to what extent the above differences between large and small nations were simply a function of the definition of size used (above and below five million population) Also, it is fairly clear that in assessing the economic performance of small and large countries, factors in addition to population should enter into the delineation between large and small countries.

To avoid defining size as some arbitrary cut off point in population and/or as an arbitrarily weighted average of population, GNP and area, a factor analysis was performed on a large number of socioeconomic variables – some obviously related to size and others possibly, but not necessarily associated with this characteristic. Based on the discussion of structural/performance differences between large and small countries, twenty nine socioeconomic variables were factor analyzed to determine the composition of a 'size' dimension.

The factor analysis (Table 1) identified five main trends in the data set: (a) Factor 1, a measure of overall socioeconomic development, (b) Factor 2, a measure of trends in foreign trade; (c) Factor 3, a measure of size, with the size dimension weighted largely by the area of the country (in thousands of square kilometers), the population (in millions), and the Gross Domestic Product;

(d) Factor 4, a growth dimension, largely consisting of the growth in GDP, exports and the proportion of GDP allocated to investment, and (e) Factor 5, a dimension related to the external debt burden.

Table 1.
OBLIQUE ROTATED FACTOR PATTERN
(standardized regression coefficients)

Variable	*Factor 1 socio-econ development*	*Factor 2 foreign trade*	*Factor 3 size*	*Factor 4 growth*	*Factor 5 external debt*
life expectancy	97*	-8	-11	7	-3
literacy rate	91*	-31	-8	22	4
% lab force indust	80*	12	9	-18	-12
% women in univ	77*	-4	-11	15	4
% pop in school	74*	14	-2	11	15
% pop w/safe water	73*	23	-3	-13	-2
% pop urban	72*	20	22	-26	10
% pop work age	69*	-38	4	7	-24
pop per physician	-68*	-12	-11	-17	-11
pop per teacher	-68*	-20	-9	-19	-14
% lab force in ag	-88*	-14	-6	17	2
infant mortality	-93*	14	23	-12	10
growth priv cons	-5	88*	8	20	-11
growth imports	-10	76*	16	29	-25
growth exports	9	76*	-36	-10	8
pub exp/pop	26	73*	-2	-34	-15
growth lab force	-21	72*	-11	3	20
growth investment	-5	66*	1	54	-24
terms of trade	1	66*	17	1	-3
priv cons/GDP	-18	-74*	0	-3	-18
area	-10	-1	83*	-1	17
GDP	16	9	79*	6	-8
population	-12	-10	52*	15	-10
growth GDP	2	21	8	80*	13
investment/GDP	16	50	-12	52*	10
growth exports	29	-20	19	46*	1
debt service/GDP	13	12	-8	11	80*
debt service/export	2	-18	39	7	72*
debt/GDP	-13	-3	-29	-1	65*

Source: Computed from World Bank, *World Development Report*, (New York: Oxford University Press), various issues; and Ruth Sivard, *World Military and Social Expenditures* (Washington: World Priorities), various issues.

The country scores (Tables 2 and 3) on Factor 3, the size factor, are computed with a mean of zero-the 'larger' a country the greater its score on this factor. If we take positive scores as indicative of 'large', and negative scores as indicative of 'small', then we obtain a set of structure performance differences somewhat similar to that obtained above for the countries above and below five million:

1. Smaller countries tend to have a lower state of socioeconomic development (Factor 1) poorer trade performance (Factor 2), slower growth (Factor 3) and greater external public debt burdens.
2. While the trade performance of large and small countries was similar to the 1960s, and declined in the 1970s and early 1980s, that of the small countries faired relatively worse.

Table 2.
FACTOR SCORES WITH REGARD TO SIZE (FACTOR 3): SMALLER COUNTRIES

Country	*Factor Score*	*Country*	*Factor Score*
Israel	-0.426	Sierra Leone	-0.053
Greece	-0.159	Panama	-1.130
Honduras	-0.630	Chad	-0.623
Cameroon	-0.334	Uruguay	-0.146
Costa Rica	-1.428	Tanzania	-0.389
Tunisia	-0.245	Uganda	-0.502
Rwanda	-0.529	Ethiopia	-0.315
Guatemala	-0.394	Central African Rep	-0.077
Malawi	-0.300	Bangladesh	-0.045
El Salvador	-0.739	Burma	-0.225
Paraquay	-0.409	Sri Lanka	-0.995
Philippines	-0.187	Jamaica	-1.231
Ecuador	-0.196	Trinidad	-0.888
Thailand	-0.340	Zambia	-0.546
Malaysia	-0.912	Kuwait	-0.279
Dominican Rep	-0.338	Kenya	-0.650
Liberia	-0.610	Jordan	-0.673
Ivory Coast	-0.479		

Source: Derived from Table 1.

3. While the government sector in both small and large countries accounted for a larger proportion of GDP over time, this expanded relatively rapidly in small countries.
4. Smaller countries have distinctly lower savings rates relative to large countries.

Table 3.
FACTOR SCORES WITH REGARD TO SIZE (FACTOR 3): LARGER COUNTRIES

Country	*Factor Score*	*Country* •	*Factor Score*
India	2.577	Algeria	0.822
Nigeria	0.812	Libya	0.139
Indonesia	0.945	Colombia	0.434
Sudan	0.230	Chile	0.069
Bolivia	0.379	Ghana	0.139
Egypt	0.227	Argentina	1.349
Korea	0.117	Peru	0.331
Turkey	0.556	Saudi Arabia	1.064
Spain	1.298	Brazil	4.199
Venezuela	0.385	Mexico	1.674

Source: Derived from Table 1.

To determine whether these patterns were simply a function of the somewhat arbitrary manner in which we have delineated large and small countries, several other groupings were examined (a) small countries were defined as those with a score of –0.35 or less on Factor 3 (with large countries as those scoring greater than –0.35), and (b) small countries as those with a score of 0.35 or less (and large as those countries with a factor score greater than 0.35.

An examination of the means for these new groupings (Table 4), indicates considerable stability in the structural and performance patterns over a fairly wide range of reclassification of marginal countries between small and large groupings.

Table 4.
SMALL AND LARGE COUNTRIES: STRUCTURAL CONTRASTS
(means)

	Factor 3 Score Cut-off					
	–0.35		*0.0*		*0.35*	
	small	*large*	*small*	*large*	*small*	*large*
FACTOR DIMENSIONS						
Factor 1 socio/econ	–0.14	0.09	–0.14	0.25	–0.09	0.29
Factor 2 trade	–0.18	0.11	–0.18	0.32	–0.12	0.38
Factor 3 size	–0.70	0.44	–0.51	0.89	–0.39	1.27
Factor 4 growth	–0.03	0.02	–0.01	0.01	–0.03	0.11
Factor 5 ext debt	0.27	–0.17	0.06	–0.11	0.05	–0.16
EXTERNAL TRADE						
Growth exp 1960-70	9.52	8.43	8.17	9.93	8.96	8.85
Growth exp 1970-82	0.29	1.36	0.67	1.19	0.85	0.97
Growth imp 1960-70	6.67	6.02	6.51	6.03	6.45	6.03
Growth imp 1970-82	2.75	5.45	3.00	6.01	3.20	6.24
Terms trade 1979	101.50	97.61	101.53	94.64	102.00	94.58
Terms trade 1982	90.14	93.14	89.77	96.35	89.54	96.02
GOVERNMENT SECTOR						
Govt con/GDP 1960	12.06	11.75	12.07	11.86	11.87	11.94
Govt con/GDP 1982	18.71	15.42	18.72	16.33	17.02	16.50
Govt debt/GDP 1970	44.05	36.15	44.06	42.75	35.25	47.10
Govt debt/GDP 1982	45.90	33.90	45.90	36.38	39.86	38.01
SAVING RATES						
Average 1970-81	14.54	18.08	15.06	18.41	15.27	18.61
Marginal 1970-81	7.77	15.19	9.55	15.12	10.07	15.30

Source: World Bank, *World Development Report*, (New York: Oxford University Press); and World Bank, *World Tables: The Third Edition*. (Baltimore: Johns Hopkins University Press, 1983).

Finally, to determine which of the structural/performance measures were most closely associated (in a statistical sense) with size, a discriminant analysis was performed on the sample of smallest countries – those with factor scores of –0.35 or less. Out of the original sample of twenty five variables not related directly to size (the variables in Table 1 less population, area and GDP), three showed highly significant differences (Table 5) in means between large and small groups (a) public external debt to GDP in 1982, (b) the average marginal savings rate over the 1970-82 period, and (c) the ratio of public external debt to exports in 1970.

Table 5.
SMALL/LARGE COUNTRY CLASSIFICATIONS: SIZE FACTOR/ECONOMIC ENVIRONMENT
(Factor 3 Score Cut-off = –0.35)

Variable	*F Statistic*	*Wilks' Lambda*
Public External Debt/GDP, 1982	13.47	0.609
Average Marginal Savings Rate, 1970-81	5.90	0.471
Debt Service/Exports, 1970	6.87	0.346

Country	*Classification*		*Probability of*
	Factor 3	*Discriminant*	*Factor 3 Classification*
Israel	small	small	97.15
Greece	large	large	76.64
India	large	large	98.92
Honduras	small	small	92.83
Cameroon	large	small*	43.18*
Nigeria	large	large	79.66
Indonesia	large	large	71.46
Sudan	large	small*	33.60*
Costa Rica	small	small	99.47
Bolivia	large	large	55.90
Egypt	large	large	94.96
Tunisia	large	large	83.40
Korea	large	large	94.81
Rwanda	small	large*	46.85*
Guatemala	small	large*	20.19*
El Salvador	small	small	56.01
Turkey	large	large	89.79
Spain	large	large	72.80
Paraquay	small	large*	9.33*
Venezuela	large	large	63.59
Mexico	large	large	97.44
Brazil	large	large	90.56
Algeria	large	small*	43.52*
Philippines	large	large	72.28

Table 5 (Cont'd).

Country	*Classification*		*Probability of*
	Factor 3	*Discriminant*	*Factor 3 Classification*
Libya	large	large	81.30
Ecuador	large	large	58.92
Colombia	large	large	91.68
Thailand	small	small	61.24
Malaysia	small	small	59.13
Ivory Coast	small	small	95.76
Sierra Leone	large	large	55.65
Panama	small	small	93.28
Chile	large	large	94.64
Chad	small	small	99.09
Uruguay	large	large	97.67
Tanzania	small	small	63.88
Ethiopia	large	large	80.59
CAR	large	small*	23.13*
Ghana	large	large	80.74
Burma	large	large	85.94
Sri Lanka	small	small	54.13
Jamaica	small	small	92.41
Trinidad	small	large*	15.47*
Zambia	small	small	97.01
Peru	large	large	67.31
Saudi Arabia	large	large	88.16
Kuwait	large	large	87.47
Kenya	small	small	71.14

From Factor 3 Classification to Discriminant Analysis Classification

	small	*large*	*Total*
small	13	4	17
large	4	27	48

Using these three variables as discriminating factors on the original grouping of countries (based on factor scores whereby small = –0.35 or less), only eight countries were reclassified – four from small to large and four from large to small (Table 5).

From these results (Tables 4 and 5) we conclude that there are not only significant structural and performance differences between large and small countries, but that these differences hold over a fairly wide range of alternative definitions of large and small. More importantly, and contrary to the current conventional wisdom, the major differences between large and small countries appear to lie not so much in their relative export performance and structure, but instead, centre around differences in rates of savings and external public indebtedness.

A Model of Size and Growth

To summarize our findings thus far:

1. Small and large countries differ with regard to a wide range of indices of economic performance.
2. The critical performance variables differentiating small from large economies do not appear to centre around overall rates of growth (in Table 4 small countries did have consistently lower growth performances, but the difference in means between small and large countries was less for this factor than in the case of socio-economic development, trade, or external debt). Instead, the relatively low saving rates attained by the smaller countries appears to be a critical factor setting them apart from their larger counterparts. Perhaps as a result of their poor saving records, smaller countries have been forced to expand the role of government expenditures and resort to relatively high levels of external financing;
3. If this is in fact the case, small countries may experience increasing difficulties in maintaining growth rates close to that likely to be experienced by larger economies.

To test this last hypothesis a small macroeconomic model was developed. To capture the consequences of size, public sector expeditures and external debt, a growth equation was specified whereby growth in the 1970-82 period (GDPGB) was specified as a function of:

1. The average share of investment in GDP over the 1970-82 period (GDIB):
2. The amount of external capital inflows during the period (as proxied by the accumulated public external debt, (PDB) in 1982.
3. Public sector expenditures (as proxied by the average share of government consumption (PCB) in gross domestic product over the 1970-81 period.

In selecting variables responsible for the volume of public external debt accumulated by 1982, it is reasonable as a first step to assume that country size will have a direct relationship both to the amount of external indebtedness

and the individual country's capacity to service this debt. Clearly, a large country as measured by GNP will *ceteris paribus* have more financial and commercial relations with the rest of the world economy and, therefore, will be more likely to accumulate a larger debt volume than a small country. At the same time, due to the diversity of output and resource base, the debt servicing capacity of a large country is apt to be greater than that of a small country (and, consequently, a larger external debt can be accumulated) In general, we postulate that the larger the LDC economy as measured by its gross domestic product (GDPB) the greater its demand for external indebtedness.

Second, a country's external debt should, in general, be related to its general volume of merchandise imports (MTEB). For LDCs, the volume of merchandise imports often tends to have a direct relationship to the country's GNP, thus providing an additional source of demand for debt. Since in a growing economy a share of imports will have to be financed, a country's indebtedness will be higher as total imports increase.

Third, an economy with improving terms of trade should be able to service a larger amount of foreign debt. As is well known, movements in the terms of trade (TTB) are used by lending institutions as a key indicator of debt service capacity. For practical purposes, it is safe to assume that lenders' willingness to supply debt varies directly with the degree of improvement in the country's terms of trade.

Fourth, international reserve holdings (GIRB) may be another important factor in affecting the volume of a country's external debt. Here the relationship is likely to be more complex. Logically, as a country's reserves increase, its ability to service a growing external debt and, hence, its credit-worthiness should also increase. On the other hand, everything else equal, one might expect that the larger a country's external revenues, the less pressing the need for additional debt to finance imports. Therefore, possession of a large volume of international reserves may result in larger or smaller volumes of external debt.

Finally there is increasing evidence (Looney, 1987; Looney, forthcoming) that large numbers of developing countries have used external borrowing to finance the rapid build up in military expenditures (ME) that took place in the late 1970s and early 1980s.

The next step in the analysis is to isolate the main supply and demand influences on Third World indebtedness by deriving a reduced form equation that is capable of measuring the influence of all independent variables simultaneously. In the specification. Gross National Product (GDPB), was assumed to be the most significant factor affecting the demand for external debt, followed by total imports (METB), and military expenditures (ME).[6]

The main variables assumed to affect the supply of external loans were those reflective of the borrowing country's ability to service debt. Gross International Reserves (GIRB) and the terms of trade (TTB) were assumed to be the indicators most international lenders considered as indicative of a country's borrowing capacity. Notationally:

a) Total debt (PDB) supply = f1 (reserves, terms of trade), and
b) Total debt (PDB) demand = f2 (GDP, imports, military expenditures).
c) Total debt (supply) = total debt (demand). Dividing equations (a) and (b) by the equilibrium level of total debt as specified in equation (c), we obtain equation (d)
d) f1/(total debt) = f2/(total debt). Expressing equation (d) implicitly, we can write
e) x1 (f1/total debt), f2/total debt), $\doteq$ 0, or
f) x2 (total debt, GDP, imports, military expenditures, reserves, terms of trade) = 0, or
g) PDB = f3 [GDPB(+), MTEB(+), ME(+), GIRB(+), TTB(+)] =0

To close the model, equations were also estimated for GDIB, the share of investment in GDP, and PCB, the share of public consumption in GDP – variables also appearing in the growth equation.

Government consumption is assumed to increase with increases in per capita income (GNPPER). Public consumption is also assumed to increase with increased financing (PDPB, the average share of public external debt in GDP, 1970-82) and as military expenditures MEY (the average ratio of military expenditures to GNP, 1970-81) increase (a large proportion of Third World military expenditures are salaries and therefore classified as current expenditures).

The share of investment in GDP is assumed to increase with savings (MS, the average marginal rate of savings, 1970-81), facilitating increased levels of private sector investment, and public external debt, PDPB, facilitating increased levels of public sector investment. Finally, it is assumed that private external capital flows are responsive to the degree of openness (as proxied by EB, the average share of exports in GNP, 1970-81) of the economy.

For completeness and as a basis of comparison, the equations were estimated for our three groups of small/large countries and are presented in the summary table in Appendix A.

Although there are always notable exceptions to any generalizations concerning the development process of lower income countries, several fairly distinct patterns stand out. In general the results presented in Appendix A tend to confirm our hypothesis concerning the increased difficulties facing

smaller countries in their attempt to keep pace with their larger counterparts. In particular:

a) Consistent results were obtained irrespective of marginal inclusions or exclusions of countries form each group – the results do not appear overly sensitive to the definition of small/large. Over a fairly wide range of factor scores on a size factor comprised largely of the population, Gross Domestic Product and area of a large sample of developing countries, the size of the coefficients and statistical significance of key variables remained fairly constant.
b) The overall mechanisms of growth (equations 1, 1a, 1b and 5, 5a and 5b) show several important contrasts between large and small countries. Most importantly, small countries tend to experience negative impacts on growth (GDPGB) as the share of government consumption (PCB) in Gross Domestic Product increases. Larger countries do not appear to experience this problem, at least in the ranges government consumption has risen to in our sample countries. On the other hand the share of investment in GDP (GDIB) has had a very similar impact on growth in both large and small countries (the almost identical size of the coefficients on the GDIB term for both groups of countries). The same general pattern holds for the role of public external debt (PDB) in both groups of countries.
c) In searching for reasons for the ineffectiveness of government consumption to simulate growth in small countries (equations 2, 2a, and 2b and 6a, 6b and 6c) it appears that one potential source of problem lies in the fact that small and large countries differ in the manner in which public consumption has increased in recent years. Small countries tend to have a much greater increases in public consumption stemming from increased defense expenditures (MEY) than do their larger counterparts (the size of the coefficient is nearly twice as large for small countries as for large countries – in addition the level of statistical significance is somewhat higher for MEY in the smaller countries).
d) Large countries tend to increase government consumption more or less in line with increases in their per capita incomes (GNPPER), demonstrating a Wagner type relationship – as economies grow, the state assumes a greater role in providing for security, health, education and the like. The process of public expenditures increasing with per capita income appears to be reflective of countries seeking a balance between public and private sector activities as they mature. In contrast small countries do not appear to have established a pattern whereby public expenditures increase in line with greater per capita incomes. For

these countries, public expenditures do not seem to be complementary to private sector activity, but instead, determined by other factors such as security. As such these expenditures are less likely than in the case of larger countries to increase overall output.

e) Public sector consumption appears to have been financed to a greater extent in large countries through increases in external debt (PDPB)– the coefficient on this term is consistently higher in the larger countries. Financing public consumption through external (as opposed to internal) sources may result in large countries not being forced to divert as large a proportion of resources from private sector activity in order to increase public consumption.

f) External financing (PDPB), however, appears to have played a much greater role in increasing investment (GDIB in equations 3, 3a and 3b, and equations 7, 7a and 7b) in the larger countries– public external debt is barely significant in the small country regressions, while it is quite strong for two of the large country groupings.

g) Investment as a share of GDP (GDIGB) appears to increase as countries become more open (as evidenced by the positive sign on EB, the share of exports in GDP). Smaller countries however appear to be slightly less capable of benefitting from this effect than their larger counterparts. (as evidenced by the slightly lower level of significance of the EB term for smaller countries). Here, however, the large/small country differences are only marginal. In contrast to assertions often made in the literature, smaller countries, having a generally much larger share of exports in GDP, do not appear to be at any particular disadvantages vis-à-vis large countries in channeling resources into investment.

h) The factors leading to increased levels of external debt appear to differ greatly between small and large countries (equations 4, 4a and 4b, and equations 8, 8a and 8b). Small countries do not show any close relationship between the overall level of output and production (as proxied by Gross Domestic Product, GDPB). Their capacity for productive use of external funds, together with their ability to service these commitments, must *ceteris paribus* be less than in the case of the larger countries.

i) In contrast to larger countries, smaller countries have used public external debt to finance a higher level of imports (MTEB) than would have otherwise been the case.

j) Most importantly, however, it appears that a large volume of public external debt in the smaller countries has gone to finance higher levels of

military expenditures (ME). This has not been generally the case in large countries.

k) Large countries have been able to increase their external indebtedness in line with their improved terms of trade (TTB). Small countries have not shown a distinct pattern between terms of trade and their external borrowings.

A consistent pattern appears to be present in the contrasting experience in small and larger countries. In general the smaller countries have used external public borrowing to finance military expenditures. Military expenditures have also been considerably more important in allowing these countries to increase the share of public consumption in GDP (relatively to that of the larger countries). In addition larger countries have been able to channel a greater volume of external funds into investment (relative to their smaller counterparts.

Given the general unproductive nature of military expenditures, these patterns may explain in part why smaller countries have not been able to derive positive on growth from increased levels of public sector consumption – in fact the impact on growth of increased levels of government consumption has been negative.

CONCLUSIONS

At the beginning of the study we asked whether small developing countries differ from their larger counterparts in areas other than size *per se* – GDP, population, area and in addition to the commonly noted factors such as concentration of exports, the large share of exports in GDP and so on. If so what are the possible consequences of these differences? Has 'smallness' manifested itself in a manner tending to produce a different growth mechanism from that experienced by larger economies, and if so what are the implications for security and the possible introduction of alternative economic systems such as socialism?

The answer to the first question appears to be yes. One of the main findings is that small countries tend to have a considerably larger share of GDP accounted for by the public sector. While the over all growth rates of small and large countries has not varied considerably, because the public sector has over expanded in smaller countries, and has tended to have a negative impact on growth, there is some question as to the ability of these countries to sustain rates of growth equal to that of their larger counterparts, especially if their exports do not return to the levels of growth experienced in the 1960s (Table 4).

Put differently, small economies in general have expanded public sector involvement in their economies in a futile attempt to maintain the growth

momentum built up in the 1960s, but jeopardized in the 1970s by poor (for the group as a whole) export performance. Public sector expansion however has left in its wake relatively large external public sector debts.

If socialism is associated with an expanded role of the public sector in economic activity, the results obtained above also throw into question the assertion often made that socialism is a viable economic system in smaller, less developed countries, (Best, 1966; Manley, 1977; Beckford and Witter, 1980).

The results also reveal the problems smaller countries have in providing for their defence. It appears that there may be real economies of scale in the provision of security, with smaller countries faced with a much greater real security burden than their larger counterparts.

The net result of these developments appears to be that the medium term growth prospects for this group of countries as a whole is considerably less favourable than for their larger counterparts.

NOTES

1. Related works include Reid (1974); Frisch (1974); Looney (1979). The classic works in the field are Robinson (1963) and Demas (1965).
2. See also Chenery and Strout (1966).
3. An issue first explored in Morawetz (1980).
4. Kuznets (1963) used a cut off point of ten million as in his view this figure 'provided a rough decision made with an eye to the distribution of nations by size as its exists today and has existed over the last 50-75 years'. Demas (1965) defined small nations as countries that had populations of five million or less and with usable land area of 10 to 20 thousand square miles or less. Chenery and Syrquin (1975) used a cut off point of 15 million.
5. The data used for this comparison is from *World Development* (1984).
6. Here GDPB is the average level of GDP, 1970-82; METB is the average level of imports, 1970-82; and ME the average level of military expenditures 1970-82. Data are from The World Bank: *World Development Report* and *World Tables*, and US Arms Control and Disarmament Agency: *World Military Expenditures and Arms Transfers*, various issues.
7. Cf. the discussion of this and the military expenditure variable MEY in *Whynes* (1979), chapter 2.

APPENDIX A
RESULTS: SMALL COUNTRIES

(two stage least squares estimates – standardized coefficients)

Growth in Gross Domestic Product (GDPGB)

(factor analysis small/large division * * factor score = + 0.35)

(1) GDPDB = 0.62 GDIB + 0.40 PDB – 0.41 PCB
(4.75) (3.19) (–2.96)

r2 = 0.526; F = 11.11; df = 33

(factor analysis small/large division * * factor score = 0.0)

(1a) GDPDB = 0.54 GDIB + 0.37 PDB – 0.56 PCB
(3.18) (2.31) (–3.05)

r2 = 0.382; F = 5.57; df = 30

(factor analysis small/large division * * factor score = – 0.35)

(1b) GDPDB = 0.57 GDIB + 0.42 PDB – 0.52 PCB
(3.07) (1.83) (–2.22)

r2 = 0.427; F = 4.22; df = 20

Share of Public Consumption in GDP (PCB)

(factor analysis small/large division * * factor score = + 0.35)

(2) PCB = 0.14 GNPPER + 0.56 PDPB + 0.46 MEY
(1.13) (5.08) (3.59)

r2 = 0.600; F = 17.54. df = 33

(factor analysis small/large division * * factor score = 0.0)

(2a) PCB = 0.12 GNPPER + 0.53 PDPB + 0.48 MEY
(0.93) (4.58) (3.65)

r2 = 0.669; F = 18.23; df = 30

(factor analysis small/large division * * factor score = – 0.35)

(2b) PCB = 0.10 GNPPER = 0.44 PDPB + 0.52 MEY
(0.48) (2.76) (2.49)

r2 = 0.674; F = 20.72; df = 20

Share of Investment in GDP (GDIB)

(factor analysis small/large division * * factor score = + 0.35)

(3) GDIB = 0.47 MS + 0.28 PDPB + 0.41 EB
(3.77) (2.04) (3.01)

r2 = 0.600; F = 17.54; df = 33

(factor analysis small/large division * * factor score = 0.0)

(3a) GDIB = 0.62 MS + 0.29 PDPB + 0.33 EB
(4.77) (1.91) (2.16)

r2 = 0.723; F = 18.27; df = 30

(factor analysis small/large division * * factor score = – 0.35)

(3b) GDIB = 0.43 MS + 0.18 PDPB + 0.43 EB
(2.32) (0.90) (2.21)

r2 = 0.509; F = 5.88; df = 20

Public External Debt (PDB)

(factor analysis small/large division * * factor score = + 0.35)

(4) PDB = 0.13 GDPB – 0.06 GIRB + 0.31 MTEB + 0.59 ME + 0.34 TTB
(0.87) (–0.52) (1.72) (4.32) (0.47)

r2 = 0.886; F = 43.41; df = 33

(factor analysis small/large division * * factor score = 0.0)

(4a) PDB = 0.17 GDPB – 0.07 GIRB + 0.24 MTEB + 0.64 ME + 0.01 TTB
(0.79) (–0.35) (0.83) (4.39) (0.08)

r2 = 0.824; F = 23.49; df = 30

(factor analysis small/large division * * factor score = – 0.35)

(4b) PDB = 0.36 GDPB – 0.92 GIRB + 0.61 MTEB + 0.96 ME + 0.01 TTB
(1.71) (–4.11) (2.13) (8.18) (0.18)

r2 = 0.957; F = 65.90; df = 20

RESULTS: LARGE COUNTRIES

Growth in Gross Domestic Product (GDPGB)

(factor analysis small/large division * * factor score = + 0.35)

(5) GDPGB = 0.65 GDIB + 0.50 PDB – 0.01 PCB
(3.71) (2.90) (–0.01)

r2 = 0.570; F = 6.62; df = 18

(factor analysis small/large division * * factor score = 0.0)

(5a) GDPGB = 0.58 GDIB + 0.33 PDB – 0.01 PCB
(3.50) (2.07) (–0.05)

r2 = 0.447; F = 5.67; df = 24

(factor analysis small/large division * * factor score = – 0.35)

(5b) GDPGB = 0.68 GDIB + 0.28 PDB – 0.11 PCB
(4.67) (2.027) (–0.80)

r2 = 0.494; F = 9.09; df = 31

Share of Public Consumption in GDP (PCB)

(factor analysis small/large division * * factor score = + 0.35)

(6) PCB + 0.22 GNPPER + 0.80 PDPB + 0.23 MEY
(1.69) (5.31) (2.05)

r2 = 0.801; F = 20.17; df = 18

(factor analysis small/large division * * factor score = 0.0)

(6a) PCB = 0.27 GNPPER + 0.81 PDPB + 0.25 MEY
(2.33) (6.17) (2.11)

r2 = 0.782; F = 25.09; df = 24

(factor analysis small/large division * * factor score = – 0.35)

(6b) PCB = 0.27 GNPPER + 0.75 PDPB + 0.37 MEY
(2.87) (7.55) (4.11)

r2 = 0.801; F = 37.84; df = 31

Share of Investment in GDP (GDIB)

(factor analysis small/large divison * * factor score = + 0.35)

(7) GDIB = 0.39 MS + 0.10 PDPB + 0.78 EB
(2.74) (0.64) (5.83)

r2 = 0.810; F = 21.32; df = 18

(factor analysis small/large division * * factor score = 0.0)

(7a) GDIB = 0.63 MS + 0.47 PDPB + 0.38 EB
(4.60) (3.13) (2.63)

r2 = 0.854; F = 31.26; df = 24

(factor analysis small/large division * * factor score = – 0.35)

(7b) GDIB = 0.52 MS + 0.32 PDPB + 0.52 EB
(4.81) (2.80) (4.79)

r2 = 0.776; F = 32.46; df = 31

Public External Debt (PDB)

(factor analysis small/large division * * factor score = + 0.35)

(8) PDB = 1.49 GDPB – 0.43 GIRB – 0.65 MTEB – 0.05 ME + 0.26 TTB
(4.45) (–1.81) (–1.81) (–0.19) (1.62)

r2 = 0.717; F = 6.61; df = 18

(factor analysis small/large division * * factor score = 0.0)

(8a) PDB = 1.13 GDPB – 0.57 GIRB – 0.37 MTEB + 0.19 ME + 0.29 TTB
(4.31) (–2.80) (–1.30) (0.86) (2.08)

r2 = 0.664; F = 7.52; df = 24

(factor analysis small/large division * * factor score = – 0.35)

(8b) PDB = 1.16 GDPB – 0.56 GIRB – 0.29 MTEB + 0.12 ME + 0.27 TTB
(5.07) (–3.19) (–1.10) (0.59) (2.20)
r2 = 0.666; F = 10.41; df = 31

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