

TAX INDEXATION

INTRODUCTION

Over the past year or so, a series of articles has been published in the *Bulletin* on some of the problems resulting from high rates of inflation, and particularly the effect of inflation on the role of money. The major thrust of these articles has been to suggest that a distinction should be drawn between the role of money as a medium of exchange and its roles as a unit of account and a store of value. As far as the latter roles are concerned, it has been suggested that consideration should be given to the adoption of a constant value unit of account. The implications which flow from this idea include the possible adoption of indexation procedures for financial assets and liabilities; the introduction of an appropriate form of inflation accounting, and reform of the taxation system, especially with respect to the treatment of interest, which would need to be free of tax as income, at least as far as the inflation component is concerned, and non-deductible as an expense. In addition, it would probably also be necessary for consistency to introduce indexation of the personal income tax schedule. It is this aspect which is addressed by the following article which discusses the impact of inflation on the taxation system and considers the advantages and disadvantages of moving to tax indexation, including the role of a constant value unit of account in this context. There is also a brief reference to other aspects of the Government's budgetary operation.

Previous articles in this series can be found in the *Bulletins* for October, November and December 1979, and in May and October 1980.

IMPACT OF INFLATION

In establishing a tax structure the Government, by design or otherwise, creates a framework which determines a certain redistributive effect on people's total incomes. To the extent that those people who pay taxes are not the same as those who receive the benefits from Government's intervention, or they receive benefits which differ in value from the taxes they pay, a redistribution of income occurs.

If there is no inflation, the redistributive pattern established by a particular taxation structure will tend to alter only slowly unless the Government makes specific changes to the structure. In times of rapid inflation this is not the case. Changes in price levels and nominal incomes, coupled with the type of tax structure commonly in existence, cause significant changes in the incidence of taxation which may substantially alter the redistributive effect of the system as a whole. The nature of the changes will depend on the mix of taxes making up the taxation structure and the nature of benefits and subsidies included in government expenditure. The rapidity with which the changes take place will depend largely on the rate of inflation and partly also of course on the rate of real economic growth.

Inflation affects the incidence of taxes in different ways depending on the type of tax involved. In the case of a progressive personal income tax scale, where basic exemptions and tax brackets are fixed in nominal dollar terms, inflation causes a progressively larger proportion

of total income to be paid in taxes as nominal income rises. There are two effects at work here. In the first instance, the real value of non-taxable allowances such as superannuation contributions, which are exempt from taxation, decreases over time rendering the taxpayer liable to pay taxes at a lower level of real income than previously. Similarly, in the case of tax rebates such as those allowed to taxpayers with dependents, the real value of the rebate declines implying both a lower real value for the concession and a decline in the size of rebate relative to the total tax liability. In the second effect, the real value of the tax bracket steps is compressed over time by the rising prices and, with the rise in nominal incomes drawing taxpayers into ever higher tax rate brackets, the result is that an increasing proportion of taxable income is siphoned off into taxes. This means that even when real taxable income is constant the real tax liability will continue to grow.

In the case of *ad valorem* duties a fixed proportion of the value of affected goods is paid in taxes. In the same way, a proportional tax levied on income causes a fixed percentage of the income to be paid as taxes regardless of the price level. Hence the incidence of this tax remains less affected by inflation than is the case with progressive taxes.

Where specific duties fixed in money terms such as excise taxes are imposed then, under inflationary conditions, a progressively smaller percentage of the value of the affected goods will be paid in taxes and, in real terms, the burden of the tax will grow less.

INFLATION AND NEW ZEALAND TAX SYSTEM

In New Zealand the bulk of government revenue comes from direct taxation, most of it from income tax. To illustrate the point, in the year ended 31st March 1979, three quarters of total government taxation revenue came from this source. In recent years about 80 percent of income tax revenue has been derived from individuals, either salary and wage earners or those who are self employed (which includes most farmers and small business operators). The tax rate structure which applied to individuals' taxable income in 1980 was quite strongly progressive up to \$22,000 when the maximum rate of tax was reached.

Because such a high proportion of New Zealand tax revenue is derived from a personal income tax structure which is both progressive and has its allowances, rebates and tax brackets fixed in nominal terms, the effect of inflation on taxpayers' liability to pay taxes is to produce a pronounced redistribution of income from the private to the public sector of the economy.

INFLATION AND GOVERNMENT EXPENDITURE

On the expenditure side of the Government's activities inflation also produces a variety of effects similar to those on taxes. Where the Government pays a subsidy to keep the market price of a commodity constant in current dollar terms the effect of inflation is to cause a rapid expansion of Government expenditure in that area while reducing the real cost of the commodity to the consumer by requiring a smaller

proportion of total nominal income to purchase the same amount of the commodity. On the other hand, where a social welfare benefit is fixed in current dollar terms beneficiaries receive a steadily declining income in terms of the real purchasing power of the benefit received. In recent years a number of such benefits have been linked to movements in the consumers price index or to a wages index in order to counter this effect.

The real measure of the overall impact of inflation on both the revenue gathering and expenditure sides of the Government's activities is to be found in the difference between the redistributive effect of the Government's activities in the presence of inflation compared to that which occurs in the absence of inflation. While this is clearly difficult to assess in an on-going situation of changing rates of inflation and government policies, it requires only a brief examination of the taxation system and pattern of government expenditure to show that, in the absence of offsetting discretionary actions by Government, there is a stronger tendency in inflationary times for income to be redistributed to the public sector.

PROGRESSIVE TAX STRUCTURE AND INFLATION

The basic problem then which arises from the use of current dollar denominated deductions and tax brackets is that the pattern of income redistribution which is established by legislation does not remain fixed but alters over time under the impact of inflation. Only recently has this been seen as a problem. The progressive structure of most income tax scales was originally deliberately chosen for its built-in stabilizing properties. As incomes rise a larger proportion of that income is drawn off into taxes thus limiting the rise in disposable income and the impact of the increase in nominal incomes upon aggregate demand.

Under the higher rates of inflation experienced in the last few years questions have been asked which raise doubts about the extent to which this structure contributes to the stability of the economy in practice. In particular it appears that workers are now much more concerned to protect the real value of their after-tax income and so, for a given rise in prices, a larger proportionate increase in wages is demanded in order to protect real disposable income levels. In this situation the progressive tax structure may encourage inflation through the consequent nominal wage spiral and thus have a potentially destabilizing effect on the economy.

Whether the progressive tax structure promotes stability or not also depends on the level of economic activity at the time higher taxes become due for payment. In the situation where prices and incomes have risen because of some relatively short-lived economic phenomenon, the subsequently higher tax payments may occur at the very time that economic activity is declining (because of lags in non-PAYE tax payments) in which case the progressive tax structure may contribute to a destabilizing effect on the economy by slowing down consumption expenditure at a time when it is weakening anyway.

The stabilizing role of a progressive tax structure also depends for its effectiveness on the Government exercising restraint in its spending policies during those periods when a rapid upsurge in incomes generates higher tax revenues. If the Government spends all the extra revenue the stabilizing effect is undermined. Where relatively high rates of inflation become the norm there

may be, under a progressive tax structure, a lowering of the level of discipline imposed on the Government to limit its own spending.

INDEXATION AS AN ALTERNATIVE

For these reasons a number of people have advocated, in recent years, a change in the tax structure to counter the effects of inflation on the pattern of income redistribution. A number of countries have adopted measures to achieve this end. The main thrust of these measures has been towards creating an automatic mechanism for adjusting the nominal dollar value of allowances and tax brackets so that once fixed by the Government they would retain their real value until changed by the Government. Changing the progressive nature of the tax structure to a proportional tax rate structure is generally not an acceptable answer because governments still wish to levy higher marginal rates of tax on relatively high income earners. The answer has been to adopt an acceptable indexing procedure which, while offsetting or moderating the effects of price increases, would retain the existing tax structure's progressivity as far as real increases in income are concerned.

A range of arguments have been advanced for and against indexation of the tax structure. Among those supporting the idea have been the following:

1. Equity considerations create a strong case for introducing tax indexation because it is people earning low incomes who are most adversely affected by the increased tax burden if no offsetting action is taken for inflation.
2. Indexation imposes a discipline on the growth of public spending by removing the inflation generated component of government revenue. Through this it may significantly reduce the tendency for the government sector to grow more rapidly than the rest of the economy during periods of high inflation. To this extent when the Government wishes to increase significantly its own expenditure relative to the private sector an explicit decision associated with increases in tax rates is required.
3. Indexation increases the transparency of the tax system. Under indexation it is no longer possible to pass off as a tax cut an adjustment made to nominal tax rates that does no more than correct for some of the automatic increases in tax take which occur with progressive tax rates defined in nominal terms during periods of inflation. This means that real increases in government expenditure can only be achieved by increases in the indexed tax rates, so the revenue consequences of increasing real levels of government expenditure become evident.
4. The particular pattern of tax distribution which is legislated for can be maintained with automatic indexation. To implement significant changes in the distribution it is necessary to alter explicitly tax schedules. This is in contrast to the present situation under which inflation quite rapidly produces marked changes in the distribution originally intended.
5. Indexation may have a beneficial influence on trade union attitudes in wage negotiations. With workers increasingly identifying the need to maintain real disposable incomes, indexation could help simplify wage negotiations by easing wage demand pressures and perhaps ultimately assisting employment and economic growth.

On the other hand arguments which have been put forward in opposition to indexation of the tax structure have included:

1. The fiscal drag which is a feature of progressive tax structures that are not indexed acts as an automatic built-in stabilizer for the economy. In a period of excess demand, inflation and rising incomes would more than proportionately raise the yield from income taxes and, other things being equal, reduce private sector spending. This in turn would reduce demand generated inflation. However, this assumes that Government does not simply re-spend the extra revenue.
2. Governments should concentrate their energies on combating inflation rather than on finding ways to mitigate its adverse effects. Indexation of the tax structure falls into the latter category and should not be adopted if this is likely to prejudice policies which would attack the real problem, inflation, and get it under control. In practice, a combination of tax indexation *and* anti-inflationary policies would probably answer this objection.
3. Indexation mitigates some of the adverse effects of inflation and therefore encourages people to live with inflation and tolerate its presence. (It should be noted, of course, that this is very similar to an argument sometimes advanced in favour of indexation which says the present situation is accepted by the government because it is thus assured of a growing source of revenue in real terms.)
4. There are technical problems in selecting an appropriate inflation index and establishing the right time-lag relationships between price rises and adjustments of tax liabilities. Adjustments to tax liabilities in one year on the basis of price rises in the preceding year might be unsatisfactory when rates of inflation vary significantly from year to year.

While the arguments against indexation have a certain initial appeal, under closer examination they look less attractive. The effects of fiscal drag may have been stabilizing under low rates of inflation but appear much less so under the higher rates experienced in recent years. Rather than reducing private spending and demand generated inflation it may be argued to have aggravated the wage-price spiral and industrial unrest.

The idea that efforts should be concentrated on curing inflation rather than on mitigating its effects is appealing but rather unrealistic. Inflation has proved intractable and, in the absence of some real prospect of success in overcoming it, steps need to be taken to moderate its more serious effects. It is in this context that the case for indexing the tax system has been advanced. It is not intended to be a substitute for an anti-inflation policy which is clearly still required.

The argument that where steps can be taken to moderate the worst effects of inflation people are likely to become more tolerant of inflation does not have much merit. It might equally be argued that the greater discipline which indexation imposes upon its spending may make the Government more likely to increase its efforts to reduce inflation. There are likely to be problems in establishing a satisfactory timing linkage between price changes and the indexed system. But these problems do not constitute sufficient grounds for declining to study the merits and feasibility of indexation. These problems are examined further later in the article.

CONSTANT VALUE UNIT OF ACCOUNT

Utilising the constant value unit of account concept developed by Mr R. W. R. White, Governor of the Reserve Bank, would provide a relatively straightforward means for offsetting the effects of inflation on tax allowances and tax brackets.

By specifying basic deductions, rebates and tax brackets in terms of the constant value unit of account the Government would be establishing these elements in a fixed relationship to the value of a wide ranging package of traded goods and services. This would mean that the real purchasing power of basic allowances associated with the tax structure would not then alter during periods of high inflation as happens at present when they are defined in current dollar terms of variable value. Fixing the tax brackets in terms of the constant value unit of account would also mean that these would no longer be subject to compression in real terms as nominal incomes rose but instead would remain constant in terms of real purchasing power. As real incomes rose so also would taxpayers' marginal tax rates but increases in nominal incomes which result from movements in prices alone would cause their tax liability to increase only by the same proportionate amount as the increase in nominal incomes.

The effect of inflation on tax liabilities under the present tax structure can be readily illustrated by considering the case of a notional 'average' taxpayer. Assume that the taxpayer earns \$10,000 in the 1979/80 tax year, is married with a dependent spouse who earns only \$500 and has dependent children. Assume also that the taxpayer contributes to a superannuation scheme and earns no other taxable income. Under the present tax structure this taxpayer would be liable to pay \$1,524 in income tax or 15.2 percent of gross income.

Assuming further that inflation is running at 15 percent a year and continues to do so for the next four years; and that the taxpayer's income grows at the same rate (as does the spouse's) then, in the absence of any changes to the tax structure, the taxpayer's income will rise to \$17,490 in the fourth year but tax liability will grow to \$5,481 or 31.3 percent of gross income. In terms of real purchasing power the taxpayer's gross income is unchanged but because of the increased proportion of gross income drawn off in taxation the taxpayer's real disposable income has declined by almost 20 percent. For an unchanged proportion of the taxpayer's gross income to be drawn off in income tax, as would happen if the system was indexed, only \$2,665 should be paid in income tax. The effects of this are illustrated in table 1.

Under such a system of indexation the taxpayer's real tax liability would still rise if gross income increased in real terms. This is shown in table 2 where, although inflation has continued at 15 percent a year, the taxpayer's gross income has risen by 20 percent a year. Notwithstanding the indexed tax structure the taxpayer's liability has increased over the period from 15.2 percent of gross income to 20.5 percent.

What is perhaps more startling where the system is not indexed is the source of increased tax liability. In the case outlined here \$351 results from the increase in taxable income caused by non-taxable allowances declining in real value, \$1,098 because of the reduced real value of tax rebates granted for dependents and \$1,366 from the movement into higher tax brackets. It is clear that inflation imposes a sharply increased burden on those who, because of low incomes or responsibilities for dependents, are currently entitled to significant tax rebates. As the real value of the rebates diminishes and

Table 1
INDEXED INCOME TAX STRUCTURE

	Real	\$
<u>1979-80 \$1 = 1 Real</u>		
(1) Taxpayer gross income	10,000	10,000
(2) Less standard deduction	52	52
(3) <i>Sub-total</i>	9,948	9,948
(4) Less superannuation deduction	800	800
(5) <i>Net taxable income</i>	9,148	9,148
(6) Spouse's income	500	500
(7) Tax assessment on Real 9148	2,349	2,349
(8) Less spouse rebate	156	156
(9) Less single income family rebate	260	260
(10) Less young family rebate — if (3) less than Real 9360 = if Real 9360 < (3) < Real 14040 rebate is 0.1 (Real 14040 — (3)) =	468 409	468 409
(11) <i>Net tax payable</i>	1,524	1,524
<u>1983-84 \$1.749 = 1 Real</u>		
(1) Taxpayer gross income	10,000	17,490
(2) Less standard deduction	52	91
(3) <i>Sub-total</i>	9,948	17,399
(4) Less superannuation deduction	800	1,400
(5) <i>Net taxable income</i>	9,148	15,999
(6) Spouse's income	500	874
(7) Tax assessment on Real 9148	2,349	4,108
(8) Less spouse rebate	156	273
(9) Less single income family rebate	260	455
(10) Less young family rebate — if (3) less than Real 9360 — if Real 9360 < (3) < Real 14040 rebate is 0.1 (Real 14040 — (3))	468 409	715
(11) <i>Net tax payable</i>	1,524	2,665

the taxpayer becomes ineligible for them because of increasing nominal (though not necessarily real) income the tax burden rises very sharply in both nominal and real terms.

The use of a constant value unit of account to index tax scales and deductions should, for consistency as well as convenience, be accompanied by its utilisation as the indexing measure for government welfare benefits as well. Whereas these are adjusted in line with movements in the consumers or wages price indexes (being considered the most appropriate indexes currently available) there would be advantages in specifying the benefits to be paid in terms of Reals with the nominal dollar value payable being adjusted automatically at regular intervals as the index of prices changed. In this way the need to introduce legislation at frequent intervals to change the benefit rates payable would be removed. A more important consideration would be the avoidance of any inconsistency and confusion which might arise from divergent trends in the consumers price index and 'Real' price index as could occur at times.

Similar considerations might be thought to apply to other transfer payments but the situation here is less clear cut. Subsidies are normally paid on a specific commodity or range of commodities in order to stabilize their prices. But the price of a specific commodity may move quite differently to the index of the weighted average of traded goods and services. In such a case the

Table 2
INDEXED INCOME TAX STRUCTURE
WITH REAL INCOME GROWTH

	Real	\$
<u>1983-84 \$1.749 = 1 Real</u>		
(1) Taxpayer gross income	11,856	20,736
(2) Less standard deduction	52	91
(3) <i>Sub-total</i>	11,804	20,645
(4) Less superannuation deduction	800	1,400
(5) <i>Net taxable income</i>	11,003	19,245
(6) Spouse's income	500	874
(7) Tax assessment on Real 11,003	3,076	5,381
(8) Less spouse rebate	156	273
(9) Less single income family rebate	260	455
(10) Less young family rebate — if (3) less than Real 9360 — if Real 9360 < (3) < Real 14040 rebate is 0.1 (Real 14040 — (3))	468 224	391
	2,436	4,261

Government would need to consider which aspect it is important to keep constant, the real value of the subsidy or the real cost of the commodity to users. In the latter case the use of Real denominated subsidies could be considered inappropriate.

INDEXING GOVERNMENT DEBT AND ADVANCES

Previous *Bulletin* articles have referred to the inequities that arise, during times of high inflation, in any financial contract denominated in current dollar terms which involves a time element. They apply as much to borrowing and lending undertaken by the Government as they do to similar transactions in the private sector. Briefly, those who lend money find that inflation depreciates the purchasing power of the money lent. To compensate for this they must charge high rates of interest but this interest, under present taxation law, is treated as revenue rather than as a capital adjustment item and so is taxable in the hands of the recipient. Even at rates of inflation in the region of 10 percent per annum, when a marginal tax rate of say 60 percent is being incurred, it becomes impossible in practical terms for the lender to maintain the purchasing power of his financial asset. The converse of this situation applies to the borrower who, having borrowed in current dollar terms, sees the real cost of repayments and interest decline. At the same time the interest, including an element which should more correctly be considered as a capital adjustment item, is treated as a current expenditure item which is deductible for taxation purposes.

There is, then, a strong case on equity grounds for the Government to issue debt denominated in a constant value unit of account treating only the true interest element (i.e. the non-inflation component) as revenue in the hands of the purchasers of the debt. However the use of a constant value unit of account in this way should not be a one-sided affair. There is an equally strong case to be made for the Government to denominate advances to its own corporations such as the Rural Banking and Finance Corporation and the Housing Corporation in terms of Reals as well.

BUDGETING IN REAL TERMS

If there are advantages in utilising the constant value unit of account in the ways outlined in the government's accounts in order to offset the distortionary effects of inflation, there is probably also a case to be made for expressing the whole of the budget in real terms. One straightforward method of doing this would be to make use of the concept of the Real as described in earlier *Bulletin* articles.

Basically this would involve the Government preparing each year its budgeted revenue and expenditure accounts in terms of Reals, in addition to the present information in current dollars. While payments and receipts would still be in current dollars, for budget accounting purposes the amounts received and paid out would be recorded in terms of Reals. Several advantages would derive from presentation of budget accounts in this way. One would be the ease with which the real trends in government expenditure could be identified.

By expressing accounts in terms of Reals both the public and the Government itself would be able to see more clearly the trends, in terms of real purchasing power, in the different categories of revenue and expenditure simply by comparing one year's figures with another. An increase in the value of Reals voted for say education would imply an increase in the real purchasing power of the money allocated for education. A decrease in real purchasing power of revenue derived from land tax would show up as a decline in the value of Reals derived as revenue from this source.

Because a specified value of Reals represents a constant amount of purchasing power over time, the task of actual budgeting may be made easier for the Government. If the Government wishes to provide for a constant level of real expenditure in a particular vote it needs only specify the same value in Reals as in the previous year. The present somewhat confusing situation where a significantly greater vote in current dollar terms nevertheless may represent a decrease in purchasing power voted would thus be avoided.

An added advantage of using Reals in budgeting rather than adjusting current dollars to real dollar values is the avoidance of the confusion which can arise from trying to compare different units with the same basic name. While to the economic practitioner the switch from nominal to real dollar concept may be a familiar exercise, to many other people the transition is much less easily absorbed. By separating the nominal from the constant value unit of account, and giving to the latter a separate name and identity, understanding is likely to be heightened.

This is not to suggest that budget accounts expressed in nominal dollar terms should be dispensed with. These accounts would still be required for recording actual current dollar transactions. They would also provide the means for assessing multiplier effects of different types of expenditure on nominal incomes. Because a second set of accounts is involved, the preparation of budget accounts in terms of Reals is, of course, not a costless exercise. For the government there would be the added work load of translating current dollar denominated transactions into Real accounting values. The question which has to be answered in this respect is whether the improvement in the accounts rendered in this way would be sufficient to warrant the extra expense incurred in their preparation. By presenting the Government's accounts in both nominal and real terms one is identifying in terms of real purchasing power as well as in nominal dollars where the revenue is coming from and where the expenditure is taking place.

This makes much more obvious the level of real resources being drawn into the public sector and the use to which they are being put. It makes comparison of the level of real resources being spent in different areas in successive years much easier and in this makes more transparent the role which the government, through its revenue raising and expenditure, is adopting in the economy. These constitute powerful arguments in favour of the adoption of this practice in the preparation of the government's accounts and as a basis for the taxation system.