

## **Instability of Federal Government Revenues and Expenditures in Pakistan**

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### **INTRODUCTION**

As in many other countries, in Pakistan too, the government provides a number of social goods and services. For this purpose, the government has to spend huge amounts of money every year. Federal government expenditures in real terms have grown at an annual average rate of 8.84 percent during the past fifteen years. Also, the share of the federal government expenditures in GNP has increased from 20.93 percent in 1971-72 to 25.19 percent in 1985-86. The main component of the federal government expenditures is of the recurrent type and is devoted to defence, civil administration, debt servicing, health, education, roads, and other such services. At present, the level of social goods and services provided by the government is not considered satisfactory. Moreover, public demand for them is on the increase due to an increasing population growth rate and rising standards of living in the country.

The government needs resources to meet the public demands for its goods and services and to fulfill the development requirements of the country. For this purpose, the government generates revenue through various taxes and tapping other revenue sources. It is important that these taxes and other revenue sources yield a stable revenue over time. If there are large year to year fluctuations in revenue, it becomes very difficult for the government to meet its inflexible obligations and to implement development plans. Stability of revenues, therefore, becomes very important for fiscal management and development planning.

The objective of this study is to provide empirical estimates reflecting the level of instability of federal government revenues and expenditures. There are a number of studies [Idachaba (1975); Lim (1983); Schroeder and Dallon (1986); White (1983); Williams and Anderson (1973)], for countries other than Pakistan in which instability of government revenues and expenditures has been estimated. In Pakistan, this

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issue has not yet received any attention. The focus of studies on Pakistan [Chaudhry (1962); Gillani (1986); Azad (1978); Khan (1973)] has been on another important aspect i.e., the estimation of buoyancy and elasticity of different taxes with respect to national income. These studies, no doubt, provide useful information on the relationship between tax revenues and national income. However, they do not cover the aspect of stability of the government revenue for different sources over time. An attempt will be made in this study to fill this gap.

### MEASURES OF INSTABILITY

While defining instability, it is important to keep in mind the purpose it has to serve. As stated earlier, federal government expenditures on major items exhibit a steady upward trend. To meet these growing expenditures, the government revenues must also grow. A revenue source which grows smoothly over time, therefore, can be considered as stable. In the empirical literature on the instability of government revenues and expenditures [Idachaba (1975); Lim (1983); White (1983); Williams and Anderson (1973)], two alternative indices of instability have been employed to measure the level of instability. Both the measures are based on the notion that yield from a stable revenue source must grow over time and follow a systematic path. The revenue from a perfectly stable revenue source in one case must increase each year by the same constant amount, while in the other case, the revenue must grow each year at a constant rate. The instability indices I and Z in this study are based on these concepts respectively.

To estimate the instability index I, a linear regression of the concerned revenue or expenditure on time will be performed. The standard error of the estimate of the linear trend equation divided by the average value of the dependent variable over the relevant period gives the estimated value of the index I. The index I is similar to the familiar descriptive statistic of dispersion known as coefficient of variation. If the revenue grows each year by the same constant amount, then all its values will lie on the estimated trend line and the index I will assume a zero value. Any deviations of the actual revenue from the estimated line will produce a positive value for I. Thus larger deviations will yield larger values of I.

The instability index Z is estimated after regressing the log of the relevant variable on time. The index Z is defined as the standard error of the estimate of the regression. If the revenue grows each year at a constant rate, then all the values of the revenue will be on the same growth path and the value of Z will be zero. Any deviation from the estimated growth path will yield a positive value of the index.

In our study, we use both the instability indices to evaluate the performance of the various types of the federal government revenues and expenditures.

## INSTABILITY OF GOVERNMENT REVENUES

Before discussing the instability results, it will be useful to have a brief look at the revenue structure of the federal government. The revenue of the federal government consists of tax and non-tax revenues. Although there have been fluctuations in the relative shares of tax revenue and non-tax revenue over time, but taxes have always been a major source of government revenue. The share of non-tax revenue in total revenue was 24.92 percent in 1959-60 which declined to 19.04 percent in 1979-80 and then again rose to 28.09 percent in 1985-86. 'The major sources of non-tax revenues are profits of commercial departments of the government (like post offices, telephones and telegraphs, railways, road transport), interest on loans advanced by the government and fees (Pakistan Economic Survey 1986, p. 35).

Taxes can be divided into two major categories: direct and indirect. Indirect taxes not only dominate in total tax revenue, but their relative share has also increased over time. In 1959-60, the relative share of indirect taxes was 75.16 percent which rose to 85.34 percent in 1985-86. The main components of direct taxes are income and corporate taxes. On the indirect taxes side, the major subcategories include custom duties, excise duties, sales taxes and 'other indirect taxes'. Their relative shares in total tax revenue in 1985-86 were 40.94 percent, 23.30 percent, 7.47 percent, and 13.63 percent respectively. The subcategory of 'other indirect taxes' consists of different types of surcharges and its relative share has increased significantly during the recent years.

The instability indices  $I$  and  $Z$  have been estimated for total federal government revenue and its various subcategories. The time period chosen for the analysis is divided into two sub-periods: from 1959-60 to 1970-71 and from 1971-72 to 1985-86. These two periods correspond to pre- and post-separation of East Pakistan. The data for period 1959-60 to 1970-71, however, pertains to the then West Pakistan only. The separation of East Pakistan had a serious impact on the economy of the remaining part of the country. Therefore, we decided to conduct our analysis for the two periods separately. In this way, we can also examine the changes that have taken place over the two periods. The data for the 1959-60 to 1970-71 period are taken from Fatima (1983) and for the 1971-72 to 1985-86 period, they are taken from the annual budget statements and Pakistan Economic Survey. The data on all variables are in nominal terms.

To estimate the instability indices  $I$  and  $Z$ , linear and semi-log linear regressions of the concerned variables on time were performed respectively. In most cases, the regression coefficients were statistically highly significant and  $R^2$  were also quite high. The computed values of  $I$  and  $Z$  have been multiplied by 100 and hence reported as percentages in Table 1. The various revenue sources have been ranked according to their level of instability. The most unstable revenue source is assigned rank 1,

the next most unstable rank 2 and so on. First, we look at the result for the period from 1959-60 to 1970-71. If we compare tax and non-tax revenues, the tax revenue turns out to be relatively more stable according to both I and Z indices. The result is not surprising because non-tax revenue mainly consists of profits of commercial departments of the government and year to year large fluctuations in them are quite likely. When tax revenue is divided between revenues from direct and indirect taxes, we find that both the indices I and Z rank total direct taxes more unstable than total indirect taxes. A very high proportion of tax revenue comes from indirect taxes and the fact that these taxes as a whole are more stable than direct taxes gives a feeling of relief. Different subgroups of direct and indirect taxes are analysed next. Direct taxes have two main subcategories: income and corporate taxes, and 'other direct taxes'. The share of 'other direct taxes' in total direct taxes is very small but revenue from them is much more unstable than that from the income and corporate taxes. Indirect taxes are subdivided into custom duties, excise duties, sales taxes and 'other indirect taxes'. According to both the instability indices, the category of 'other indirect taxes' is most unstable and excise duties are the least unstable. Custom duties follow excise duties in terms of their stability ranking. Sales taxes turn out to be relatively unstable and they are ranked as the most unstable after the 'other indirect taxes'. The estimated values of I and Z for the total revenue (not reported in Table 1) are 9.07 and 5.43 respectively. These values are lower than their corresponding values of many subcategories of total revenue. This is due to the offsetting or compensating fluctuations in revenue from different subcategories.

The results for the 1971-72 – 1985-86 period are also given in Table 1. According to the index I, tax revenue is more stable than non-tax revenue but this conclusion is completely reversed when the index Z is considered. During the period under analysis, especially in the latter years, non-tax revenue grew quite fast and its relative share in total revenue increased significantly. Consequently, the index Z has characterized non-tax revenue as more stable than tax revenue. The instability ranking of subcategories of tax revenue remains the same as in the previous period except in the case of indirect taxes where customs duties and sales taxes have swapped their positions with each other. The values of the instability indices I and Z for total revenue are 18.09 and 8.46 respectively.

A comparison of the results of the two periods yields some interesting findings. The instability of total revenue has increased over time according to both the indices. Total indirect taxes were more unstable than total direct taxes in both the periods. However, the level of instability of total indirect taxes has decreased and that of total direct taxes increased over time. In both the periods 'other direct taxes' were more unstable than income and corporate taxes. In different subcategories of indirect taxes, excise duties were most stable and 'other indirect taxes' least stable.

Table 1  
*Estimates of Instability Indices for Different Federal Revenues*

Type of Revenue	Period: 1959-60 to 1970-71				Period: 1971-72 to 1985-86			
	Value of Instability Index		Instability Ranking (1 for Most Unstable)		Value of Instability Index		Instability Ranking (1 for Most Unstable)	
	I	Z	I	Z	I	Z	I	Z
Tax Revenues	8.35	6.31	2	2	14.62	9.97	2	1
Non-tax Revenue	23.53	24.33	1	1	31.95	7.37	1	2
Total Direct Taxes	26.53	25.32	1	1	18.87	19.16	1	1
Total Indirect Taxes	9.70	5.40	2	2	15.87	11.06	2	2
Direct Taxes								
Income and Corporate Taxes	26.88	25.19	2	2	19.01	19.69	2	2
Other Direct Taxes	63.29	86.21	1	1	22.37	20.37	1	1
Indirect Taxes								
Custom Duties	22.42	12.89	3	3	14.68	20.58	2	2
Excise Duties	18.12	10.03	4	4	11.30	12.25	4	4
Sales Taxes	33.00	40.16	2	2	14.06	14.16	3	3
Other Indirect Taxes	45.45	105.26	1	1	73.52	35.09	1	1

## INSTABILITY OF GOVERNMENT EXPENDITURES

The expenditures of the federal government have grown over the years in response to growing demand by the public for its social goods and services. In this study, we restrict our analysis only to total federal government expenditures and its two main sub-groups: development and non-development expenditures. The availability of the data makes it possible to carry out the analysis only for the period from 1971-72 to 1985-86.

The estimated values of the instability indices I and Z for the government expenditures are given in Table 2. As expected, the development expenditures turn out to be much more unstable than the non-development expenditures. The values of both the instability indices for the development expenditures are more than four times the values of the indices for the non-development expenditures. Most of the non-development expenditures are of recurrent nature and there is not much possibility of large fluctuations in them. Development expenditures, however, depend on the availability of funds, both from internal and external sources and there is no guarantee of smooth flow of such funds.

Table 2

*Estimates of Instability Indices for Federal Government  
Expenditures for the 1971-72 to 1985-86 Period*

Nature of Expenditures	Instability Index I	Instability Index Z
Total Expenditure	17.80	11.73
Non-development Expenditures	27.78	8.95
Development Expenditures	114.13	34.29

### COMPARISON OF INSTABILITY OF FEDERAL GOVERNMENT TOTAL REVENUES AND EXPENDITURES

In case, the government has to depend entirely on its revenue to incur expenditures, then instability in revenue will lead to instability in expenditures. However, the government can borrow from within and outside the country to finance its expenditures. Therefore, it is not necessary that instability in revenue will lead to instability in expenditures. It is quite possible, on the other hand, that the expenditures may exhibit greater instability than the revenue in case, there are large fluctuations in the borrowings from internal and external sources. The result for the

instability in the total government revenues and expenditures for the period from 1971-72 to 1985-86 are presented in Table 3. According to the instability index I, the level of the instability of both the revenues and the expenditures is more or less the same. But the results based on the instability index Z show that the expenditures are more unstable than the revenues. Instability in the total expenditures is largely due to instability in the development expenditures.

Table 3

*Estimates of Instability Indices for Federal Government Total Revenue and Expenditures for the 1971-72 to 1985-86 Period*

	Instability Index I	Instability Index Z
Total Revenue	18.09	8.46
Total Expenditures	17.80	11.73

### SUMMARY AND CONCLUSIONS

In this study, we have tried to estimate the level of instability of the federal government revenues, expenditures and their subcategories. Two alternative measures of instability, I and Z, have been used for this purpose. For a perfectly stable revenue source, the index I requires that revenue from the source must increase each year by exactly the same amount and the index Z requires that it must grow each year at a constant rate.

The instability of the revenues have been estimated for two periods, i.e., 1959-60 to 1970-71 and 1971-72 to 1985-86. The results show that the level of instability of total revenues has increased over time according to both the instability indices. For the period from 1959-60 to 1970-71, the two instability indices describe non-tax revenue much more unstable than tax revenue. However, for the latter period the two indices yield conflicting results. Total direct taxes were more unstable than total indirect taxes in both the periods. However, the level of instability of total direct taxes decreased and that of total indirect taxes increased over time. In both the periods 'other direct taxes' were more unstable than income and corporate taxes, and in different subcategories of indirect taxes, excise duties were most stable and other 'other indirect taxes' least stable.

On the expenditure side, the analysis was carried out only for the 1971-72 to 1985-86 period due to data constraints. Predictably, the development expenditures turn out to be much more unstable than non-development expenditures.

When the instability level of total government revenues and expenditures are compared, the level of instability of the two is not much different from each other according to the instability index I, while expenditures are more unstable than the revenues when the index Z is used.

The stability of revenue is necessary for smooth fiscal and development planning. However, the fact is that the government revenues are not perfectly stable. Therefore, the government should take into account the level of instability of its different revenue sources when preparing budgets and development plans. In case, this is not done, the government can end up with financial problems which may force it to resort to deficit financing or borrowings from the non-banking sector. All this can have undesirable effects on the economy.

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**Comments on  
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and Expenditures in Pakistan”**

This is an interesting topic. However, the paper fails to do full justice to it. My comments relate to (a) conceptualization of the problem; (b) specification of the estimating method, (c) interpretation of results; and (d) possible directions for further work.

- (a) The paper fails to develop a conceptual framework within which the instability of expenditures and revenues could be analysed. No cause and effect relationship has been developed from which a reduced form could be derived and tested. In the process, the paper has limited the analysis of instability to a mechanical format in which, it is assumed, that instability is a function of time. This methodology is fine for a cross-section analysis and a comparison of countries but is not suitable for an in-depth analysis of a single country. Thus, the paper is not “explanatory”, it is only descriptive of a situation. Surely, important factors such as the structural shifts in the economy and inadequacies in expenditure control and revenue collection lie behind the instability phenomenon. The paper would have benefited from an assessment of these factors.
- (b) The eclectic approach followed by the paper has limited usefulness for understanding the form and causes of instability. In particular, equal treatment of instability in expenditure and revenues is misleading. Surely, factors underlying expenditures instability are different from those underlying revenues. Moreover, it is not clear why and how the two estimators were selected? It would have been far better if, as stated earlier, indicators had been endogenously determined. As they stand, they provide (at least) a spurious correlation between time and instability rather than a functional cause-and-effect relationship. Furthermore, the two indicators used in the paper are presented as equally useful and as complements to each other. In the context, they are expected to reinforce each other. While both have their limitations, clearly the so-called Z indicator is far better than the so-called I indicator for a longer period analysis and would provide a more stable estimate than the I indicator.

- (c) The results derived by the paper are predictable and not surprising. However, it would have been better to abstract from evaluating instability of expenditures which has, in any case, been handled in a rather cursory and casual fashion. This section does not add anything to the paper. Perhaps, it should be dropped and the paper focus only on revenues with greater disaggregated analysis of revenue items. Some of the results derived, have not been adequately pursued. For example, the reduced instability of direct tax revenue during 1971-72 – 1985-86 period has been associated with a reduction in the share of such revenues in total revenue. Is there a causal relationship underlying this phenomenon? A fully conceptualized behavioral hypothesis would have allowed the paper to do so.
- (d) The final test of any paper is its ability to provide directions for change in policy. In this respect, the paper is, at best, ambivalent. The paper concludes that there is greater instability of direct tax revenues. Does this mean that the government should move towards more indirect tax. Surely that could not be the author's intent. The casual empiricism underlying this paper's eclectic approach to such an important subject does not provide guidance to policy-makers.

I would suggest a less grandiose approach. Instability should be evaluated for each revenue item by formulating "explanatory" hypothesis rather than defined upon eclecticism. Instability should then be viewed as a function of variables such as income changes in the structure of the economy, external environments, and exogenous factors such as related government policy changes rather than of time. In this respect, it should be recognized that the stability of, say, excise duty relates to the fact that it applies to capacity to produce while instability in corporate tax relates, at least to some extent, to the overall economic conditions and profitability.

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