TAX POLICY FOR SMALL OPEN DEVELOPING ECONOMIES

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(Abstract)

Government's budget is the most powerful official policy instrument available in open economies. Developing countries will therefore wish to use fiscal policy to address long term aims of growth and structural adjustment, as well as the common short term need for stabilisation. This paper suggests the design of tax policy which addresses long and short term objectives at the same time.

The analysis exploits the different reactions of the tradable and nontradable sectors to policy stimuli. Its point of departure is the export-oriented nature of growth in small countries. Guidelines are suggested for the desirable mix of income, trade and consumption taxes. In general, one should expect income taxes to improve the returns on investment, while trade taxes might be employed for economic stabilisation. The considerations which affect the mix in particular cases include the adequacy of foreign exchange reserves, the excess demand for foreign exchange, the level of skills and the ease of migration, the degree of factor substitution in production and the returns to scale.

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This paper discusses the impact of personal income taxes, corporation taxes, import duties and other indirect taxes on the economic performance of small open developing economies. There is a growing consensus among decision makers that economic policies should be designed to promote long term expansion as well as stability in the short run. Accordingly, for each of the taxes considered, we discuss both the impact on output, prices and the balance of payments in the short run, and long term growth implications. The study searches out combinations of tax policies which provide the highest potential growth with reasonable stability in the year-to-year movements of the main economic aggregates. In the first part of the paper, comprising sections one to three, we describe features of the economies which affect the outcome of the policies. We discuss how exports limit sustainable growth, the determinants of investment and saving and the relationship between taxation, the financing of government's deficit and economic performance. The second part of the study consists of four sections, each dealing with a specific tax, one section which looks at tax combinations and a section dealing with repercussions from the economic responses to tax policy (the 'second round' effects).

1. Growth Potential Depends on Tradables

Potential growth in the economies we are concerned with is governed by the expansion of the tradable goods sector rather than by factor availability or absorptive capacity. Capital is internationally mobile, and the small economy has access to as much as it needs, provided profitable opportunities exist and artificial barriers such as troublesome exchange controls are eliminated. There is invariably a surplus of unskilled labour: the unemployed, those employed in make-work jobs and those who are discouraged from entering the labour force by lack of opportunity. Lack of skills may be a restriction on their employment, but only where widespread illiteracy leaves a population which may not readily be trained. Many developing countries have a surplus of skilled labour as a result of government provisions for education over many years.

Growth may effectively be limited by lack of physical infrastructure, poor organisation, weak institutions, inadequate information, social tensions and political unrest. Absence of agricultural feeder roads, insufficient port capacity, bad roads and poor telecommunications are commonly recognised as inhibiting investment. However, they are more easily overcome than deficiencies of organisation and knowledge, which have been less closely scrutinised. Perhaps the most stifling factors in the

quest for economic growth are the failure to attain political consensus and to identify a social contract which commands acceptance, implicitly or explicitly.

These circumstances define what we may call - appropriating familiar terminology - a warranted growth rate for the country. Growth may be sustained at this rate provided that the non-tradable sector (a net user of foreign exchange) does not expand too quickly in relation to the growth of the tradable sector (which is the net source of foreign exchange). If the output of non-tradables increases too rapidly, a chronic excess demand for foreign exchange emerges. The exchange rate will depreciate until the relative price of tradables increases sufficiently or real national income declines sufficiently to eliminate the excess demand.

If relative price effects were sufficiently strong to ensure a declining ratio of tradables to non-tradables in consumption, it might be desirable to accelerate the growth of non-tradables. That would generate the required change in relative prices and promote optimum growth. However, the ratio of tradables in the expenditure of small economies must increase as national welfare improves, because small size limits the range and variety of domestic production. An important aspect of improved material well-being is a more varied menu of consumption choices, which, for the small economy, means importation. The relative price effects have little power to divert expenditures from tradable goods if real spending power increases. Invariably it is the income effect of devaluation which restores the balance of tradables and non-tradables in consumption and eliminates the excess demand for foreign exchange. The devaluation reduces the real value of national income and the command over all goods and services, tradable and non-tradable. In this case the attempt to accelerate the growth of non-tradables fails, and output in both sectors contracts.

Whether the growth rate for tradables must be greater than that for non-tradables depends on the ratio of tradables to total output and on the import requirements of consumers and of producers of tradables and non-tradables. Moreover, these ratios should change over time, in the direction of increased demand for tradables, so the relative growth of non-tradables may have to fall as the economy grows.

The maximum sustained rate of growth, given political, social and institutional arrangements, depends critically on the capacity of the tradable sector. If the supply of tradables cannot be increased sufficiently to accommodate the demand for foreign exchange stimulated by growth of non-tradables, the output of non-tradables will slowdown, by design or involuntarily, by relative price changes or by income loss.[1] If the production of tradables is buoyant it is conceivable that growth may fall short of what is possible because there has been insufficient capacity creation in

non-tradables. However, this is tractable problem, which may be eliminated by such devices as emergency housing and road building programmes.

Investment in tradable capacity may be especially sensitive to the supply of foreign exchange, to purchase fuels, raw materials and know-how. An imbalance of growth towards non-tradables may be doubly dangerous: it threatens adjustments that may cause recession and it may disturb the supply of foreign exchange for the ongoing production of tradables, unless prompt exchange rate correctives are applied. Hence we give central importance to investment in tradable sector capacity in the analysis of the effects of taxation on long-term growth potential.

2. Savings and the Determinants of Investment

In the economies with which we are concerned the factors which determine the intended level of investment are independent of the rate of domestic saving. If tax measures are to influence the growth of capacity they must affect the return on investment directly. Measures to enhance the savings rate may affect the balance of payments, but investment will not increase.

The investment rate depends on projections of the relative profitability of local and foreign investment, the acquisition of new technology, the development of public utilities and infrastructure, and a number of social, political, and geographical factors. The anticipated profitability of domestic investment, relative to investment in a competing location may be written as

$$RPR^* = PR^* - PRF^* - ER^*$$

where asterisks denote expected rates. If competitive conditions prevailed the profit rate PR would be the same everywhere, except for exchange rate uncertainty, but the world is not like that. We expect a positive relationship between expected profit and investment, a condition that reflects the reality of ongoing disequilibrium, in a classical sense. In theory wealth holders may choose from a long menu of alternative assets, real and financial; in practice the investor who is considering setting up a local plant has already determined on real capital formation and has usually fixed on an area of activity. His concern is to locate his plant so as to secure the highest expected return, allowing for exchange risk. He is attracted to the local economy if the domestic return exceeds the foreign return PRF, after discounting for expected changes in the exchange rate[2].

Technology is usually embedded in equipment. For small countries noticeable technological changes happen discretely, when new products and new processes are introduced. Examples include the development of jet transportation and its effects on tourism, the spread of microelectronics fabrication

and the introduction of new agronomic techniques. Innovations such as these rapidly transform profitability relationships, which may then stabilise for a while until there is a new technological disturbance. Technological changes may be treated as displacement factors which may be allowed for in order to expose an underlying relationship between investment and profitability. The development of public utilities and infrastructure has similar effects and may be accounted for in the same fashion.

The remaining considerations cannot make for any significant change in investment over time because they are 'permanent' characteristics of the economy - its geographical location, the affinity between its culture and the investor's own, and its social and political history. Except for geography all these factors may change over time, and surveys find them to be among the compelling factors in the international flow of capital. However, changes take so long to become embedded that these influences must be taken for granted for the purposes of our analysis.

In assessing tax policy for promoting investment we shall therefore be concerned with effects on the rate of return. Tax changes may also affect intended investment if they induce exchange rate changes, though this would not usually be a deliberate effect. The impact on the rate of return will depend on the firm's ability to shift taxes, which will be explored fully in a later section.

Investment is not at all influenced by domestic saving, which is determined by the level of real income, the expected exchange rate, the expected level of inflation, the interest on bank deposits at home and abroad and, where inflation is very high, the real rate of interest on financial assets. The desired level of saving is determined by real income, but if the exchange rate is expected to depreciate, some saving may be held in foreign assets. Exchange controls have proven useless in containing this tendency.

If inflation is expected to accelerate consumption purchases may be advanced, and saving may decline. The proportion of saving which is held as domestic financial assets may not be large, because most bank deposits are on-lent for consumption purposes, and do not represent saving. Bank deposits may be shifted abroad if foreign interest earnings exceed domestic deposit rates by enough to cover the cost and nuisance of transferring funds; this is a loss of domestic saving only to the extent that banks cut lending for investment to make the transfer possible. The elasticity of substitution between real and financial assets is not great because of vastly differing degrees of liquidity, possibilities of capital gain or loss, costs of maintaining values, and diverse factors affecting expectations on real and financial markets. It will

require a rather large discrepancy between interest and expected inflation to effect a shift from consumption to saving.

If domestic saving is not forthcoming in quantity sufficient to satisfy intended investment induced by expected relative profits, foreigners will come in to take advantage of the domestic opportunity. There is not much point to increasing savings per se. Unless the savings-promoting policies also generate additional investment the extra saving will all be lent abroad.

Tax relief on interest income may raise the savings ratio by making savings attractive relative to inflation or foreign exchange deposits. However, this has the result only of an induced outflow of finance, and will not affect investment and growth. Tax policies that influence the growth rate are those that increase the net return to investment, and they may include concessions on mortgage servicing and on direct investment.

3. Tax Changes and Government Finance

If there is a change in tax policy with no change in government spending or other sources of government revenue the fiscal deficit is affected. We should explore the consequences of the changed deficit alongside the tax measures which occasion it. When tax receipts are increased government may reduce its borrowings from the banking system, repay the non-bank public or repay foreign loans.

If government repays commercial banks they may be expected to adjust loan and deposit rates in order to maintain levels of profitability. Deposit rates may fall somewhat, but they cannot be reduced substantially below comparable rates abroad, without provoking a switch to foreign deposit holding. That is one possible reaction, although too low a deposit rate risks an ongoing drain of funds from the domestic economy which would eventually exceed the surplus deposits created by government debt repayment. Some differential between domestic rates and comparable foreign rates is to be expected because of transactions costs and exchange rate expectations; banks may exploit this margin to shave something from deposit rates. The leeway for altering deposit rates is insufficient to induce any switch between bank deposits and other financial assets available to the public.

Banks may either lower or raise loan interest rates, depending on their perception of the interest elasticity of loan demand. If the elasticity is sufficiently high to secure additional loan volume sufficient to replace credit to government loan rates will fall. However, it is equally possible that loan rates will rise, as banks compensate for the lower volume of loans by increasing the net return on each unit.

Table 1 presents evidence drawn from several studies on the interest elasticity of loans and deposits in three Caribbean countries. With the generally low elasticities recorded, a tax increase is likely to provoke an increase in loan rates and a decline in deposit rates. The loan rate increase may not affect the volume of loans very much and it should not make much difference to the level of economic activity, so long as the change does not push the rate far out of the range of recent experience. If it does, interest costs may inflate the prices of non-tradables and depress the supply of tradables. The falling deposit rate should not affect the level of deposits unless it goes below comparable foreign rates, after the cost and risk of foreign financial transfers are allowed for. If the rate does go too low there will be a drain on foreign exchange and an equivalent fall in deposits.

So long as banks are able to accommodate without drastically changing interest rates the system may absorb new finance from the proceeds of taxation without any detectable effects on the real economy. Significant changes in the ratio of taxation to GDP may provoke interest movements that do have real effects, however. The effects may include a deterioration in the capital account of the balance of payments as low deposit rates act as an incentive to hold foreign assets and domestic inflation and contraction of tradables as finance costs rise. Conversely, a very large tax cut may serve to induce the repatriation of financial assets, to the extent that banks seek to finance the increased fiscal deficit. However, the effects may not be symmetrical for increasing and decreasing deficits. If the deficit rises the differential between loan and deposit rates may not narrow if banks are fully loaned up to begin with. The rising government borrowing requirement will tend to lift loan interest rates in this case. Only where lending to government offers an opportunity to employ idle funds may the general level of loan rates be depressed. A modest tax cut may be innocuous, but if the impact on the fiscal deficit is large, the inflation and output consequences are much the same as for an increase in taxation, if the fiscal deficit is accommodated by the banking system in either case.

The proceeds of increased taxation may be used to repay government bonds, bills or other obligations held by the non-bank public. If the change is sufficiently large the unwanted liquidity may serve to depress time deposit rates and returns on private securities. There may be an outflow of funds and finance costs for producers may moderate. However, there may be some inflationary tendency, if the demand for real estate is stimulated by the excess liquidity, for example. Where a large tax reduction is financed by borrowing from the public there may be a tendency to draw funds from abroad and some inflation in the costs of finance.

The tax adjustment may be financed directly by overseas borrowing or repayment, provided there are sufficient foreign exchange reserves, that the country's credit rating is satisfactory or that government is satisfied that any induced changes in the exchange rate are desirable.

None of the effects on real output, prices or the balance of payments will appear for modest changes in tax rates of the kind that are a feature of most budgets. How large a shift in the tax system would be needed to provoke these changes can only be guaged on a country by country basis. However, we are on reasonably firm ground if we assume that there will be no real economy effects from the financing of tax rate changes unless the overall tax/GDP ratio shifts by several percentage points.

4. The Personal Income Tax

For each of the taxes to be examined we look separately at changes in the rate of tax and in the tax structure. The rate may be measured by the ratio of the tax to its base, and a change in rate occurs when that ratio changes as a result of policy without affecting the relative burden of the tax on any segment of the population. The structure of the tax refers to the provisions which determine its incidence on each category of income earner, and it is determined by the marginal rates and their cut-in points, the levels of exemptions and the criteria for exemption. The distinction is for convenience of exposition; tax measures usually involve changes in rate and structure. For each tax we discuss how changes in rate and structure may be used for economic stabilisation - that is, to alter income, the balance of payments outcome and prices in the short run of one year or thereabouts - and to influence the growth of output in the long run of five years or more. We will find it useful to distinguish two categories of activity, following the familiar Solow-Swan dichotomy: production of tradable goods, including all items which may be exported or substituted for imports, and the production of all other (non-tradable) goods. We assume that factor markets are similar in both kinds of activity, but differences in product markets will make for different outcomes of the same tax measure in the two cases[3].

(a) An increase in the rate of personal income tax may serve to arrest a deteriorating balance of payments and slowdown inflation, but it may also depress production in the short run. The tax increase reduces real disposable income and cuts the demand for imports and for locally produced goods. As the demand for non-tradables contracts production falls and prices level off. Tradables have a ready market overseas, so their sales are not affected. If anything exports should increase as local demand for exportables falls, but this is not likely to be of significance in small economies. The balance of payments improves because of the drop in imports of consumer

goods and of imports for the non-tradable sector. There will be some accretion of foreign exchange reserves; even if the exchange rate is flexible, the magnitude of reserve gain from tax rate adjustment is unlikely to provoke an exchange rate appreciation in small developing economies. The reserves gain will be associated with increases in monetary liabilities, which may cause adjustment of bank loan and deposit rates, but they are unlikely to be of a magnitude to affect prices, output or capital movements.

A reduction in the tax rate may have symmetrical effects on the economy in the short run if the exchange rate is fixed and foreign exchange reserves are ample. However, if the exchange rate is flexible there is the risk of serious inflation. Exchange rate influences are asymmetrical in small economies: quite small impulses may depress the rate, but only major improvements such as the discovery of a valuable natural resource will cause it to appreciate. The danger of inflation is even greater where there is a nominally fixed exchange rate inadequately protected by foreign reserves. As reserves are depleted speculative demand for foreign exchange grows, and heavy devaluation ensues, either officially or by diversion of foreign exchange to unofficial markets. Excessive devaluation may wipe out the gains in output expected from the tax cut, because local producers are unable to cope with the rapid changes in costs.

(b) Changes in the personal tax rate will have little impact on the economy's long-term prospects. They do not directly affect the rate of return on investment in the tradable sector which is the crucial factor for the economy's overall capacity for growth. The impact on disposable income may affect the profitability of producing non-tradables in the short run, but output will presumably be adjusted to restore desired profit levels. The profitability of producing tradables rises if a tax cut causes the exchange rate to depreciate, but that outcome may be secured by devaluation with no tax cut.

(c) Changes in the structure of the personal income tax would not normally be intended to stabilise the economy. They may in fact have such effects if the propensities to spend on tradables and home goods are markedly different for individuals at different income levels, for earned income and property income, or for capital gains and other income. However, information of the kind needed to guide policies to exploit these differences is seldom so reliable as to make structural tax adjustment a useful stabilisation policy, except in cases of severe disequilibria.

(d) Changes in the personal income tax structure are more properly designed to accelerate growth in the long term. The desired adjustments are those which improve the net yield on fixed investment relative to the yield on foreign and

financial assets. They include tax credits on earnings retained by the firm for investment, tax credits for corporation tax payments, allowances on service payments for mortgages and tax sparing on income used for direct investment. Concessions on savings instruments - tax free interest earnings, tax credits for purchase of savings bonds - have no inherent effect on growth.

(e) If policy makers wish to adjust personal income taxes so as to stabilise the economy and enhance the prospects for long term growth it seems their best policy is an increase in the overall tax rate with concessions which will increase the net return on investment directly.

(f) There may be a modification of this recommendation where taxation represses the supply of skills. Much recent popular attention has focussed on the impact of tax changes on the supply of labour (including female participation in the labour force), but the marginal unskilled worker pays no tax and in most developing countries there is a pool of unemployed labour ready to replace him at some reservation wage. The impact of taxation can therefore only be on the level of skills. If highly skilled workers are heavily taxed they may emigrate. Many of those whose capabilities are in greater demand may divert their attention from other production to the tax evasion industry. Furthermore, talent may be deflected to the underground economy, which is less efficient than the formal economy in producing on a scale that can make a noticeable impact on economic growth. It is much less likely that the tax system will dissuade people from investing in improving their skills. There is nothing to the popular argument that taxation causes workers to malinger and produce less with the same labour input. Aggregate labour productivity is a function of management and technology, not at all of workers' motivation. (Some would argue that worker motivation varies with the quality of management.)

Adverse effects of taxation on the supply of skills may arise where the domestic tax rate is inordinately high relative to rates in the centres of migration, once discounts are made for the costs of relocation, which are monetary, social, psychological and political, and may include climate and the home environment. Also, the levels of government service available to potential migrants must appear roughly comparable at home and abroad. If the security of person and property, health care, education and assistance to dependents are not at comparable levels, sufficient discount must be allowed against the less burdensome tax regime before there is a sufficient incentive to migrate.

The tax system reduces the supply of skills where there is lack of consensus on the distribution of the burden of paying for public services, or when governments fail to respect that consensus. Loss of skills also occurs where the society

cannot find a generally acceptable compromise on the proper scope for provision of public goods, or where government ignores the preferred compromise.

In circumstances where social consensus has been obtained one may excite long run growth by removing the perceived inequities in the tax system. It may be necessary to restructure the personal income tax to redistribute the burden, to alter tax rates overall or to change the level and scope of government expenditure.

5. The Corporation Tax

(a) The effect of changes in the rate corporation tax will vary from sector to sector, depending on the elasticity of demand for the product, the elasticity of factor substitution and the returns to scale in the industry. In the non-tradable sector, where the elasticity of demand is relatively low, tax changes may be passed on to customers to some extent. Tax increases may lead to some inflation, a reduction in output and, where there are elements of monopoly, a squeezing of profit margins. In the tradable sector elasticities of demand are high, and the tax must be added to the producer's cost. Output may have to be reduced substantially in order to restore an acceptable rate of profit.

In industries where the elasticity of substitution is low it will not be possible to sustain output by switching from capital, now relatively more expensive because of the additional tax, to labour. The price increase or quantity reduction, or the loss of profit will therefore be more severe for firms in this situation than for those which can avail themselves of greater factor substitution. Similarly, if the returns to scale diminish perceptibly, it may be possible to effect adjustment of prices, output and profit with an adjustment in the neighbourhood of the pre-tax level of operation. However, if there is not much change in the returns as output increases or decreases, the adjustment must be substantial.

Table 2 summarises the probable outcomes for an increase in the rate of corporation tax. In general it will be inflationary because of its effects on the supply price of non-tradables, it will weaken the balance of payments because of its effect on the supply price of tradables and it will depress output on both accounts. In the long run growth potential will be impaired if tradables are less profitable to produce. But tradable profits may not fall much because there is less scope for 'excess' profits in the tradable sector (which might be used to cushion taxation) though in the real world we should not assume that firms operate only at 'normal' profit, even in the tradable sector. The magnitude of all effects depends on elasticities of substitution and the returns to scale.

A reduction in the corporate tax rate might enhance growth potential, strengthen the balance of payments, dampen inflation and stimulate output in the short run, but only if the elasticities of substitution and scale factors are favourable. The profitability of investment in tradables is enhanced if the elasticity of substitution is low in that sector, so that a fall in tax liability provides a significant increment to the rate of return, an improvement which is not available by switching to more labour intensive processes. If returns to scale are diminishing slowly in the tradable sector there may be considerable gain in output in response to tax concession before unit costs increase sufficiently to wipe out the additional profit. This combination of circumstances is the most propitious in its implications for growth. In general, we should issue a caution about all the expected reactions; for most actual circumstances they may be quite weak.

(b) Changes in the structure of corporation tax which discriminate in favour of the tradable sector should strengthen the balance of payments and increase output by allowing more competitive pricing in the supply of tradables. They might also encourage higher investment in the tradable sector, to the extent that it can take advantage of market imperfections to enhance its profitability. Corporate tax credits for export performance are an example of changes which might be justified on these grounds.

Corporation tax revisions that reward investment should also be growth promoting because of the impetus they give to the tradable sector. Accelerated depreciation allowances, investment tax credits and changes in the rules of accounting to permit higher claims against investment should all serve to enhance the economy's potential.

(c) Corporate tax reform for economic stabilisation and growth requires prior information on the elasticity of substitution and the returns to scale, particularly in the tradable goods sector, to determine whether a reduction the corporate rate will have measurable effects. If the tradable sector meets the criteria for significant impact, a reduction the corporate tax rate is indicated. In addition, the tax structure might be biased so as to give higher returns for investment in tradables and for the re-investment of earnings.

6. Import Duties

Increases in the rate of import duty have relative price effects that depress imports and substitute demand for domestic output. They thereby boost output and strengthen the balance of payments. Absolute price effects are diminished because most developing countries make intermediate and capital goods exempt from duty. Inflation varies with the proportion of consumer imports, the elasticity of substitution between consumer imports and domestic final goods (which determines to what extent the duties will reduce the propensity to import

final goods), and the pricing policies of firms which distribute imports. Provided imported inputs remain tax exempt import duties have no effect on the profitability of exports. They may make a contribution to the capacity for growth by their effect on the profitability of import substitutes. Increases in the import duty may therefore be a useful component of economic stabilisation packages; their long run effects may not be very powerful because of the limited potential for import substitution in small economies, but they are in the right direction.

The arguments for long term growth point in the direction of full exemption for imported inputs. The case for uniform import duties on all items rests on the assumption that long term discrepancies in the rates of profit on tradables, non-tradables and investment abroad cannot persist. If that were so import duties would not matter because production would always adjust to the level required to restore the common rate of profit. In practice rates of profit differ, and may be enhanced by reducing the cost of imported inputs by eliminating taxation.

The import tariff is never imposed at a single rate for all items. The structure is frequently changed as rates are altered for one class of goods and not another. To maximise the extent of import substitution one might tax more heavily those items where the elasticity of substitution between home goods and imports is very high. But this strategy is limited by the potential loss in government revenue, which may be significant.

7. Other Indirect Taxes

Changes in the rates of sales taxes, value added taxes, excises and stamp duties have relative price effects because of the varying price elasticities of demand for the products to which they apply. They also increase costs of inputs and final goods, adding to the rate of inflation. Disposable income may decline as a result of general inflation because we have stipulated that government will not spend the additional revenue, and the reaction of the banking system to reduced government borrowing does not raise incomes in the private sector. Higher indirect taxes should arrest the growth of demand and cut imports, but at the expense of inflation. Moreover, their impact on long run growth is negative, to the extent that taxes raise the costs of inputs.

However, indirect taxation offers the possibility of selecting the items on which additional imposts are to be laid. The choice can be made so as to minimise the adverse growth and inflation outcomes. To reduce the threat of inflation the tax increases should rest heavily on items where price elasticities are quite high, so that the impact falls mainly on output. To lessen the danger of loss of

investment taxes on intermediate goods should be replaced by taxes on final goods whenever possible. In general, indirect taxes are useful mainly for economic stabilisation, and they should concentrate mainly on final goods, with reduction or elimination of excises and stamp duties which fall indiscrimately on intermediate and final goods.

8. A Combination of Tax Changes for Growth and Stabilisation

The foregoing discussion offers clues about the kind of tax package that would encourage rapid growth without precipitating an external payments crisis. Quantitative exercises would have to be undertaken to establish the probable magnitude of the responses to tax changes in the long run and in the short. As far as possible complementarity of effects could be exploited. In this section we sketch the contours of a desirable tax package, without attempting quantification. The effects on the distribution of income have been left out of the picture; in practice it would be necessary to analyse the income distribution effects of whatever policy emerges from a study of this kind, and make adjustment if the alterations were deemed socially unacceptable.

In order to promote economic growth the structure of the personal income tax should be adjusted to allow sizeable exemption for direct investment by the tax payer. The authorities may need to change the personal tax ratio, if there is strong public sentiment that government services are woefully out of line with the tax burden, or if there is glaring discrepancy between the domestic taxation/services compromise and that in countries to which skilled workers may migrate. If there is threat of external payments disequilibrium, an increase in personal income tax rates may be useful, and it would also help to dampen any inflationary pressure. However, real output might be expected to fall in the near term.

A reduced rate of corporation tax should serve as a stimulus to investment and growth, particularly where the possibilites for factor substitution in the tradable sector are low. Investors in tradables, which are crucial for potential growth in the long term, capture most of the gains from tax relief in this circumstance. Corporation tax concessions based on export performance and on firms' propensity to invest would also enhance the prospects for growth. Reduction in the corporate tax may strengthen the balance of payments in time as exports grow, and it may help in the fight against inflation, but it is not a powerful weapon for stabilisation.

Higher import duties, with exemption for producers' goods, should spearhead the measures for short term economic adjustment. They have no lasting effect on growth potential, and they should result in an improved balance of external payments with some increase in the production of import substitutes. Inflationary effects will be softened by exempting producers' goods and by structuring the duties to fall most heavily on items where the relative price elasticity for imports and local goods is high.

Increases in sales taxes and other indirect taxes on final consumption goods may be used to cut back demand which threatens the balance of payments, though at the expense of some inflation and possible loss of output. The increases are less inflationary if they are arranged to fall most heavily on items with a high elasticity of demand. Excises and stamp duties have a significant impact on producers' costs and therefore on profitability and long-term prospects, so indirect taxes should be adjusted to reduce the burden in these directions.

The preferred tax combination for stabilisation and growth, assuming there is no other fiscal change, would include personal tax exemption for investment, mortgages, purchase of shares and dividends, but no change in the rate of tax. If the overall revenue requirements permitted, corporation tax rates might be reduced, and provisions for relief based on investment and export performance reinforced. The rates of import duty and of sales taxes might be increased, but excises and stamp duties should be eased. We do not stipulate whether the overall effect should be to increase or reduce tax revenue. That question may only be answered by addressing simultaneously government spending, revenue and financing. An assessment of the direction and magnitude of the overall tax change would have to be made before deciding on the issues discussed in this paper, which have to do with the allocation of any additional tax burden. That initial target for revenue would have to be revised after assessing the impact of taxes by means of the disaggregated analysis which the present study provides.

9. Second Round Effects

The analysis so far has concentrated on the direct impact of tax measures on the economy, to the neglect of further repercussions that the initial responses might themselves set in train. We now explore these possible reactions - the wage-price spiral, the implications of demand expansion or contraction and the monetary effects of balance of payments changes.

Any tax measure which generates inflation risks setting off a delayed wage reaction which can fuel

inflation in an upward spiral of prices and wages. Increases in indirect taxation included in the suggested package for controlling an excess demand for foreign exchange carry the danger of initiating an exponential increase in prices. It could frustrate the policy makers' intentions by driving up costs, eroding the competitiveness of exports and import substitutes and diverting demand from increasingly expensive non-tradables. The balance of payments weakens and profit rates are compressed, worsening the investment outlook. This danger highlights an important advantage of taxation over other policies of balance of payments adjustment such as exchange rate adjustment, interest rate changes and credit policy. By selecting a judicious mix of tax policies one may target the balance of payments directly, skirting possible inflation by discriminating among individual tax rates. Taxes may be set to target final goods rather than producers' goods and elasticities of demand can be exploited to reduce real purchases rather than to drive up prices.

Where threat of a wage-price sprial emerges it might be thought that concessions on the personal income tax could be used to discourage aggressive pursuit of nominal wage increases. In practice such a trade-off is normally beyond reach. It demands a much more sophisticated understanding of the tax system than is typically the case. More fundamentally, the switch of tax relief for wage increases, even if it has identical impact on real disposable income in the aggregate will cause some households to gain at the expense of others. The potential losers will remain adamant about their wage increase.

The crucial variables in determining the strength of the wage-price spiral are the magnitude and duration of the initial inflationary shock, the extent of formal indexing and the extent of unemployment. Large price increases which are sustained by widespread systems of formal indexing or a succession of policies which generate inflation year after year ensure the persistence of inflation expectations and bring on a virulent cost reaction. However, very high levels of unemployment eventually break the spiral.

The strength of expected cost reaction will colour the choice of tax policy. In economies which are inflation-prone especial care should be taken to avoid taxes which have a strong price impact. Such taxes might be helpful to policy makers in low-inflation countries, which may tolerate the costs of some rise in prices.

Tax increases designed to dampen spending tend to depress income, or at least to slow down the rate of

expansion. The loss of income further reduces spending and helps to correct balance of payments disequilibria. However, this is the kind of adjustment countries are most anxious to avoid, because of the trade-off between growth (in the short term and perhaps also in the long) and stabilisation. The use of expenditure switching tax measures such as import duties could theoretically correct the external payments and stimulate the growth of output, but that it requires very high values of the elasticity of substitution between imports and domestic output, of the ratio of non-tradables to output and of the marginal propensity to import.

Improvements in the balance of payments lead to a build up of foreign exchange reserves and a corresponding rise in domestic deposits and currency. The reaction for changes of the magnitude that can result from tax policy should not generate any real sector response. However, if the balance of payments worsens and the currency is allowed to depreciate (or the authorities do not have the foreign exchange with which to support the exchange rate) inflation will result and the spectre of the wage-price special re-emerges. Such an outcome inevitably destroys the credibility of the tax strategy which provoked it.

10. Summary

Because fiscal policies have such powerful macroeconomic effects in small open economies, it is vital that they be framed so as to promote the transformation developing economies need for growth, as well as to ensure tolerable price, output and balance of payments outcomes in the short run. In this paper we have examined how tax policy may be used creatively to this end. The variety of available taxes, each with a different impact, provides an opportunity to custom design the tax package in light of each economy's problems and circumstances. Our survey of the effects of the personal income tax, the corporation tax, import duties and sales taxes provides the basis for putting together a package that offers the best growth rate that is compatible with the objective of stabilisation. The package will be tailored to the country's circumstances and its elements will vary according to the virulence of domestic inflation, the existence of excess demand or supply of foreign exchange, the extent of spare capacity in the tradable sector and the existing propensity to invest. The tax arrangements would have to be fitted into an overall programme which included policies for government spending, government finance, financial adjustment and the exchange rate, all evaluated on similar criteria of short and long term effects.

Footnotes

1. The notion of the balance of payments constraint, dismissed by neo-classical economists, has recently re-emerged as a major issue for the UK (Williamson [1984]) and for developing countries (Thirlwall and Hussein [1982], Helleiner [1986]).

2. This assumes that domestic currency is the investor's currency of reference. If it were not we would have
RPRN* = PR* - PRF* + ERN* - ERF*
where ERN and ERF are competitive exchange rates in terms of the currency of reference.

3. The model we have in mind is described in Holder and Worrell [1985].

References

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Appendix

A Model of Output, Prices and the Balance of Payments

The model which informs our discussion of the short term repercussions of tax changes may be represented by a system of seven equations to determine output, prices and the balance of payments.

Output

Output is decided on the markets for tradables and non-tradables. The demand for tradables is infinite and output depends on the costs of supply:

(A1) $q_t = q_t(P_t, s, c)$

is the equation of the supply curve where the symbols are:

q_t = output of tradables

P_t = exogenous price of tradables

s = unit labour cost

c = user cost of capital

Suppliers of non-tradables aim to provide a quantity sufficient to make up some of the discrepancy between expected demand and the amount reaching the market in the previous period.

(A2) $q_n = q_n(y, P_t/P_n, q_n(-1))$

q_n = output of non-tradables

y = real disposable income

P_n = price of non-tradables

They supply this amount at a price given by their supply curve:

(A3) $P_n = P_n(q_n, s, c)$

These three equations together determine total output and the price of non-tradables.

Prices

Consumer prices move with changes in the prices of tradable goods and with the inflation of non-tradable prices, which include the distribution costs of bringing tradable goods to retail markets:

(A4) $P_c = P_c(P_t, P_n)$

The Balance of Payments

The demand for real imports (m) is similar to the demand for non-tradables:

(A5) $m = m(y, P_t/P_n)$

The simplest way to represent external balance is to constrain the change in foreign exchange reserves to zero. The reserves change is the difference between exports and net capital inflows, and imports:

(A6) $o = P_t x(q_t, P_t, P_n) - P_t m + K$

x = real exports

K = net capital inflow

The first term on the right hand side gives exports as a function of the output of tradables, simplified by neglecting

domestic consumption of tradables which is typically small for small open developing economies. It is derived from the identity for value added in the tradable sector:

(A7) $P_t x = P_t q_t + P_t m_t(q_t) + P_n\, i(q_t)$

m_t = imported imputs for tradable sector

i = domestic imputs for tradable sector

The Effects of Taxation

The effects of taxation may be traced trhough from the variable which registers their initial impact. The personal income tax reduces disposable income and thereby inhibits the demand for non-tradables and imports. Corporation taxes increase the user cost of capital and raise the supply prices of both categories of goods. Depending on the basis for tax exemption the personal income tax may also affect the user cost of capital; a formula combining all the tax effects appears in Chirinko and Eisner [1983], p. 141. Import duties alter the relative price terms and the mix of imports and non-tradables in consumption. They will also affect exports. Sales taxes also affect relative prices because of the differing elasticities of demand for the products on which they are applied.

Table 1, page 1

Interest Elasticities of Money and Credit

Study	Variable Explained	Interest Rate Variable	Coefficient and t-statistics	Indicators of Equation Performance
Holder & Worrell [1985]	Ln TML (B'dos)	$D(r_d - r_f)$	-0.05 (-0.46)	R^2 = 0.56, DW = 1.29, SEE = 0.96, F(3,17) = 7.33
"	Ln TML (Jamaica)	"	-0.04 (-0.36)	R^2 = 0.62, DW = 1.91, SEE = 0.91, F(3,17)) = 9.38
"	Ln TML (Trinidad)	"	0.79 (7.29)	R^2 = 0.93, DW = 2.02, SEE = 0.58 F(3,16) = 67.9
Bourne [1974]	SD	RTSD	-0.1911*	R^{-2}= 0.9994, SEE = 0.9127, F = 628.1, Rho = -0.4924, DW = 1.86
Worrell [1985]	LnCR (B'dos)	Lnr_1	0.22 (0.60)	R^2 = 0.99, DW = 1.63, SEE = 0.12, F(2,18) = 6414, Rho = 0.81
"	LnCR (Jamaica)	"	1.69 (1.56)	R^2 = 0.99, DW = 2.02, n = 22, Rho = 1.15
"	LnCR (Trinidad)	"	2.31 (2.26)	R^2 = 0.97, DW = 1.63, SEE = 0.21, F(2,17) = 282.5, Rho = 0.1
"	Ln DP (B'dos)	Ln $D(r_d/r_f)$	-0.24 (0.90)	R^2 = 0.75, DW = 2.16, SEE 0.62, F(2,18), 27.09, Rho = 0.41

continued

Table 1, page 2

Worrell [1985]	LnΔDP (Jamaica)	Ln $D(r_d/r_f)$	-0.09 (0.20)	R^2 = 0.62, DW = 2.04 , n = 22, SEE = 1.50
"	LnΔDP (Trinidad)	"	-0.29 (-1.17)	R^2 = 0.76, DW = 2.04, SEE = 0.93, F(2,18) = 28.65
Worrell & Prescod [1983]	TML	$r_d - r_f$	-5.20 (-4.79)	R^2 = 0.9351, DW = 2.42, Rho = -0.66 (1963-80)
"	TML	"	-0.52 (-1.59)	R^2 = 0.3870, DW = 2.06. Rho = -0.39 (1963-80)
"	SD	"	0.61 (1.59)	R^2 = 0.6767, DW = 1.3 (1960-80)
"	TD	"	-0.64	R^2 = 0.5082, DW 1.98 (1960-80)
"	Cr (agr)	r_l-P	-0.13 (-0.49)	R^2 = 0.03
"	Cr (mfg)	"	-0.18 (-1.48)	R^2 = 0.85
"	Cr (Constr.)	"	0.02 (0.15)	R^2 = 0.12, DW = 2.23
"	Cr (distribution)	"	0.09 (0.38)	R^2 = 0.26, DW 1.60
Saunders & Worrell [1978]	Loans	r_l	-9.00 (-1.19)	R^2 = 0.9624, DW = 1.73, n = 17

continued

Table 1, page 3

Worrell [1985]	LnDP	Lnr_d/r_f	0.01 (0.05)	R^2 = 0.9417, SEE = 0.2399, DW = 0.4, F = 178.66 (1961-85)
"	LnCr	Lnr_l	0.42 (0.94)	R^2 = 0.9425, SEE = 0.2575, DW = 0.51, F = 181.36 (1961 - 83)

continued

Note: * Long term elasticity

Symbols

Cr	Credit
D	A dummy variable
DP	Deposits (total)
r_d	Deposit interest rate
r_f	Foreign interest rate
r_l	Loan interest rate
RTSD	Interest rate on time and savings deposits
SD	Savings deposits
TD	Time deposits
TMl	Total monetary liabilities

Table 1, page 4

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Bourne, C. 'Dynamic Utility-Maximising Models of the Demand for Money in Caribbean Economies,' Social and Economic Studies, September 1974.

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Table 2

Impact of Increased Corporation Tax

Elasticity of Demand	Elasticity of Substitution	Returns to Scale	Short Run Q	Short Run B	Short Run P	Long Run PR
High (Tradables)	High	Rapidly	-	-		-
	Low	"	--	--		--
	High	Slowly	-	-		-
	Low	"	--	--		--
Low (Non-tradables)	High	Rapidly	-		+	-
	Low	"	-		+	-
	High	Slowly	-		+	-
	Low	"	-		++	-

Key
- Q Change in output
- B Change in balance of payments
- P Change in prices
- \- Small to moderate decline
- -- Moderate to large decline
- \+ Small to moderate increase
- ++ Moderate to large increase