

Reynolds, Lloyd G.

Working Paper

Notes on Raising and Allocating Central Government Revenues

Center Discussion Paper, No. 52

Provided in Cooperation with:

Yale University, Economic Growth Center (EGC)

Suggested Citation: Reynolds, Lloyd G. (1968) : Notes on Raising and Allocating Central Government Revenues, Center Discussion Paper, No. 52, Yale University, Economic Growth Center, New Haven, CT

This Version is available at:

<https://hdl.handle.net/10419/159984>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

ECONOMIC GROWTH CENTER

YALE UNIVERSITY

Box 1987, Yale Station
New Haven, Connecticut

CENTER DISCUSSION PAPER No. 52

NOTES ON RAISING AND ALLOCATING
CENTRAL GOVERNMENT REVENUES

Lloyd G. Reynolds

April 18, 1968

Note: Center Discussion Papers are preliminary materials circulated to stimulate discussion and critical comment. References in publications to Discussion Papers should be cleared with the author to protect the tentative character of these papers.

Notes on Raising and Allocating Central Government Revenues

L. G. Reynolds

These are working notes intended to raise research problems rather than to present new findings. They rest partly on a canvass of the literature, partly on discussions with fiscal and planning officials in a considerable number of LDC's. I am concerned only with central government finance, not with the problems which arise in a few of the larger LDC's with federal systems. I shall touch briefly on the objectives of fiscal policy, the design of public revenues, the facts of revenue-expenditure behavior, problems of the capital account, and mechanisms for revenue allocation.

1. Objectives of fiscal policy

It is sometimes said that the study of economic development is simply an extension of familiar branches of applied economics, such as agricultural economics or international economics, to a new spectrum of economies. There is something to this. But it is at best a half-truth, and public finance provides a good illustration. Anyone reared on the Western public finance literature must re-think his subject substantially to cope with the economic structure and policy priorities of the LDC's.

First, the relative importance of the various fiscal functions is substantially different. Using Musgrave's threefold schema, the distributional and (probably) the stabilization functions are relatively less important in the LDC's than in the MDC's. On the other hand, the incentive functions, the resource enlargement functions, and the allocative functions of the fiscal system are substantially more important. (Musgrave, incidentally, does not distinguish promotion of growth as a separate fiscal objective. It should perhaps be so distinguished for present purposes.)

Plan documents and Finance Ministry officials often seem to be saying that the purpose of the fiscal system is simply to raise revenue. This is a myopic view. Taxes and

expenditures have strong feedback effects on the private sector, as Hymer and Resnick correctly point out. The financing of the public sector is not a separable problem, which can be carved out neatly from the rest of the economy. It is an inextricable part of the larger problem of moving the whole economy forward through time in a desired manner.

The fiscal system should be viewed first and foremost as a regulatory mechanism,¹ a way of paying people for doing (and penalizing them for not doing) things which are in the general economic interest. In each area of taxation, incentive and allocative effects should be in the forefront of attention, revenue yields in the background. Revenue requirements can of course not be ignored. But very often the same revenue yield can be obtained from a variety of tax structures whose allocative effects are quite different, and among which choice can be made on allocative grounds.

One of the striking things about Western public finance is that we still know remarkably little about how different tax structures affect the economic decisions of individuals and business concerns. Fresh investigation of these matters in the LDC's would strengthen the general body of economic knowledge, in addition to its policy usefulness within the LDC's.

The main focus of tax studies should probably be on taxes which bulk large in the fiscal systems of the LDC's. Personal and corporate income taxes will doubtless increase gradually in importance. For the time being, however, the most interesting areas seem to be:

(1) Land taxes and other taxes on agricultural income. The literature here is very thin and practice is highly unsatisfactory;

¹ For a good statement of this view, with some applications to Pakistan, see Stephen R. Lewis, Jr., "Aspects of fiscal policy and resource mobilization in Pakistan," Pakistan Development Review, Summer 1964.

(2) Export and import taxation, including tax-like devices such as marketing schemes and exchange controls. Here again it is clear that past practice has had erratic and even perverse economic results.

(3) Excises and other commodity taxes which are bound to be important at an early stage of politico-economic development, and which even in principle may not be as inferior as has sometimes been supposed.

2. The design of public revenues

Having said that the fiscal system should not be regarded mainly as a way of raising revenues, we now reverse ourselves to consider its revenue aspect. Assume for the moment that government expenditure will rise relative to national income in a growing economy. What problems are involved in devising a fiscal system which will keep revenues in line with expenditures? Such a system, in which revenues also rise faster than national income, we shall term elastic. Conversely, a system whose yield rises less rapidly than national income, is inelastic.¹

One must distinguish ex ante elasticity from ex post elasticity. A fiscal system is elastic ex ante if revenues rise faster than national income with no change in the number of taxes, the definition of the base for each tax, or the rate schedule for each tax. Even if the system is inelastic in this sense, it can be made elastic ex post by adding new taxes, changing tax bases and rate structures, or improving the ratio of taxes collected to taxes due. Most countries do all these things in varying degree. But frequent tinkering with the tax structure has disadvantages. The need for year-to-year patchwork measures can be reduced by comprehensive review and redesign of the tax system so that it will have the desired degree of elasticity ex ante.

¹ Note that these definitions are not unambiguous; for they may relate to government revenue relative to total income in the economy, or to monetized income only. Monetized income presumably rises faster than total income as development proceeds. So a system which is inelastic with respect to monetized income may still be elastic as regards total income.

The ex ante elasticity of a particular tax depends, first on the elasticity of the base on which the tax is assessed and, second, on the rate schedule. A progressive rate schedule can make the yield of a tax elastic even though its base is not. Since the elasticity of particular taxes varies, the elasticity of the entire system depends on the tax mix.

Estimates of ex ante elasticity at a particular time and place require projections of national output and its main components. The income side of the accounts must be developed in enough detail to separate out, for example, agricultural income, profit income, and wage-salary income; and preferably to permit estimates of income distribution by size-classes. Given this, tax base behavior can be projected for each tax; and this, in conjunction with rate schedules, permits a projection of tax yields.

Published estimates of this kind are rare.¹ One may surmise that they would often show revenues to be inelastic ex ante, mainly because most LDC's rely so heavily on commodity taxes, export and import taxes, and primitive forms of land taxation. This presents an obvious problem of fiscal re-design.

As a basis for such re-design, one needs further estimates of the consequences of changing tax base definitions, changing rate structures, adding new taxes, and so on. From this, one can develop a picture of a reformed tax system which would have the degree of elasticity deemed necessary--1.1, or 1.2, or whatever.² One can, in fact, develop a

¹ For one careful study, originally a Yale Ph.D thesis, see Dharam P. Ghai, Taxation for Development: A Case Study of Uganda, Nairobi, East Africa Publishing House, 1966.

² Actual ex post elasticities, achieved partly by trimming and patching are perhaps of the order of 1.3. Williamson found a revenue elasticity of 1.29 relative to GNP. Thorn found an expenditure elasticity of 1.3. These were cross-section studies, however, and covered a wide range of incomes up to and including the United States. Further analysis is clearly necessary to reach any firm conclusions for the LDC's proper.

variety of "tax packages," each of which would show the desired behavior of revenues. Choice among these would depend on the non-revenue considerations emphasized in the preceding section.

3. Revenue-expenditure behavior

There has been a good deal of quantitative analysis of government revenues and expenditures, kicked off by the Lewis-Martin paper a decade ago, and continuing through more recent studies by Hinrichs, Stephen Lewis, Thorn, and others.¹ This is also a favorite topic for analysis in publications of the U.N. regional economic commissions.

There is still much that is unknown, however, and some of the past work appears rather confused. It is common, for example, to make international comparisons of government outlays including transfer payments. Exhaustive expenditures, however, would seem to be the proper measure of public output. Transfer payments, as a percentage of GNP, are much larger in the MDC's than in the LDC's.² Thus shifting to an exhaustive expenditure basis considerably reduces the gap between MDC's and LDC's. If transfer payments are excluded, Thorn finds that, in countries with per capita income above \$1,200, government expenditures average 20.6 percent of GNP. For countries with per capita incomes below \$200, the figure is 14.9 percent. About half of this gap arises from heavier defense expenditures in the high-income countries.

¹ Harley H. Hinrichs, "Determinants of government revenue shares among less developed countries," Economic Journal, September 1965; Stephen R. Lewis, Jr., "Government revenue from foreign trade: an international comparison," Manchester School, January 1963; Richard S. Thorn, "The evolution of public finances during economic development," Manchester School, January 1967; U. Tun Wai, "Taxation problems and policies of under-developed countries," IMF Staff Papers, November 1962; Jeffery G. Williamson, "Public expenditure and revenue: an international comparison," Manchester School, January 1961.

² Thorn finds that transfers to households average 6.7 percent of GNP for countries with per capita income of \$1,200 or more, but only 1.0 percent of GNP for countries with per capita income of \$200 or less.

The commonest kind of study has been cross-section analysis of countries at all levels of income, from Uganda to the United States; and certain standard relations are found. Even after all reasonable corrections, the richer countries raise and spend a higher proportion of GNP than the poor countries, they get a larger proportion of their revenues from direct taxation, and so on. But some of the studies yield rather unexpected results. For example, Hinrich's regression analysis for sixty countries shows a strong relation between tax revenue as a percent of GNP (R/Y) and per capita income (Y/N) for the group as a whole. When the countries are stratified by income-level, however, there is no significant relation between R/Y and Y/N within the group of countries with Y/N of \$300 and below, or within the group with Y/N of \$750 and above. Only in the intermediate group, with Y/N of \$300-\$750, does the relation remain.

For the poorest group of countries, there is a significant relation between R/Y and the openness of the economy, as indicated by M/Y . The apparent lack of a relation with Y/N may mean either that there is no relation, or that the relation is obscured by poor measurements of GNP.

These cross-section results clearly need to be complemented by analyzing the behavior of R/Y in individual LDC's over extended periods of time. As more of the EGC country studies are completed, this sort of comparative analysis will become increasingly feasible.

In addition to analyzing government revenues and expenditures in toto, it would seem profitable to analyze each major category of expenditure separately. Each type of expenditure probably has its own laws of motion. It is plausible to hypothesize an income elasticity of demand for education. But it is not so clear why there should be an elasticity

of demand for defense. Some expenditure categories may reflect officials' preferences¹ rather than citizens' preferences. So it seems desirable to analyze separately the determinants of expenditure on defense, urban services, education, health, and so on. These may turn out to behave rather differently with respect to national income and other variables.²

4. The Capital Account; Government Saving

Here one must distinguish between general government and the public sector, including public enterprises. The economics of public enterprises is a large subject, including such problems as pricing policy, profit calculations and profit targets, investment policy, and sources of investment finance. We leave these issues aside and consider the capital account of general government, public enterprises entering only insofar as they contribute profits or require subsidies.

Government saving out of current revenue is usually expected to be an important source of capital formation in the LDC's. Performance on this front is viewed by aid agencies as an important indicator of "self-help." But the usual measures of saving have a large conventional element. This is so because the definition of current expenditure,

¹ There is a growing body of literature on the economics of the large corporation, which attempts to specify managers' preferences in a way amenable to statistical tests. See, for example, J. E. Williamson, "Managerial discretion and business behavior," American Economic Review, December 1963; R. J. Mosen, Jr. and Anthony Downs, "A theory of large managerial firms," Journal of Political Economy, June 1965. There is also a considerable literature on "planners' preferences" in Soviet-type economies; which may have some relevance to government decision-making in the LDC's.

² See on this point Frederic Pryor's comparison of selected expenditure items in a half-dozen capitalist and socialist countries. He found it necessary to tailor a separate theory for each item; and he found also that a country's economic system was less significant than per capita income and other conventional variables. (British edition: Allen and Unwin, 1968; American edition, Richard D. Irwin, 1968).

which is subtracted from current revenue to get the savings figure, is itself conventional. The conventions may vary considerably from country to country. Moreover, part of what is counted as current expenditure resembles physical capital formation in contributing to higher output in future years (for example, research, part of educational expenditure, part of public health expenditure). Thus it is possible that country A, which has a lower government saving ratio than country B, may actually be spending more in productivity-raising directions.

Waiving this difficulty, it would be useful to examine the behavior of conventionally-defined average and marginal savings rates in a variety of LDC's. The targets in development plans are usually ambitious, often specifying a marginal savings rate well above past average performance. What does such a marginal rate mean? It is not a built-in characteristic of the system, derived from supposedly stable functions, like the marginal propensity to consume, or the marginal revenue yield from a given tax structure. Viewed ex ante, it is an expression of intent. Viewed (more significantly) ex post, it is an indicator of revenue performance and of government's success in resisting demands for current expenditure.

The difficulty of increasing, or even maintaining, the average savings rate is obvious. The army and the police are powerful claimants for any increase in current revenues. Beyond this, government is usually under pressure to raise salaries year by year. Since salaries constitute the bulk of current expenditure, the rate of salary increase is critically important. If the elasticity of the revenue system is near unity, but the rate of salary increase is substantially above the rate of GNP increase, any margin for government saving will be eroded over time.

Houthakker concludes, from a cross-section analysis of 28 countries ranging in income from the U. S. A. to the Republic of the Congo, that the percentage of current revenue saved is about the same at all income levels.¹ More surprisingly, Thorn's cross-section study finds that the percentage of current revenue saved is substantially higher in the low-income countries.² Eliminating transfer payments would reduce the difference but would by no means eliminate it. The two studies appear contradictory, and neither result is what one might have expected a priori. This suggests a need for further study. Specifically, it would be useful to have time-series analyses for as many LDC's as possible, over as long a period as possible.

The analysis should of course go beyond government saving to include other items on the resources side of the capital account: transfers from public enterprises, domestic borrowing, foreign borrowing, money creation. The behavior over time of government capital formation, and of these main sources of finance, would be highly interesting. An even broader undertaking would be to trace the behavior of "development expenditure," whether or not directed toward physical capital formation, and the sources of finance for such expenditure. The concept of development expenditure is fuzzy, however, and its content varies from country to country. So while experimentation in this direction would be useful, one might or might not get significant results.

¹ His relation is $S_{\text{gov}} = 0.107 G$
(0.014)

where G is current revenue per capita and S_{gov} is government saving per capita. H. S. Houthakker, "On some determinants of saving in developed and underdeveloped countries," in E. A. G. Robinson (ed.) Problems in Economic Development (New York: St. Martin's Press, 1965), pp. 212-30.

² For countries with per capita income above \$1,200, current revenue averages 27.3 percent of GNP, and government saving 3 percent of GNP, i. e. government saving is about one-ninth of revenue. For countries with per capita income below \$200, the corresponding figures are 15.9 percent and 3.2 percent, i. e. government saving is one-fifth of revenue.

5. Revenue Allocation: Planning and Budgeting

Much of the development literature implies that, if only enough revenue can be raised, efficient allocation can be taken for granted. Somewhere in the government apparatus there is assumed to be a coordinator, who has enough knowledge to equate cost-benefit ratios at the margin and enough authority to direct expenditures accordingly.

This is of course not an accurate picture even in the relatively well-organized American government. Our annual budget review concentrates on increments to existing programs.¹ Just as old taxes are said to be good taxes, old expenditures are presumed to be warranted. Action on the increments also leaves much to be desired. The good economists in the Bureau of the Budget are not able to accomplish many things which technical analysis suggests should be done.²

Allocation difficulties are even more serious in the LDC's. In most countries, the Minister of Finance is traditionally a powerful figure. He collects revenues, and authorizes release of funds for expenditure. He prepares estimates of future revenue, which presents obvious possibilities of gamesmanship. If there is an organization to review departmental requests, a budget bureau, it is also traditionally located in the Ministry of Finance. Allocations are decided by negotiations between the Minister concerned, the Finance Minister, and on large matters the Prime Minister or President. They are influenced by the aggressiveness and bargaining positions of individual ministers, and also by the strength of their technical staffs. There may or may not be any serious

¹ It can be argued, of course, that this will yield correct results if done carefully and over a sufficiently long period. If the budget is growing over time, and if increments are correctly managed, totals will come out about right. It can also be argued that, given the limitations of knowledge in the hands of a central decision-maker, simultaneous reconsideration of the whole expenditure pattern is unfeasible, and "incremental decision-making" will yield superior results. This line of thought has been well developed by Lindblom and others.

² For a sophisticated and entertaining analysis of U. S. federal budget making, see Aaron Wildovsky, The Politics of the Budgetary Process (Boston: Little, Brown, 1964).

legislative review. In the Philippines, for example, it is customary for the legislature to approve expenditure proposals far in excess of prospective revenues. Which projects are actually undertaken is then decided within the executive branch.

Planning organizations are relatively new agencies grafted onto this pre-existing framework. The main operational problem of a planning agency is to insert itself into the mainstream of budget decisions, an effort which is likely to be resisted by the Finance Minister and others, and which cannot succeed without top-level support. To the extent that the effort is successful, however, the planning group may be able to improve¹ allocative procedures in several ways:

(1) Urging (and training) the various departments to prepare better project designs and more careful budget justifications.

(2) Requiring departments to project their spending requirements for some years in the future. This is obviously necessary for multi-year capital construction projects, but it is desirable for every kind of expenditure. Capital expenditures normally generate a stream of current operating expenditure for future years, which must be considered in longer-range planning.

(3) Accomplishing a separation between "developmental" and other expenditures. The economic justification for such a division is not too clear, but it can be a useful strategic device. Since development is "good" by definition, listing an item on the development side of the budget probably makes it more likely that funds will be forthcoming. Moreover, since the planning agency is the special guardian of the development budget,

¹ This is a tendentious word, perhaps indicating no more than an economist's bias toward considering it "good" that more economists should be involved in budget making and that economic criteria for allocation should be given greater weight.

increasing the relative size of that budget tends to increase the planners' influence in budget making.

A common arrangement is that the planning organization reviews ~~all~~ development expenditures, while other expenditures are reviewed by a budget agency in the Finance Ministry or elsewhere. This is of course an ambiguous arrangement. To the extent that the Finance Ministry, the Defense Ministry, etc. determine the size of the "regular" budget, they also determine how much is available for development. But while separate authority over the development budget is not a guarantee that development needs will have high priority, it is useful in strengthening the bargaining position of the planning group.

(4) Improving the annual allocation decisions by achieving greater year-to-year consistency, better inter-departmental coordination of projects (for example, on a regional basis), and by relating specific expenditure items to general development strategy.

(5) Installing systematic follow-up on project execution rates, and on deviations of actual from budgeted expenditures. Knowing what happened last year is obviously helpful in budgeting for next year, but this simple requirement is often neglected in practice.

This is a proper, indeed a necessary, area of research for economists. To paraphrase a famous saying, "Government is too important to be left to students of government." Different budgetary procedures have different allocative results, and can make a substantial difference to the current efficiency and future growth rate of the economy. Specialists in public administration tend, I think, to regard governmental organization as almost an end in itself, a self-contained object of study. To the economist, organization

is instrumental, and the interesting question is how well it serves efficiency goals which we can define with some precision. It would be useful to have country-by-country studies, not of budgeting machinery per se, but of the allocations which come out of the budget procedure, and of the apparent relation between procedure and results. Only economists, so far as I can see, are likely to do sophisticated work of this sort.