CHAPTER IV

EFFICIENCY OF PERSONAL INCOME TAXATION IN NEPAL

1. Concept and Measurement of Efficiency of Taxation :

Introduction :

The role of governments in the developing countries has been extremely varied and expanding since the issues of economic growth and socio-economic equity have acquired central importance. In the initial stages, governments should also play the pivotal role to put the country on the proper track of growth and to gear up the pace of it. In this process, the governments involve themselves not only in the creation of basic infrastructure such as transport, electricity, health, education, irrigation, communication and so on but should also take active part in the productive activities specifically in the production of capital goods such as cement, fertilizer, oil and gas, heavy machineries, iron and steel and so on. The government's role is also equally important on equity grounds because of the already existing inequalities of wealth and income which are likely to be further aggravated by economic development which is likely to throw of opportunities for monopolistic and exploitative gains by those who are already situated in an advantageous position.

One of the paradoxes facing the poor countries is that while the resource needs are great, the revenue potential of these countries is limited. As a result of this there is everwidening expenditure-revenue gap as we have already seen in Chapter I.

Foreign capital has by far an important place in the development finance but it is fruitful only when it is a supplement to domestic efforts, and not when it is treated as a substitute.[1] So the taxation of income which channelises the increments in income generated by economic development into savings is the most important source of development finance both for the direct contribution which it can make. to the revenue and for its indirect effects on incentive and in narrowing the gap between rich and poor.[2]

Taxable Capacity :

While all governments anxious to mobilize as much resources as possible have to raise the ratio of tax to Gross Domestic Product, there are limits to this process. In the process of mobilization of resources, due regard should be paid

---

1. Kaldor, Nicholas, "Will Under-developed Countries Learn to Tax?" Foreign Affairs, Vol.41, No.2, 1963, p.410.

2. Rao, V.K.R.V., in Editor's Introduction in Indian Tax Structure and Economic Development, by G. S. Sahota, Asia Publishing House, Delhi, 1961, p.VI. Hicks, U.K., quoted in "Tax Potential and Economic Growth in the Countries of ECAFE Region", Economic Bulletin for Asia and Far East, Vol.XVII, Bangkok, September, 1966, p.29.

to the tax potential or taxable capacity. Neglect of the taxable capacity can be harmful. This is because excessive taxation or over taxation may prove counter-productive for development for which investment has been sought to be made. Excessive taxation may adversely affect the incentives to work, save and invest. It may even reduce physical efficiency.

But tax potential of a country is a relative magnitude. Nothing can be said with a fair degree of certainty that certain country possesses certain magnitude of tax potential. Economists are not unanimous in this regard. According to Colin Clark 25 per cent of national production is the upper safe limit of taxation.[3] Some are of the opinion that the limit to taxation is not physical but it is psychological and it depends much upon the credibility of the government and the manner of taxation.[4] Kaldor puts it more articulately as - "since tax can be paid only out of the surplus of income over the minimum subsistence needs of the population the level of national income per head is not a good indicator of taxable capacity; a poor country may have high taxation potential if a relatively large part of its resources is nevertheless devoted to unessential or luxury consumption."[5] According to U.N.Study

---

3. Clark, Colin, Welfare and Taxation, Catholic Social Guild, Oxford, p.4.

4. Ojha, P.D. "Taxable Capacity in a Developing Economy", Indian Economic Journal, January, 1955, p.263.

5. Kaldor, Nicholas, op.cit., p.411.

there is no categorical answer to the question where the optimum level of taxation lies.[6] But ECAFE study has made an attempt to measure the tax potential of any country as follows:

$$TP = \frac{GNP - (EC + G + I)}{GNP}$$

where EC = Essential Consumption

G = Government Consumption.

I = Gross Investment

TP = Tax Potential

In other words, it can be stated that tax potential in a country at a given point of time is none other than the non-invested surplus which may be defined as the difference between actual private consumption and essential private consumption. The excess of actual consumption over estimated essential consumption gives the estimated non-invested surplus.[7]

But, such non-invested surplus can be tapped wholly only under the socialist economy where the government has the full control over all the resources. In the non-socialist countries private sector assumes significant importance and incentives are essential to motivate it for savings and investments. So taxation can not be pushed too far for the

---

6. United Nations, Taxes and Fiscal Policy in underdeveloped countries, New York, 1954, p.7.

7. Economic Bulletin for Asia and Far East, op.cit., p.38.

sake of higher public savings in such economies.[8] To this may be added the questionable credibility of the governments in some developing countries and administrative handicaps. So on account of incentives, credibility and administrative efficiency, the tax potential remains restricted.

Here, we are concerned with the case of personal income taxation as an important and potential source of public revenue in Nepal. Nepal is a developing country with a predominantly agricultural economy which contributes about 2/3 to the national income. Non-agricultural sector is in its infancy but it is growing steadily. The government has been involved not only in the creation of economic infra-structure but also in several productive activities as in any developing country. In the process, resource need has been increasing by leaps and bounds but mobilization of resources has been lagging far behind. In the process, indirect taxes have occupied a dominant place so far in the revenue structure there. Among individual direct taxes, income taxation has been contributing the largest share. Revenue from personal income taxation is increasing at higher rate than the corporate tax revenue as we have seen in the preceding chapter. But, since agricultural income which constitutes a lion's share in the national income is exempt from taxation, the base of income taxation has been quite

---

8. Ibid., p.37.

The concept efficiency defined by the author -- "to generate revenue" or "responsiveness to income" is confused with elasticity or buoyancy if you like.

narrow. Also income tax system being relatively new to Nepal, does not seem to be effective enough in tapping whatever tax potential the country possesses. Some of the deficiencies are embedded in the tax law itself and in the administrative procedures. These will receive our attention in the last chapter.

In the meanwhile, this chapter is devoted to understand the efficiency of personal income taxation as it exists to generate revenue in Nepal. In the measurement of the efficiency of tax system, answers to the following questions are relevant :

a. Whether the personal income tax revenue of Nepal has been responsive to the changes in national income or not.

b. If it is responsive, what is the degree of this responsiveness.

In course of finding answers to these questions, other related issues will also be discussed.

Elasticity and Buoyancy as Criteria of Efficiency of Tax Structure :

Economists have generally followed three methods to measure the revenue efficiency of a tax system:

a. Use of regression analysis linking tax revenues with that of national income or its different components as the case may be;

b. Time rate of growth linking the growth of tax revenue with that of national income or its relevant components over a period of time;

c. Simple computation of the percentage that a tax revenue forms of national income for each of the periods studied.[9]

Since the base of the personal income taxation is the incomes of the people, the change in this income is inevitably reflected in the base of the income tax and ultimately in tax revenue. There exists a direct correlation between the revenue of the personal income taxation and national income.[10] It is on these grounds that the efficiency of personal income taxation is judged in terms of its capacity to raise. revenue in accordance with the variation in the national income. If the tax system possesses this capacity, then that tax

---

9. Chakrabarty, B., "The Corporate Income Tax - Its Trend and Elasticity", Indian Economic Journal, Vol.28,No.4, April-June, 1981, p.72.

10. Rao, V.K.R.V., op.cit., p.VII

system can be said to be an efficient tax system.[11]

Out of the three methods of measuring the efficiency of tax system to generate revenue as mentioned above we have followed the second method, that is, linking the growth of tax revenue with that of national income. The reason why we could not use the regression method is the very nature of data as will become clear later on.

---

11. Bretherton, R.F., "The Sensitivity of Taxes to Fluctuations of Trade", Econometrica, 1937; Edleberg,V., "Flexibility of the yield of Taxation: Some Econometric Investigation", Journal of Royal Statistical Society, 1940; Pechman, J.A., yield of Individual Income Tax During Depression, National Bureau of Economic Research, Princeton University Press, 1956; Cohen,L.J., "An Empirical Measurement of the Buitt-in-Flexibility of the Individual Income Tax", American Economic Review, May 1959; Brown, E. Cary and Cruizenga, R.J., "Income Sensitivity of a Simple Personal Income Tax", Review of Economics and Statistics, August, 1959; Sahota, G.S., Indian Tax Structure and Economic Development, Asian Publishing House, New Delhi, 1961; Prest, Allen R., "The Sensitivity of the yield of Personal Income Tax in the United Kingdom", Economic Journal, Vol.LXXII, 1962; Tanzi, Vito, "Measuring the Sensitivity of the Federal Income Tax From Cross Section Data: A New Approach", The Review of Economics and Statistics, Vol.51, May, 1969; Jain, M.M., "Income Elasticity of Indian Tax Structure 1955-56 to 1965-66", Economic and Political Weekly, May 3, 1969; Mansfield, Charles Y., "Elasticity and Buoyancy of a Tax System: A Method Applied to Paraguay," International Monetary Fund, Staff Papers, Vol.XIX, No.2, July 1972; Chelliah, Raja J., "Trends in Taxation in Developing Countries", International Monetary Fund,Staff Papers, Vol.XVIII, No.2, July, 1971; Choudhry, Nurun, N., Measuring the Elasticity of Tax Revenue: A Divisia Index Method", International Monetary Fund, Staff Papers, Vol.26, No1, March 1979; Gupta, Anupam, The Impact of the Personal Income Tax, National Institute of Public Finance and Policy, New Delhi, 1982.

Definition of the Elasticity and Buoyancy :

The revenue responsiveness of the tax system to the change in national income can be looked at from two points of view. First is the elasticity. Second is the buoyancy. The revenue responsiveness in relation to the national income under constant tax structure is known as the elasticity of tax structure and revenue responsiveness resulting from all discretionary changes in tax structure in relation to the national income is termed as the buoyancy.

In other words, revenue elasticity of the tax system refers to automatic response of tax revenue to the change in national income. It assumes particular tax structure to be constant and measures the revenue responsiveness of the tax to the change in national income. To be more precise, elasticity of the tax is a measure of the relative change in tax revenue in response to a relative change in national income, the tax structure being assumed unchanged. This can be expressed as follows:

$$Et = \frac{\Delta t_r^*}{t_r} \Big/ \frac{\Delta Y}{Y}$$

where Et = Elasticity of the tax revenue;

Δt_r^* = Estimated change in tax revenue assuming an unchanged tax structure;

t_r = Tax revenue in the base year;

Y = National income in the base year;

ΔY = Change in national income.

This measurement gives us the idea about whether certain tax structure is responsive to the national income or not. If the tax revenue increases by more than one per cent in response to one per cent increase in the national income and decreases by more than one per cent in response to one per cent decrease in the national income, then such a tax structure is called elastic tax structure. If tax revenue changes by less than one per cent in response to one per cent change in national income, then that tax structure is called inelastic. An elastic tax structure would imply that the proportion of the tax revenue to the national income will go on rising with the increase in income and it will go on decreasing if the tax structure is inelastic. A unit elastic tax structure would keep the fraction of tax revenue to the national income unchanged. It is obvious that from the point of view of resource mobilization, an elastic tax structure is the best.

Since personal income taxation is progressive in nature, revenue from this taxation would be expected to be elastic assuming that the nature of the distribution of income remains the same.

The purpose of measurement of the elasticity, is to be able to suggest the desirability of the changes in the tax structure. As for example, if certain tax structure is highly elastic, then there appears to be no need of change in the

existing tax structure. And if, a certain tax structure is inelastic, changes in the structure of the tax are called for.

Buoyancy of the tax revenue, on the otherhand, refers to the response of tax revenue resulting from all statutory changes effected in the tax structure. In other words, it does not assume the constant tax structure and it deals only with the tax revenue under whatever tax structure it might have been raised. So with the estimation of the buoyancy one can not claim which of the tax structure prevalent during the period is efficient to raise revenue. Here, tax yields are related not only to increases in national income but also to the changes in tax structure. The effect of the two taken together is called the buoyancy of the tax system. The rate of growth of tax revenue is influenced by both the built-in-factors and statutory changes.

Buoyancy is measured as follows:

$$B_t = \frac{\Delta t_r}{t_r} \Big/ \frac{\Delta Y}{Y}$$

where B_t = Buoyancy of the tax system

t_r = Tax revenue (with all changes in tax structure)

Y = National income.

But, from this, one should not, however, infer that one measure is superior to the other. Both of these measures have their own relative merits and demerits. Their relevance largely depends upon the levels of development which the country concerned is passing through. Elasticity gives us the idea of the efficiency of certain tax structure while buoyancy gives us the idea of the over all efforts of the government to mobilize revenue.

In this context it is found that in an early stage of development whatever tax potential a developing country possesses is not tapped as required. The tax system leaves out some of the potential areas of taxation out of its coverage and tax structure itself is not well-formulated. So the existing tax structure itself is not sufficient enough for the mobilization of resources. In such condition even high degree of elasticity of existing tax structure is not enough to exploit to the full the mobilization potential of resources. So, in such a situation the only way to tap the resource potential effectively is to take recourse to changes in the tax structure from time to time. In this regard Sahota's statement is illuminating — "the emergence of a built-in-flexibility in the tax system irrespective of changes in tax rates and tax base, etc., on which main reliance can be put, is to be expected only gradually and in due course....In an underdeveloped....long stagnant economy, there are many untapped

sources of finance. There is a big slack to be taken. As industrialization starts and new tasks are undertaken, new incomes are generated, new aspirations are formed, new needs are felt, new values are developed and new shift in demand takes place, in these circumstances....it is necessary to widen and deepen the tax base, to increase appropriately the rates of old taxes and to levy new imposts....This kind of tax expansion is primarily necessary to start the cumulative forces, while the income elasticity of tax structure is essential to sustain the cumulative forces....However, as the economy grows, less and less reliance will have to be placed on legislative measures and more and more on the built-in-flexibility of tax structure... It is only by ensuring that a large portion of the increments of income is automatically taxed away that we can presume to create those perpetual "cumulative forces" which are so much the burden of the theme of economic development."[12]

But one should not, however, conclude that elasticity in tax structure has no relevance in the developing countries. It simply means that having a high degree of elasticity in tax structure is not enough. These countries should take care of readjustment of the tax structure from time to time

---

12. Sahota, G.S., op.cit., pp.8-9.

so that the tax structure may be able to bring into the tax net the additional tax potential generated by the process of development. Such readjustment and reorganization in tax structure from time to time would further strengthen the degree of elasticity in the tax structure. It would bring the tax structure in line with the prevalent level of economic development. But in this context, care should be that there should not be either too frequent or too infrequent and too drastic changes in the tax structure. Such extremes may affect the harmonious growth of the tax structure and may put it out of tune with the level of development.

The built-in-elasticity in tax structure has, however, some undeniable merits. Since political situation in the developing countries is generally volatile, the attempts at changes in tax structure to raise the tax revenue generally meet with strong resistance from the tax payers. There are quite a few countries where the governments have had to bow down to such resistances. In such a situation where readjustment in taxes are difficult, if the existing tax structure possesses comparatively high degree of built-in-elasticity that is an advantage from the point of resource mobilization.

Another important merit of the built-in-elasticity in tax structure is that revenue increases mainly from those whose incomes have increased as a result of economic growth. But on

the other hand, buoyancy which is the effect of legislative changes also in the tax structure may be putting the tax burden on all types of tax payers regardless of whether some one has benefitted or lost from economic growth.[13] Built-in-elasticity of a tax system is also said to possess merit as an anti-cyclical device but this is an important consideration for advanced economies and need not detain us here. Also idea of Fiscal Drag is some times mentioned in connection with advanced countries. But this too need not detain us here as Nepal being an under-developed country this phenomenon is not important for it.

In sum, it may be stated that in the initial stages of development, statutory changes in tax structure are likely to raise substantial amount of revenue though built-in-elements also may be important. This is because statutory measures may bring hitherto untapped sources of revenue into the tax net while built-in-elements raise revenue only from the existing sources. And as the country attains maturity in development and as most of the sources of revenue may have been already tapped, statutory changes in tax structure may not be able to mobilize any substantial amount of revenue and whatever additional resources are mobilized may be through the built-in-elements alone.

13. Chakrabarty, B., op.cit.,p.78; Choudhry, Nurun, op.cit., p.103; and Economic Bulletin for Asia and Far East, op.cit.,p.41.

Not supported by data. See Table I.1, p. 3.

Nepal also is a growing economy and its economy is taking strides in all spheres. In the process, new tax potentials must have been created on the one hand, and income from the existing sources must have increased on the other. So while the existing sources should be elastic, the newly emerging sources should be effectively tapped through legislative changes in the tax structure. For the purpose, the existing tax structure should be effective enough on the one hand, and statutory changes in tax structure should also be undertaken on the other. Thus the measurement of the elasticity and buoyancy both are useful and necessary for evaluating the efficiency of the income tax system in Nepal.

Factors Influencing the Built-in-Responsiveness of Tax Structure:

Generally personal income tax structure is expected to have a high degree of elasticity because of its progressive rate structure. Under the progressive tax structure, revenue increases at a faster rate than the national income. When income increases tax payers move to high income brackets, attracting thereby higher marginal rates of tax. Thus, tax liability increases more than proportionately to the national income. And at the time of decline in national income, tax liability falls more than proportionately to the national income because tax payers move downward to lower income brackets,

to which lower marginal tax rates apply. However, this symmetrical relationship between national income and tax revenue is not independent. It is based on the following factors:

a. Progressive elements in the tax system.
b. Distribution of the income.
c. Composition of the tax base.[14]
d. Ratio of the tax compliance.

The generalizations made earlier prove true only when the personal income tax structure possesses a fairly high degree of progression, distribution of income among the people of all income strata remains constant over the period, the tax base is fairly wide and deep and there is fairly good degree of tax compliance among the tax payers.

(a) Progressivity and Built-in-Responsiveness :

Degree of progression of the income tax structure depends upon the organization of income slabs and marginal tax rates for these slabs. If the income slabs are wide at all levels of income and less numerous, the progression of the structure tends to be low and if the income slabs are narrow and more numerous, the progression tends to be high, given the marginal rates of tax. If income slabs are wide, bracket-

---

14. Choudhry, Nurun N., op.cit., pp.103-104.

creeping[15] occurs only when incomes of tax payers change either way substantially. So smaller changes in income do not affect the progression. In such cases, the degree of built-in-responsiveness of the system also tends to be generally marginal. Whereas if the slabs are narrower, bracket-creeps take place even with small change in income.

In such cases built-in-elements tend to be generally high. More numerous the brackets, bracket creeping can keep occuring till very high levels of income, imparting a favourable impact on built-in-elasticity. But with less numerous brackets, at high levels of income, the bracket-creeping ceases, thereby freezing the built-in-elasticity.

Composition of marginal rates of tax is the other factor which has an important bearing on the progression of income tax structure. If the difference in the marginal tax rates for each income slab are comparatively small or in other words, if the marginal tax rates take smaller leap with every subsequent income slab, given its width, the degree of progression of such tax structure would not be high. But, conversely, if the leap of marginal tax rates in each subsequent income slab is large, given the width of the incomeslabs the degree of progression and hence the built-in-elements of the tax structure would be high.

---

15. Bracket-creeping refers to Crossing of slabs from lower to higher or from higher to lower levels of income due to change in income.

b. Distribution of Income and Built-in-Elasticity :

Distribution of income has an important bearing in the built-in-elasticity of the personal income tax structure. If the distribution of income is highly uneven and if with income increases the nature of income distribution remains unchanged, the degree of built-in-elasticity with respect to national income is likely to be higher and if the distribution of income is relatively even, and continues to remain so, the degree of built-in-elasticity would tend to be lower, given the nature of the tax structure. This is because under relatively more uneven distribution of income, the change in the income level would cause a bracket-creep on the part of the higher income brackets to a greater extent attracting thereby the higher marginal rates. In other words, the tax liabilities of the people of high income brackets increase at the rate fairly higher than the income.

On the other hand, under the situation of relatively even distribution of income, the same increase in income level would cause a moderate bracket-creep in higher income groups and hence would not attract the higher marginal rates to the same extent. In other words, the tax liabilities of the tax payers in relation to the income would not increase as fast as under the earlier situation.

c. Composition of the Tax Base and the Built-in-Responsiveness :

Composition of the tax base has an important bearing in determining the degree of built-in-responsiveness. Here we have used the term tax base in two different contexts as follows:

i. At micro level, the tax base refers to that income of a personal income tax payer which is left after deducting all permissible deductions and exemption limit from the total income and on which the marginal rates of tax are directly applied. At macro-level also the aggregation of such incomes as mentioned above of each of the personal income tax payer forms the total tax base of the country.

ii. We have also used this term here to indicate the size of the income originating in the non-farm sector of the country. This is because incomes originating in the farm sector are often exempt from income taxation and therefore they do not constitute the tax base for income taxation. In this context, the subtraction of deductions and exemption limits from the total is not taken into account.

Since the non-farm sector constitutes a smaller share in the national income in developing countries such as Nepal, sometimes substantial change in the national income may not at all be reflected in the non-farm sector. Good or bad monsoon may result in considerable changes in national income through the change in income in agricultural sector whereas non-farm sector may remain relatively unaffected. In such a situation, change in national income may have no impact upon the tax base and hence upon the tax revenue. (Here tax base is defined as in ii above). So in such cases built-in-responsiveness of the personal income tax would come out to be very small.

Sometimes it may also happen that income from farm sector may remain constant over the period due to natural factors while the income from the non-farm sector may increase considerably on account of actual growth or inflation. As a result of this, the increase in national income may be marginal because the non-farm sector is too small but tax revenue may increase considerably. In such cases, the built-in-responsiveness of the tax structure may be excessively high.

Sometimes the change in respective figures may even indicate contrasting picture. For example, national income may decline on account of the recurrence of drought or flood

over a period but non-farm sector may perform well. In such cases, the increase in income in non-farm sector may by no means compensate the loss in income in the agricultural sector. As a result, national income may still decline. Here national income may show negative growth rate while non-farm sector, that is, tax base and hence tax revenue may record considerable increase. In such a situation, measurement of the degree of built-in-responsiveness of the tax structure with respect to the total national income may prove to be a futile exercise. Besides this, the level of exemption limits and the size of the various types of deductions granted to the tax payers also have important bearing on the built-in-responsiveness of the income tax structure.

The exemption limit acts as a dividing line between the income on which tax is levied and the income which is exempted from income tax.[16] The level of exemption limit determines the actual size of the tax base of the personal income taxation (tax base defined as in i above). Higher the exemption limit, smaller the tax base. Lower the exemption limit larger the tax base.

Besides the high level of exemption limit, the tax incentives provided to the tax payers by way of granting deductions to certain kinds of savings and investments under the income tax structure also erode the tax base. The commonly

---

16. Gupta, Anupam, op.cit., p.22.

applied forms on such tax incentives for investment are investment allowance, development rebate etc. which are granted for particular types of investments in industries. Investments in certain specified types of equity shares, bonds etc. and tax deduction granted for life insurance premium, contributions to provident fund, post office savings etc. are examples of tax incentives for savings of long term nature. And yet another form of tax incentive is the granting of blanket tax holidays to certain specified types of industries. And it is to be noted that such tax incentives are more commonly applied in the developing countries including Nepal.

In such a situation, the degree of the built-in-responsiveness of the progressive personal income taxation is likely to be low. This is because the actual taxable income of the tax payers would not reach high up to higher marginal rates and hence the effective average rate of tax would also become low. In other words, progression of the tax structure suffers in such situation on account of the fact that the chunk of the share of increased income of the tax payers is made non-taxable due to high exemption limits and varieties of the tax incentive provisions in the tax structure and such increased income is not reflected in tax base.

The tax compliance ratio as a factor affecting the efficiency of tax will be discussed under the sub-heading tax evasion later.

It may be noted that the share of income tax in total tax revenue may decline even though the elasticity of income tax is high. This may happen if the other taxes have even higher elasticity than the elasticity of income tax. If the tax base is narrow even a high elasticity will cause the share of the given tax to remain small in relation to total tax revenue as well as national income. So, how to widen the tax base of the personal income tax in a developing country to mobilize more revenue to finance development constitutes an important problem.

So to make the estimation of the efficiency of personal income taxation by way of elasticity more meaningful, economists have been measuring elasticity of personal income taxation in two parts, namely, first, elasticity of tax yield to tax base,[17] and, second, elasticity of tax base to national income. And the combination of these two elasticities has been taken to mean the elasticity of personal income taxation in relation to national income.[18]

---

17. Here the tax base has been taken to mean the income on which marginal tax rates are applied after deducting the exemption limit.

18. Chakrabarty, B. op.cit., pp.76-77; Mansfield, Charles Z. op.cit., p.426; Choudhry, Nurun N. op.cit.,p.108, and Gupta, Anupam, op.cit.,pp.21-22.

The tax base in relation to national income depends upon four factors as follows:

a. The size of the income originating in the non-farm sector (or sector on which personal income tax is imposed) as a proportion of the national income;

b. Level of exemption limits;

c. Size and number of deductions granted for incentives,

d. Evasion and avoidance of tax.

Among these factors the first three have already been discussed in earlier pages. So, here we discuss only the last factor.

d. Evasion of Tax and Built-in-Responsiveness :

Evaision and avoidance of tax by way of concealing of income and tax planning respectively have severe adverse effects upon the built-in-elements of personal income tax base in relation to national income.[19] The tax base might have

---

19. National Institutes of Public Finance and Policy, Aspects of Block Economy in India, New Delhi, March 1985; Sandesara, J.C., "Report on Black Money", Economic and Political Weekly, August 24, 1985; Sandesara, J.C., "Black Income:Estimate in India and Abroad", The Economic Times, December 18, 1981; Herschel, Federio J., "Tax Evasion and Its Measurement in Developing Countries", Public Finance, Vol.XXXIII, No.3, 1978; Spicer, M.W., "New Approaches to the Problem of Tax Evasion", British Tax Review, No.3, 1975; Chugh, R.L., "Black Money and the Indian Economy", in J.S.Uppal (ed) India's Economic Problems, Tata Mac Grawhill, 1978; Chopra, O.P."Unaccounted Income: Some Estimates", Economic and Political Weekly, April 24, 1982; Sundaram, K., and Pandit V., "On Black Money", Indian Economic Review, October,1976; Gupta, P., and Gupta, S., "Estimates of the unreported Economy in India", Economic and Political Weekly, January 16, 1982;

contd....

increased along with the national income but due to non-reporting or under-reporting of income by tax payers to the tax authorities to evade the tax, the increased income is not fully reflected in the tax base. As a consequence of it, the built-in-responsiveness of the tax base in relation to national income is adversely affected.

The personal income tax is more prone to evasion due to the fact that tax liability increases with the increase in income as a result of progressive rate structure. Evasion of income tax is more rampant in developing countries though it can not be ruled out altogether in developed countries also. This is because income tax is generally new to developing countries and hence the tax payers are not very much used to this tax, formulation of tax structure itself is defective, tax administration is generally inexperienced as well as inefficient, probability of detection of evasion is less, penalty provisions generally are not stringent and involvement of higher ups in tax evasion is not uncommon. The nature of business organization is small scale where proprietors and partnership self-employment predominates. Business book keeping is rudimentary. Many business transactions are cash transactions, rather than cheque transactions which make detection of evasion difficult.

Dasgupts, A.K., "Tax concession as a Remedy for Evasion", Economic and Political Weekly, June 1, 1974; Kumar, Arun, "Sizing up the Black Economy: Some Issues Raised by the NIPFP Methodology", Economic and Political Weekly, August 31, 1985; Maccaleh, Thomas S., "Tax Evasion and the Differential Taxation of Labour and Capital Income", Public Finance, Vol.XXXI, No.2, 1976; Spicer, M.W. and Lundstedt, S.B., "Understanding Tax Evasion", Public Finance, Vol.XXXI, No.2., 1976; Mason, Robert and Calvin, Lyle D., "Public Confidence and Admitted Tax Evasion", National Tax Journal, December, 1984; Kaldor, Nicholas, Indian Tax Reforms: Report of a Survey, Government of India, 1956.

Another important reason behind high magnitude of tax evasion in developing countries is the multitude of deductions granted to the tax payers which complicates the tax administration. In fact this has set in a vicious circle. As the tax base gets eroded due to various tax concessions, the authorities in their anxiety to maintain tax revenue raise the marginal rates very high which further induce evasion. Therefore, increased income is not fully reflected in the tax base and hence built-in-responsiveness is adversly affected.

2. Estimation of the Built-in-Responsiveness of Personal Income Taxation in Nepal :

In this section, we estimate the built-in-responsiveness of the personal income tax structures effective during 1975-76 and 1982-83. The built-in-responsiveness of the tax structure of 1975-76 is estimated assuming this tax structure constant during 1973-74 and 1974-75, that is, we apply the 1975-76 tax structure to 1973-74 and 1974-75 situations. The built-in-responsiveness of 1982-83 is estimated assuming this tax structure constant during 1980-81 and 1981-82, that is, we apply the 1982-83 tax structure to 1980-81 and 1981-82 situations.

First we discuss the built-in-responsiveness and then we discuss buoyancy. The reason why we have to confine our estimates of built-in-responsiveness and buoyancy for two

periods of three year duration each, rather than cover the entire period at a stretch is the non-availability of certain essential data as will be explained shortly.

Methodology :

The assumption of the constant tax structure over the period isolates the change in tax revenue brought about by the changes in national income only and prevents it from being affected by the changes in revenue brought about by the changes in tax structure. If the tax structure remains constant the nominal level of the exemption limit will also remain constant. In this situation, due to a general increase in national income, new tax payers will enter the group of the tax payers. The incomes of these new tax payers will raise the share of the tax payers in the national income.[20]

The problem here is to adjust the tax revenue which would have come in those earlier years under the tax structure of 1975-76 and 1982-83. This adjustment is a difficult process. The economists who have worked in this field have suggested and applied a method which is widely known as the proportional adjustment method to solve this problem.[21]

---

20. Gupta, Anupam, The Impact of the Personal Income Tax, op.cit., p.22.

21. Sahota, G.S., op.cit., p.77; Prest, A.R., op.cit., p.477; Gupta, Anupam, op.cit.,pp.84-85; Chakrabarty,B., op.cit., p.75 and Choudhry, Nurun N.,op.cit., p.495.

This method uses the revenue data given in the budget speech of the Finance Minister. In every government budget speech four sets of revenue data are presented. The first set is the total estimated revenue to be collected in the coming year for which the budget proposals are presented. The second set is the estimated change in the revenue in the coming year that will result from the particular proposal of change in tax structure, if any, for that year. In other words, it means that whenever the Finance Minister proposes some changes in tax structure, through the budget speech, he mostly mentions the figures of estimated change in the revenue that will result from that particular proposal of tax change. Another set of data presented in the budget speech is the revised estimate of the revenue of the current year. Finally, the actual revenue collected in the previous year is also presented.

The proportional adjustment method uses three sets of data out of four given in the budget speech, namely, total estimated revenue for the coming year, estimated change in revenue due to proposed change in tax structure and actual collection of tax of the previous year.

Proportional Method of Adjustment :

The proportional adjustment method assumes that the estimation of the change in revenue made by the Finance Ministry

due to the proposed change in tax structure is nearly correct. But since this is simply the estimated figure there would exist some difference between the actual and estimated figures. So it is further assumed that the actual change in revenue from legislative changes differs from the estimated one by the same proportion by which the actual total revenue from that particular tax differs from the corresponding figure of budget estimate. So, we adjust the estimated change in tax revenue due to proposed change in tax structure by multiplying it by the ratio of the total actual tax revenue to the total estimated tax revenue of that year.[22]

Then according to this method, the adjusted figures of the estimated increase or decrease in the yield due to the change in tax structure is subtracted or added from the figures of the actual total tax collection of that year.[23] But the estimated increase in tax revenue due to administrative reforms and natural increase under the same structure due to growth of population etc. is not taken into account for this purpose on the ground that such changes in revenue have not resulted from the changes in tax structure.

From the available literature, it appears that Prest in the West and Sahota in India first propounded this method and used it in studying the built-in-responsiveness of the tax

---

22. Prest, A.R., op.cit., p.577.

23. Sahota, G.S., op.cit., p.77.

structure in their respective countries. But the method first propounded and used by them is crude. While using the method they assumed that the effect of change in tax structure upon the tax revenue remains only in the year in which the changes were effected and from the following year onwards such changes become part and parcel of the overall tax structure which is a most objectionable assumption.

But this method has been improved upon by Raja J. Chelliah and Sheetal K. Chand in 1974,[24] though they have not questioned the basic features underlying this model. Before further discussing the improved version of this model, it seems worthwhile to mention one differences between Sahota and Prest. According to Sahota the estimated change in tax revenue due to change in tax structure is directly substracted from or added to the actual total tax collection of that year without any adjustment. Prest however does so only after multiplying this estimated change in tax revenue due to change in tax structure by the ratio of the total actual tax collection to total estimated tax revenue. Prest's method seems one step superior to Sahota's method ipso facto.

---

24. Vide - Raja J. Chelliah and Sheetal K. Chand, Notes on Techniques of Adjusted Tax Series for Discretionary Changes, International Monetary Fund, Fiscal Affairs Department, Working Paper No.74/1, August 14, 1974.

But both of them have made the similar assumptions in other aspect of this method, namely, the adjustments for changes in the structure are made for only one year.

Now, what Chelliah and Chand have done is that they have formulated such a model which eliminates the effects of the change in tax structure undertaken in one particular year upon the revenue of all earlier years understudy as against the Sahota/Prest model.

Chelliah/Chand model can be expressed as follows:

$$T'_n = T'_n$$

$$T'_{n-1} = T_{n-1}\left(1 + \frac{dn}{Tn-dn}\right)$$

$$T'_{n-2} = T_{n-2}\left(1 + \frac{dn-1}{Tn-1 \pm dn-1}\right)\left(1 + \frac{dn}{Tn-dn}\right)$$

$$T'_1 = T_1\left(1 + \frac{d_2}{T_2 \pm d_2}\right) \ldots\ldots \left(1 + \frac{dn}{Tn \pm dn}\right)$$

Where

T'_n = Adjusted revenue of n^{th} year.

Tn = Actual tax collection of n^{th} year.

dn = Adjusted estimated revenue due to change in tax structure in n^{th} year.

n-1 = lagged one year.

n-2 = lagged two years.

Why first two methods changes.
or See my dummy method also.

Availability of Data :

We have to estimate the built-in-responsiveness of the personal income taxation in two parts, namely, first, that of tax revenue in relation to tax base, and, second, tax base in relation to national income. Here tax base is taken as definition $\overline{1}$ mentioned earlier. We therefore require three sets of data, namely, first, adjusted series of actual tax collection, second, adjusted series of tax base, and third, figures of Gross Domestic Product. In this connection, it may be mentioned that the types of data which are easily available for such purposes in case of many countries with long experience of income tax collection, simply do not exist for Nepal in either published or unpublished form. In fact an entire set of data on the assessed income had to be labouriously copied and built-up from the ledgers from hundreds of entries. It was impossible for an individual research worker with constraints of time and resources to build up estimates of assessed income for the entire period. It was therefore decided to build up estimates for two periods of three year duration each namely 1973-74 to 1975-76 and 1980-81 to 1982-83. Years 1975-76 and 1982-83 happen to be important in terms of the income tax structure that came into existence.

Adjustment of Data

We need data of the actual collection of the personal income tax revenue separately for each of the years mentioned

above. But such separate data is available in the budget speeches only since 1977-78. Prior to that, revenue from the personal income taxation was not shown separately. It used to be presented mixing with the revenue of corporate taxation. So the actual total personal income tax collection during the period from 1973-74 to 1975-76 had to be isolated from the combined total of personal income tax and corporation tax revenue. This has been done by applying the weighted average of the distribution of the total tax collection among the personal income tax payers, salary earners and corporate sector of the latter six years, that is, from 1977-78 to 1982-83 to the total figures of the same for the earlier three years, that is, from 1973-74 to 1975-76.

The distribution of the total estimated tax revenue among these three tax paying groups has also been done on the basis of the same procedure. But, this procedure has not been used in the case of the estimated change is tax revenue due to change in tax structure. This is because such estimated changes in tax revenue due to change in corporate taxation have been given only for last two years, that is, 1981-82 and 1982-83. For the earlier years no such changes in tax revenue have been estimated for corporate sector. Also such estimated changes in tax revenue due to change in over all tax structure have been given only for two years, that is, 1973-74 and 1975-76. We have assumed that those

figures of estimated changes in tax revenue due to changes in tax structure for those earlier two years are of only personal income taxation. This is justified because corporations were insignificant in tax revenue in Nepal at that time. Another point to be clarified in this regard is that the estimated change in tax revenue due to change in personal income tax structure has not been given separately for 1981-82. It has rather been given as a combined effect of both new tax proposal and the normal growth and administrative reforms. So, we have assumed that half of this estimated change in tax revenue is due to the change in tax structure and half of it is due to administrative reforms.

Now, here the question arises as to why the salary earners have been treated separately since they also constitute the part of the personal income tax payers. We are forced to treat the salary earners separately on the ground that the separate treatment of the salary income might provide more accuracy in the distribution of the total figures of the revenue among these tax paying groups in earlier years. And since the revenue figures of these groups have been given separately since 1977-78 onwards we could use them for this purpose.

After separating these two sets of revenue data namely, actual collection and budget estimate, for three different tax

paying groups for the earlier three years in the above mentioned manner, we have excluded the share of the corporate sector and the salary income for all years of both the periods.

The reason for the exclusion of the salary income from the personal income taxation for the purpose of the estimation of its built-in-responsiveness is the total absence of the data regarding the tax base of the salary income in Nepal. The data on revenue from this source is available separately since 1977-78 but no data on the income from which the revenue has been extracted (assessed salary income) has been maintained not only at the central level but also at the level of field offices. As a matter of fact, this income has been utterly neglected for tax purposes in Nepal.

The figures of the assessed income and the tax demand there on of other sources of the income have been maintained in the ledgers in the Department of Taxation but those figures do not include the salary income. The responsible persons in the Department as well as in the field tax offices made known to us that salary income has been left unrecorded on the ground that there might be very few employees in Nepal who are having taxable salary due to low scale of salary on the one hand, and the higher exemption limits on the other.

However, we made an attempt to derive the tax base of the salary income by multiplying the number of employees in

the different grades by the respective salary scales for different years on the basis of the numbers of the employees supplied to us by the Ministry of General Administration and the scales of salary obtained from the Pay Commission Report. However this exercise produced the ridiculous result of the tax base coming out to be far less than the actual tax collection from this source.

The reason behind this was that the number of the employees supplied by the above mentioned Ministry was only of the government's civil servants. These numbers did not include even the police force and army let alone that of the persons employed in large number of public corporations and private sector and the university, college and school teachers. So the number of the employees available to us was only a small part of the total number of the employees in the country. And even if we make a broad assumption with respect to the number of the total employees in the country, the problem was with respect to the grades of the posts and their respective salary scales which are different from institution to institution. So, we found no way of computing the tax base of the salary income. Hence, we were forced to exclude salary income from the personal income taxation for the purpose of the estimation of built-in-responsiveness.

And since tax revenue from this source constitutes in average only around 5 per cent of the total income-tax collection in Nepal, the exclusion of this income might not affect the result.

Adjusted Series of Tax Collection :

In this way, we have derived the unadjusted series of actual tax collection, total estimated tax revenue and estimated change in tax revenue due to change in personal income tax structure excluding salary income for the two periods mentioned earlier. Finally we have adjusted the series of actual tax collection for each year of both the periods by applying the proportional adjustment method propounded by Sahota and Prest as improved upon by Chelliah and Chand, as mentioned earlier. The results are presented in Table IV.1.

Here the unadjusted series of the actual tax collection requires an explanation. The figures presented as actual tax collection in the budget speeches are not all of them necessarily the figures of the tax collection to have been collected only from the demand of the corresponding years. These figures may also include the tax collection from the demands of the earlier years. Tax arrears of the earlier years, cases pending in the Revenue Tribunals and the Courts that might have been finalised and recovered during some

TABLE IV.1

Adjusted Series of Personal Income Tax Collection

(1973-74 to 1975-76 and 1980-81 to 1982-83)

(Excluding Salary Income) Rs.in Thousand

Year	Total Estimated Tax Revenue	Estimated Change in Tax Revenue Due to Change in Tax Structure	Total Actual Tax Collection	Adjusted Estimated Change in Tax Revenue Due to Change in Tax Structure	Adjusted Series of Actual Tax Collection
1	2	3	4	5	6
1973-74	1,88,04	+ 500	2,11,30	+ 562	2,42,14
1974-75	3,76,09	-	3,04,20	-	3,48,59
1975-76	4,86,86	+ 62,00	5,64,26	+ 71,86	5,64,26
1980-81	13,70,00	+150,00	9,13,87	+100,06	12,33,17
1981-82	14,00,64	+132,00	14,37,01	+135,43	17,56,35
1982-83	22,00,00	+400,00	17,39,48	+316,27	17,39,48

Source : For unadjusted figures, Budget Speeches of the respective years, H.M.G. of Nepal, Ministry of Finance, Kathmandu, Nepal.

Column 2 is total estimated tax revenue as given in the budget speech minus the estimated figures of corporate tax revenue and tax revenue from salary as explained in the text.

Column 3 is exactly as given in the budgets as explained in the text.

Column 4 also is exactly as given in the budget for latter period and separated from the total as mentioned in the text for earlier period.

Column 5 is the figure of column 3 multiplied by the ratio of column 4 to column 2.

Column 6 is derived by applying the model as given in the text to the figures of column 4 and column 5.

latter years might have been included in the series of the actual tax collection. But we have not made any adjustments for these roll-over figures as there was no means of segregating these and on the ground that tax demand of the current year also may roll-over to the subsequent years. So it is assumed that recovery of the earlier years may compensate the roll-over of the Current tax demand to latter years.

Adjusted Series of Tax Base :

We have already discussed the significance of the estimation of the built-in-responsiveness of the personal income taxation in two parts in earlier pages. We therefore require data on tax base that is, on assessed income minus exemption limits for both the periods. But such data is not available in any official publications in Nepal. Nor is it separately compiled and kept in unpublished form. But the records of the assessed income (except that of salary income) alongwith the figures of the tax demand thereon of each of the tax payers have been maintained in the ledgers in the Department of Taxation for the purpose of the Auditor General's Office.

So, we were left only with two options as to either to give up the idea of estimating the built-in-responsiveness in two parts altogether or to copy down the individual items

of these figures from the ledgers. We opted for the second option, which one can easily presume, was well-nigh impossible task for an individual researcher. So, we followed the sampling technique to copy down the figures of the assessed income including tax demand thereon from these master ledgers. We took a ten percent sample.

But the problem that appeared before us after observing the ledgers was that the tax payers were not specified whether one is corporate tax payer or the personal income tax payer. So the problem at hand was first to identify each tax payer so that we could exclude the assessed income of the corporate sector from our list. For this purpose the only clue with us was the figures of tax demand on each item of the assessed income mentioned in the ledgers. To use this clue to identify the tax payers, we had to calculate the tax liability of each item of the assessed income independently and compare it with the amount of tax demand on corresponding items of the assessed income mentioned in the ledgers. Since the corporate sector is not provided with the exemption limit as is the case with personal income tax payers, the figures of corporate tax payers could be easily identified, once the tax liability on each item of the assessed income is calculated. But the calculation of the tax liability for each item of the assessed income for six years was itself a herculean task because tax liability is to be calculated on the basis of the exemption

limits, income brackets and marginal tax rates prevailing during the corresponding assessment years and these have changed almost every year. But we had no other wayout than to take up task. And we calculated tax liability without deducting exemption limits and deducting corresponding exemption limits and compared it with the figures given in ledgers to verify the figures of tax liability so calculated. In such a way we have excluded the assessed income of the corporate sector from the list of the total tax payers.

Then, another problem before us was that we could not use the original serial numbers of the tax payers given in the ledgers for sampling purpose. This was due to the fact that the names once included in the tax payers' enrolment tended to continue to remain there even though currently no longer the individual may be an active tax payer due to the closure of the transaction or due to death or some other reason. And also the corporate tax payers were to be excluded from those serial numbers. So, we first prepared the separate fresh list of the active personal income tax payers for these six years and copied down ten per cent of them of each year applying random sampling technique.

But as we proceeded in copying down the figures, we were faced with yet another dimension of the problem, that is, the ledgers were separately maintained for each of the 25 field tax offices of the country and they were not properly maintained and stored. As a result, some ledgers pertaining to some field tax offices for some years were missing from the store and some pages also were missing from some ledgers. But we could not afford to ignore them. So we had to visit those field tax offices to get the missing informations. In the process we visited four such field tax offices, namely, Dhulikhel Tax Office situated about 90 kilometers east of Kathmandu, Siddhartha Nagar Tax Office situated about 325 kilometers south west of Kathmandu, Krishna Nagar Tax Office situated about 500 kilometers south-west of Kathmandu and Pokhara Tax Office situated 200 kilometers west of Kathmandu.

Moreover, the whole lot of ledgers that contained the assessed income of the capital city Kathmandu which constitutes a little less than half of the total income tax collection of the country was not maintained in the Department of Taxation. So when we visited the Kathmandu Tax Office we were informed that the ledgers were being separately maintained and stored by 16 different section offices. So, the ledgers were pulled together from each section and records were copied down after processing them as mentioned earlier.

All these exercises have finally provided us the gross series of the assessed income for both the periods, which we have obtained by blowing up the sample total figures by 10. The result has been presented in column 2, Table IV-2.

Now, our next step is to make these series comparable to the adjusted series of the actual tax collection in the corresponding years. For this, there are two types of changes to be taken into account. Firstly, changes in exemption limits, and secondly, changes in various types of tax concessions and tax incentives. These two factors influence the changes in tax base (changes in marginal tax rates and income slabs do not affect the tax base). The unadjusted series of the assessed income mentioned above include all those changes in the tax base. So we have to eliminate the effects of the changes in tax base due to changes in tax structure over the period as we did in respect of the actual tax collection. Here also what we need is to get the series of the tax base that would have prevailed if the tax structure of the years 1975-76 and 1982-83 had remained constant over the corresponding periods.

So firstly, we have to adjust the tax base in earlier years in terms of the corresponding exemption limits which were prevalent during the years 1975-76 and 1982-83.

The exemption limits in 1975-76 and 1982-83 were higher than in respective earlier years. So, for the purpose at hand, we multiplied the exemption limits effective during 1975-76 and 1982-83 by the number of the tax payers of each year of the respective years and we subtracted the derived figures of the total amount of the exempted income from the gross figures of the assessed income of the corresponding years to derive the tax base. So, these figures of the tax base adjusted to exemption limits provided us the figures of tax base that would have prevailed if exemption limits of 1975-76 and 1980-81 were effective during those respective earlier years.

This process can be expressed as follows:

$$An = Gn - (x)\ Nn$$

Where

An stands for the tax base adjusted to exemption limits of n^{th} year.

Gn stands for the unadjusted assessed income of the n^{th} year.

x stands for the exemption limit for a particular group of tax payer in the years 1975-76 and 1982-83.

Nn stands for the total number of the tax payers belonging to particular marital status, in the particular year.

But since exemption limits are different for individuals, married couples and families, we required data on total number of tax payers on the basis of the marital status. We had to identify them from the list of tax payers in the ledgers by calculating again the tax liability of each item of the assessed income on the basis of different levels of exemption limits for these groups effective during these years and by comparing them with the figures of tax demand on corresponding item of assessed income given in the ledgers. Then we blew them up by 10 to derive the total figure of the tax payers of all groups. Then we applied the formula on these sets of data as mentioned above. The result is presented in column 6 Table IV-2.

Besides the changes in exemption limits the tax base has changed from time to time due to changes in tax incentives and tax concessions. (Henceforth we will call tax concessions for brevity) we have adjusted the change in tax base due to changes in tax concessions by the following method. Here we have used the data of the estimated change in tax revenue due to changes in tax structure in different years as given in the budget speeches.

First we identified the changes effected in tax concessions throughout the period from the Income Tax Act and Finance Acts that would affect the tax base and the

corresponding estimated changes in tax revenue. We multiplied these figures of the estimated changes in tax revenue due to change in tax concessions by the ratio of the actual total tax collection to total estimated tax revenue of the corresponding years to derive the adjusted figures of the estimated changes in tax revenue due to changes in tax concessions. Then finally, we multiplied these figures of the adjusted estimated change in tax revenue due to changes in tax concession by the ratio of the unadjusted assessed income to the actual tax collection of the respective years to derive the figures of the change in tax base attributable to changes in tax concessions. The whole process of the adjustment can be expressed as follows:

$$AAn = TAn \pm En \left(\frac{Tn}{TEn}\right)\left(\frac{TAn}{Tn}\right)$$

where

AAn stands for the adjusted assessed income in n^{th} year;

TAn stands for the gross assessed income in the n^{th} year;

En stands for the estimated change in tax revenue in the n^{th} year due to change in tax concessions in n^{th} year.

Tn stands for the total tax collection in n^{th} year.

TEn stands for the total estimated tax revenue in the n^{th} year.

129

This formula adjusts the tax base only for one year in which the tax base has changed. The results have been presented in column 5 Table IV-2. Then finally we subtracted the total deductibleand the tax exempted income from the total amount of the assessed income of respective years to derive the adjusted figures of the tax base. The results have been presented in column 7 Table IV-2.

However, some overlapping in the effects in revenue of the overall changes in tax structure cannot be ruled out in some years. And we have assumed while making these adjustments that if the estimated change in tax revenue is due to the combined effects of the changes in tax base including exemption limits, income brackets and marginal tax rates, then such estimated change in tax revenue is only due to the change in tax base other than the exemption limits, income brackets and the tax rates.

National Income :

Data on national income is the third and final set of data which is required for the estimation of the built-in-responsiveness of the personal income taxation. Here the point to be taken into account is that since the income earned in a given year is taxed only in the following year, the tax base and the tax revenue thereon are regressed on national income with one year lag. That is to say, for example, that

TABLE IV-2

Adjusted Series of Tax Base of Personal Income Taxation

(Excluding Salary Income)

130

(From 1973-74 to 1975-76 and from 1980-81 to 1982-83)

(Rs. in Thousand)

Year	Unadjusted Assessed Income	Actual Tax Collection	Adjusted Estimated Change in Tax Revenue due to Change in Tax Structure	Estimated Change in Tax Base Due to Tax Concessions (2/3 x 4)	Adjustible Amount of Exemption Limit	Total Adjusted Tax Base
1	2	3	4	5	6	7
1973-74	20,41,20	2,11,30	+ 562	- 54,29	- 6,29,95	13,56,96
1974-75	28,01,00	3,04,20	-	-	- 6,79,85	21,21,15
1975-76	29,35,90	5,64,26	+ 71,86*	-	- 6,85,00	22,50,90
1980-81	36,93,70	9,13,87	+100,06	- 404,42	16,84,50	16,04,78
1981-82	40,63,60	14,37,01	+135,43	- 382,97	16,92,50	19,88,13
1982-83	49,73,50	17,39,48	+316,27*	-	19,01,50	30,72,00

* Not due to change in tax base.

Column 2 refers to the figures of assessed income as copied down from the ledgers as explained in the text.

Column 3 is taken from Table IV-1, Column 4.

Column 4 is also taken from Table IV-1, Column 5.

Column 5 is derived from multiplying column 4 by the ratio of column 2 to column 3 as mentioned in the text.

Column 6 is derived from multiplying the exemption limits of 1975-76 and 1982-83 by the total number of personal income tax payers excluding salary earners of corresponding years as explained in the text.

Column 7 is derived from subtracting column 5 and column 6 from the figures of corresponding years of column 2.

the tax base and the tax revenue of the year 1982-83 is comparable to the national income of 1981-82 and that of the year 1975-76 is comperable to the national income of 1974-75 and so on. All the sets of adjusted series of data are presented in Table IV-3.

TABLE IV-3

Adjusted Series of Data for the Estimation of the Built-in-Responsiveness of the Personal Income Taxation (Excluding Salary Income)

(From 1973-74 to 1975-76 and from 1980-81 to 1982-83)

(Rs.in Thousand)

Year	Adjusted Series of Tax Revenue T	Δ	Adjusted Series of Tax Base B		Gross Domestic Product at Market prices for the earlier year Y	
1	2	Δ	3		4	
1973-74	2,42,14		13,56,96		9,96,90,00	
1974-75	3,48,59	106	21,21,15	764	12,80,80,00	96390
1975-76	5,64,26	322	22,50,90	894	16,57,10,00	6770
1980-81	12,33,17		16,04,78		23,35,10,00	
1981-82	17,56,35		19,88,13		27,30,70,00	
1982-83	17,39,48		30,72,00		30,98,80,00	

Column 2 is taken from Table IV.1, Column 6,
Column 3 is taken from Table IV-2, Column 7.

(E_{TB}) (E_{BY}) $E_{TB} \times E_{TY}$

$\frac{\Delta T}{T} \div \frac{\Delta B}{B}$ $\left(\frac{\Delta B}{B} \div \frac{\Delta Y}{Y}\right)$

	$\Delta T/T$	$\Delta B/B$	$\Delta Y/Y$			
73-74 to 75-76	.44	.56	.29	79	1.93	1.52
75-76 to 85-86	1.33	.66	.66	2.02	1.00	2.02

Then we calculated the built-in-responsiveness of tax revenue in relation to the tax base, that of the base in relation to national income (GDP) and finally that of tax revenue in relation to national income (GDP) for both the periods by applying the following formula.

a. For tax to base elasticity - $\frac{\Delta \text{TR}}{\text{TR}} \div \frac{\Delta \text{TB}}{\text{TB}}$

b. For base to GDP elasticity - $\frac{\Delta \text{TB}}{\text{TB}} \div \frac{\Delta \text{NY}}{\text{NY}}$

c. For tax to GDP elasticity - $\left(\frac{\Delta \text{TR}}{\text{TR}} / \frac{\Delta \text{TB}}{\text{TB}}\right) \div \left(\frac{\Delta \text{TB}}{\text{TB}} / \frac{\Delta \text{NY}}{\text{NY}}\right)$

Where TR stands for tax revenue of the base year.

TB stands for tax base of the base year

NY stands for GDP of the base year.

The results are presented in Table IV.4

TABLE IV.4

Estimates of the Built-in-Responsiveness of the Personal Income Taxation in Nepal

(Excluding Salary Income)

Variables	1975-76 Tax Structure Elasticity			1982-83 Tax Structure Elasticity		
	1973-74 to 1974-75	1974-75 to 1975-76	1973-74 to 1975-76	1980-81 to 1981-82	1981-82 to 1982-83	1980-81 to 1982-83
1	2	3	4	5	6	7
Tax to Base	0.78	10.11	2.02	1.78	Negative	0.45
Base to GDP	1.98	0.27	0.99	1.41	4.04	2.80
Tax to GDP	0.39	37.54	2.01	1.26	Negative	1.26

The year to year calculation of elasticities for both the periods (column 2, 3, 5 and 6 in the Table) shows much fluctuations in all elasticities. But the elasticities of the respective tax structures calculated with a gap of one year as given in column 4 and 7 in the Table provide useful indications regarding the efficiencies of personal income taxation. According to this, tax to base and tax to GDP elasticities of 1975-76 tax structure are higher than the base to GDP elasticity. It means, this tax structure was more efficient in raising revenue from the income which is already brought into the tax base rather than to widen the tax base in relation to GDP.

The elasticity of the tax base in relation to GDP is fairly high under 1982-83 tax structure than the tax to base and tax to GDP elasticities. It means that the 1982-83 tax structure was more efficient in widening the tax base rather than extracting revenue from the existing base.

The hopeful development in the 1982-83 tax structure is its high elasticity of tax base. During both the periods, tax to GDP elasticities were greater than unity, but for different reasons, namely, in 1975-76, it was the high tax to base elasticity which contributed to the high tax to GDP elasticity while in 1982-83, it was the high base to GDP elasticity, which contributed to the high tax to GDP elasticity.

3. Estimation of the Buoyancy of the Personal Income Taxation in Nepal :

The buoyancy of the personal income taxation is also estimated in two parts. The buoyancy of the tax revenue in relation to the tax base and the buoyancy of the tax base in relation to the national income (GDP) are estimated for which we require the same three sets of data. Since buoyancy is estimated on the basis of the data which allows for all the changes in the tax structure we do not require to adjust them for any change in the tax structure. So we use the original data of tax revenue as given in the budget speeches, (for earlier period revenue from personal income taxation has been separated by applying the proportion of the latter years to the total revenue as mentioned earlier), we use the data of tax base which we obtained from the ledgers without any adjustment (tax exempted income has been separated from the original figures on the basis of the exemption limits prevalent during respective years) and the national income (GDP) data is the same as used in estimating the built-in-responsiveness. All these sets of data are presented in Table IV.5.

Then we calculated the respective buoyancies for both the periods after regressing the tax revenue and the tax base

135

TABLE IV.5

Unadjusted Series of Data for the Estimation of the Buoyancy

(From 1973-74 to 1975-76 and from 1980-81 to 1982-83)

(Excluding Salary Income) (Rs. in Thousand)

Year	Unadjusted Series of Tax Revenue	Unadjusted Series of Tax Base	Gross Domestic Product at Market Prices of Earlier year
1	2	3	4
1973-74	2,11,30	15,97,65	9,96,90,00
1974-75	3,04,20	22,43,00	12,80,80,00
1975-76	5,64,26	22,50,90	16,57,10,00
1980-81	9,13,87	25,65,45	23,35,10,00
1981-82	14,37,01	23,71,10	27,30,70,00
1982-83	17,39,48	30,72,00	30,98,80,00

Column 2 is taken from Table IV.1 Column 4.

Column 3 is derived by subtracting the tax exempted income prevalent during the respective years from the total assessed incomes of the corresponding years as obtained from the ledgers as mentioned in the text.

Same error here.

on the national income with one year lag. The buoyancy is calculated as follows:

a. For tax to base buoyancy $= \frac{\Delta TR}{TR} \div \frac{\Delta TB}{TB}$

b. For base to GDP buoyancy $= \frac{\Delta TB}{TB} \div \frac{\Delta NY}{NY}$

c. For tax to GDP buoyancy $= \left(\frac{\Delta TR}{TR} / \frac{\Delta TB}{TB}\right) \div \left(\frac{\Delta TB}{TB} / \frac{\Delta NY}{NY}\right)$

Where TR stands for the tax revenue of the base year.

TB stands for the tax base of the base year.

NY stands for the GDP of the base year.

The results are presented in Table IV.6.

TABLE IV-6

Estimates of the Buoyancy of the Personal Income Tax in Nepal

(Excluding Salary Income)

Variables	1973-74 to 1974-75	1974-75 to 1975-76	1973-74 to 1975-76	1980-81 to 1981-82	1981-82 to 1982-83	1980-81 to 1982-83
1	2	3	4	5	6	7
Tax to Base	1.09	242.73	4.09	Negative	0.71	4.58
Base to GDP	1.42	0.01	0.62	Negative	2.19	0.60
Tax to GDP	0.77 ✗	.....	2.52 ✓	Negative	0.32 ✗	2.76 ✓

Not only that. He is also not consistent. Thus the calculations for 1980/81 & 1982/83 as well as 1973/74 & 1975/76 are correct, but others are wrong!

Here also year to year buoyancies for both the periods show extreme fluctuations (column 2, 3, 5 and 6 in the Table). But the buoyancies calculated with the gap of one year (column 4 and 7 in the Table) look more stable. According to this, the changes in tax structure undertaken during 1973-74 and 1975-76 and 1980-81 and 1982-83 have been effective in extracting revenue from the tax base. But the increase in the tax base in relation to the GDP has been slow. This is proved by the excessively high tax to base buoyancies (4.09 and 4.58) during both the periods. In the same way, the tax structure effective during both the periods have been able to raise revenue at a fairly high rate (2.52 and 2.76). These tax structures have performed rather less well as regards the widening of the tax base. The base to GDP buoyancies have been 0.62 and 0.60 for the respective periods, indicating thereby that the tax base is forming a diminishing proportion of the GDP. This is a serious matter to be remedied. For example, in 1973-74 tax base formed 1.60 per cent of GDP, in 1980-81 it formed 1.1 per cent of GDP and in 1981-82 and 1982-83 it was 0.89 per cent and 0.99 per cent of GDP respectively. This must have been due to various tax concessions and evasions and perhaps also due to raising of the exemption limits. From this, it may be inferred that the attempts of the government to mobilize revenue have been focussed on extracting revenue from the narrow base rather than on broadening it.

Comparison between the Elasticities and Buoyancies

If we compare all the elasticities and buoyancies for both the periods we find that the changes in tax structure have been more effective in raising revenue from the tax base during both the periods. This is shown by the fact that tax to base buoyancies are far greater than the respective elasticities as can be seen from the following summary figures which give a comparative picture of elasticities and buoyancies during both the periods. It will however be seen that during the second period the buoyancy exceeded the elasticity by a far greater amount as compared to the first period. (4.58 against 0.45 in the second period and 4.09 as against 2.02 in the first period). Thus changes in the tax structure in the second period were more far reaching.

Variables	1973-74 to 1975-76		1980-81 to 1982-83	
	Elasticity	Buoyancy	Elasticity	Buoyancy
Tax to Base	2.02	4.09	0.45	4.58
Base to GDP	0.99	0.62	2.80	0.60
Tax to GDP	2.01	2.52	1.26	2.76

So far as the case of the base to GDP elasticities and buoyancies are concerned both are less than unity in the first period. It means that any tax structure prevalent during this period and changes therein have not been able to widen

the tax base in consonance with the increase in GDP. In fact buoyancy is less than elasticity indicating a deterioration in broadening the tax base. In the second period, 1980-81 to 1982-83 also the changes in tax structure have not improved the case of widening the tax base in relation to GDP. If the tax structure was left unchanged the tax base would have widened. The higher base to GDP elasticity (2.80) than the buoyancy (0.60) proves this inference.

It may be stated that although personal income taxation seems to have been fairly efficient to raise revenue in Nepal, the government policy seems to raise more revenue from only the tax base than to raise revenue by way of widening and deepening the tax base in relation to GDP. The changes in personal income tax structure have mainly focussed on extracting more and more revenue from tax base than to increase the tax base. This also gives the strong clue regarding the widespread evasion of income, incomplete coverage of possible sources of revenue and the type of tax concessions which erode the tax base.