

# ECONOMIC PERSPECTIVE

## THE ECONOMICS OF THE "TARTAN TAX"

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### 1. INTRODUCTION

The General Election has resulted in the election of a Labour government committed to holding a referendum on the establishment of a Scottish Parliament and on whether the parliament should have tax varying powers. The proposed referendum will be pre-legislative and will seek popular support for proposals set out in a White Paper based upon the plans developed by the Scottish Constitutional Convention (SCC). A recent opinion poll suggests that 64% of Scots are in favour of a Scottish Parliament with 21% against and 15% undecided. (Dinwoodie 1997) In addition, 53% are in favour of the proposed "tax raising" powers with 28% against and 19% undecided. With a referendum planned for early Autumn, a Scottish Parliament with tax varying powers seems in prospect before the end of the millennium.

The purpose of this paper is to explore the economics of the revenue raising powers or "Tartan Tax". In the remainder of this paper we will discuss mainly the financial aspects of the parliament. In Section 2, we set out an analysis of the scope of the proposed parliament and consider its likely influence on the macro economy. Section 3 briefly sets out Scotland's fiscal position whilst Section 4 outlines the approach to modelling the economy adopted in this paper. Section 5 presents both a theoretical and empirical evaluation of the probable effects of the proposed "tartan tax". Our concluding remarks are set out in Section 6.

### 2. THE ECONOMIC POWERS OF THE SCOTTISH PARLIAMENT

Although some of the detail has yet to be fully established, inter alia, the SCC scheme envisages the following.

A Scottish Parliament of 129 members is to be elected by a variant of the Additional Member System (AMS). There will be 73 Scottish constituency members elected by first past the post and an additional 'top up' 56 members elected from lists in the 8 Scottish Euro constituencies. It is envisaged that in each Euro seat the 7 additional members will top up the 9 constituency members to engender the maximum possible degree of proportionality.

If the system had been in place at the 1992 general election, it would have resulted in Labour becoming the largest party with 51 seats with no overall control of the parliament. Curtice (1997) estimates that Labour would have fared better in 1997, gaining 63 seats on the basis of a 45½% share of the popular vote. This is 2 short of an overall majority which Curtice suggests requires around 47% of the popular vote, distributed as at present. In Scotland's four party system, we are likely to experience coalition government which may militate against any single party being able to implement its preferred economic and fiscal strategy.

The SCC scheme capitalises on the substantial system of administrative devolution presently in place in Scotland. The parliament will administer the spending programmes currently the remit of the Secretary of State for Scotland and will determine the disposition of resources between the various Scottish office functions (health, education, social services, local government, law, order and protective services, and the activities of the regional development bodies, Highlands & Islands Enterprise and Scottish Enterprise). In addition, the parliament would determine Scottish legislation making the body substantially different from that proposed for Wales or Northern Ireland.

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Functions such as foreign affairs, defence, social security, monetary policy, fiscal policy, civil aviation, regulation of industry and commerce would remain the responsibility of Westminster. The exact method of allocating duties between Westminster and Edinburgh remains to be determined. The SCC scheme calls for a set of defined powers to be devolved to a Scottish parliament whilst the Constitutional Unit proposes that the powers to be retained at Westminster be specified with the Scottish parliament being responsible for everything else.

Scotland will continue to be represented by 72 Westminster MPs and continue to have a Scottish Secretary of Cabinet rank. There is an ongoing debate about the long term political viability of this representation and the possible implications for the way in which England will be governed in future. If the status quo is not an option for Scotland, Wales and Northern Ireland, then it is not likely to be an option for England.

In this light, devolution should not be viewed as a one-off event but rather a process that will fundamentally alter the governance of the whole of the UK. In the medium term, this could lead to a re-appraisal of the basis for allocating public expenditure between the nations and regions of the UK and weaken Scot's ability to engender favourable fiscal outcomes in the Whitehall and Westminster system.

On the arrangements for financing the Scottish Parliament, the SCC are unequivocal. The SCC publication, Scotland's Parliament. Scotland's Right argues that

"The principle of equalisation will continue. This means resources will be pooled on a UK basis and distributed on the basis of need. The establishing Act will embody the principle of equalisation - which has provided a stable, long term foundation for government expenditure in Scotland for many years, receives the support of all the UK parties and has served Scotland and the UK well. Thus, Scotland will continue to be guaranteed her fair share of UK resources.....The current formula for the calculation of government expenditure in Scotland - the Barnett/Goschen Formula - will continue to be used as the basis for the allocation of Scotland's fair share of UK resources." (pp:27)

The Barnett formula determines the size of the Scottish Office block. This formula allocates to Scotland a population weighted share of the changes in an unknown block of English and Welsh spending programmes<sup>1</sup>. It has the property that it should encourage convergence of Scottish *per capita* spending to English and Welsh levels and was introduced as a response to Scottish spending per head being above the levels set out in the 1976 needs assessment. The formula has failed to deliver the intended convergence. Heald (1992) argues that this is due to the rounding up of the population weights, declining Scottish population, formula bypass by skilful Scottish Secretaries and to various adjustments to the way UK spending is accounted for. The weights of the formula were changed for the first time in 1992 and now reflect current population share and should promote faster convergence<sup>2</sup>.

The parliament will be financed by an 'assigned budget' determined in exactly the same way as the Scottish Office funding is currently established. The present 'block and formula' arrangements account for 95% of total Scottish Office expenditure of around £14¾bn. The remainder comprises expenditure on agriculture and nationalised industries which are determined/ negotiated separately. Spending in these areas reflects UK policies and priorities and the Scottish parliament's duty will be to oversee policy delivery of UK determined programmes. The nature and extent of any borrowing powers remains to be established.

Subject to popular endorsement in a second referendum question, the parliament will have the power to vary income tax by ±3p on the standard rate. According to Treasury estimates this would yield a probable £390m in 1994/95 which is small in relation to both the assigned budget and to Scottish GDP of around £50bn. This is the only direct fiscal instrument to be given to the parliament. It will not have the power to engender new regional taxes or to vary terms or rates of other tax instruments.

In particular, great stress is placed on the view that business taxation will remain under Westminster control. However, as Jones (1995) has noted, the profits of self employed people are subject to income tax. The extent to which elements of personal income are exempted will affect the potential tax take and it is reported that the Scottish Office are seeking ways to exempt the earnings of self employed from the tax varying powers. Labour intends to return the determination of business rates

to local authorities. The parliament will still determine the overall spending of local authorities and could in principle transfer the burden of taxation onto council taxpayers and business by retaining a higher proportion of the assigned budget for central government services.

In principle, adherence to a UK policy of equalisation is at variance with the tax reduction powers proposed by the SCC. A national policy of equalisation is pursued to ensure that everyone living in every part of the UK receives the same access to public services. Given an unequal spread of wealth and opportunity in the UK and wide differences in population density this implies that a different per capita spend will be required in different parts of the country and that transfers between richer and poorer areas becomes inevitable.

Thus, one cause of regional public sector deficits is the operation of the national policy of equalisation which nails down a large proportion of overall government expenditure in an area. The bulk of Scottish Office spending is allocated via the Barnett formula and justified rather nebulously on the basis of needs. However, administrative devolution gives the Scottish Office and the proposed Parliament the power to allocate across spending areas according to local preferences. Thus, equalisation is not pursued on a service by service basis and there is wide variation in per capita spend on various services both within Scotland and between Scotland and the rest of the UK.

Even so, the overall level of provision is justified in terms of need, and policy conflict will emerge if a deficit region wishes to cut regional taxes. The very act immediately challenges the nationally determined goal of equalisation of public services. If the principle of equalisation is to continue, as the SCC plan desires, a practical implication is that regional tax variation is in some circumstances inconsistent with the pursuit of a UK policy of equalisation. Although this is the case most relevant to our current circumstances, it may not matter much in practice but does foreshadow a more fundamental concern.

Heald (1992) maintains that the exact details of Barnett Formula remain unknown outside official circles and suggests that formula bypass has contributed to Scotland receiving bigger increments than warranted. If tax variation is to work the block funding must be made independent of the tax varying powers. One solution would be a transparent allocation mechanism accompanied by periodic needs assessments to determine the desired

national allocation of public spending. Our analysis of Scotland's fiscal position suggests that this may be a painful process because any rational basis for allocating public expenditure across the UK may lead to real cuts in Scottish Office/Parliament budgets.

The alternative is to rely on Scottish clout in the Whitehall system to protect Scottish Office budgets using the present and less transparent arrangements. This would seem to be what will happen. Initially Scottish Secretaries will emerge with an expenditure settlement which will comprise the budget of the Scottish Parliament. With an allocation which derives, in part, from political factors and depends on a mechanism which is not transparent and whose properties can and have been altered, it would not be entirely impossible to foresee situations in which the Treasury claws back some of the increased tartan tax revenue. In such a situation, the independence of the revenue varying powers and the determination of the scale of the grant depends on political decisions.

Whether the present arrangements are sustainable with or without devolution is beyond the scope of this paper. However, political arguments as to the eventual number of Scottish MP's and the ultimate status and influence of the Scottish Secretary would appear to make this approach look less sustainable in the long run. This is a fundamental policy dilemma facing those framing the devolution legislation. The question is not whether the basis for allocating public expenditure to Scotland will be reviewed but when and under what circumstances.

From the foregoing account, it is evident that the Scottish parliament will not exercise substantial influence on the level of aggregate demand in Scotland. To the extent that stabilisation policy is pursued it will be conducted at a UK level. As Newlands (1997) notes, the extent to which public finance theory can be marshalled to endorse a regional parliament resides in the ability of such a body to engender a more efficient allocation of resources. This is due to the view that the electoral process serves as a crude mechanism for revealing local, social preferences thus promoting greater social welfare through a more optimal allocation of Scottish public spending.

However, the parliament will control many of the key levers of supply side policy. Local accountability and control may ensure that these levers are pulled in a more appropriate way. The parliament will be in control of many of the things

thought important to national prosperity by (endogenous) growth theorists and management consultants such as Michael Porter. The extent to which the Scottish parliament can shift resources into human capital development, economic and social infrastructure, technology development and transfer is uncertain, as is the long run pay off.

Short term considerations may preclude a shift from public consumption to public investment particularly at a time of slow real growth in public spending. Supply side policies are long run in nature and seek to increase the trend growth rate. Funding via a block grant ensures that the benefits do not directly accrue to the institution which makes the required sacrifices of public consumption goods. This may act as a disincentive to shift resources into such areas.

Our discussion suggest that the macroeconomics of Scottish devolution revolves around three main issues. First, the impact of any change in the use of the total UK-determined Scottish budget (block grant now and assigned budget under devolution). Secondly, the effects of any induced changes in the scale of the assigned budget. Thirdly, the impact of the proposed independent tax-changing powers.

We consider the former two impacts in McGregor et al (1997c) where we conclude that re-allocation of the Scottish Parliament budget, the ability to enact legislation and control enterprise agencies offers considerable scope for influencing the Scottish economy but that this cannot be assumed, *a priori*, to deliver improved performance and higher growth rates. However, we note that a respectable literature on fiscal federalism supports the notion that reallocation of a regional budget can improve economic welfare.

Second, any induced attempts to limit the scale of the Scottish budget via cuts in public spending would have severe adverse effect on output and employment in the Scottish economy. There are clearly some pressures towards equalisation of *per capita* expenditures across regions. However, the Scottish parliament will surely argue the case on a "needs" basis, though the prevailing view is that this would still imply longer-run contractions in the Scottish share of UK public expenditure. The parliament would presumably emphasise the need for gradualism in any such adjustment, which must be effected against the background of a growing private sector.

We note that Scottish independence would require

adjustment of the Scottish public sector deficit (PSD) to a target governed by the need for a sustainable Scottish fiscal policy, rather than adjustment to a share of expenditures. This would be likely to be significantly more painful for the Scottish economy, *ceteris paribus*, unless independence *per se* were somehow to stimulate private sector activity in an offsetting manner. Whatever, conflicts emerge between Scotland and London, there is no separatist trap door from which to escape the financial realities facing a Scottish Parliament.

### 3. SCOTLAND'S FISCAL POSITION

In the UK, taxes and other central government revenues are determined centrally, pooled and distributed to the nations and regions according to the principle of equalisation. Equalisation dictates that the same level of public services be available to citizens, irrespective of where they live. This implies that providing the same level of service in a poorer and less densely populated area may require a greater than average *per capita* spend and result in a fiscal deficit which requires to be financed by other parts of the UK. In assessing the Scottish fiscal position, the appropriate definition of government spending is the cost of providing the level of services enjoyed by the Scottish people. Scottish revenue is due to incomes of Scots residents, consumer spending in Scottish outlets and the activities of business establishments based in Scotland.

Scotland's expenditure and revenue is not separately identified in the UK public accounts and has to be estimated, a process which is judgemental to a degree. The most widely agreed means of doing this are set out in Mackay and Woods (1992), Stevens (1995) and Scottish Office (1995 and 1996) which provide estimates of Scotland's fiscal position for the 1990/91 to 1994/95 period. Spending has three elements as set out in Table 1 for 1994/95.

- Identifiable Spending ( Scottish Office + Social Security)
- Unidentifiable Spending ( largely public goods such as defence, foreign affairs etc )
- Other Spending (servicing of debt, National Accounting Adjustments)

Identifiable spending in Scotland is available from a Treasury Territorial Expenditure Exercise published annually in the Annexe to the Public Expenditure Statement. Unidentifiable spending

and much of Other Spending requires to be allocated to Scotland according to either a population share or GDP share basis. On the revenue side, the UK operates a unified tax system which does not allow regional revenue to be separately identified. In the case of income tax, the Inland Revenue undertakes a sample of tax returns which allows Scottish revenue to be estimated. For other taxes a variety of estimators based on economic, industry and population measures are utilised.

Scottish Office (1996) indicates that, in 1994/95, expenditure on services enjoyed by the Scottish people totalled £29.7bn whilst Scottish revenue amounted to £23¾bn with and £22.1bn without North Sea Oil Revenue with the difference being funded by transfers from Rest of UK taxpayers. Scottish public expenditure accounts for 10¼% of UK spending whilst Scottish revenue accounts for 8.9% of the national equivalent. The size of the Scottish budget deficit depends largely on the UK budget deficit which fluctuates with the economic cycle. Stevens (1997) reviews the substantial body of evidence which indicates that Scotland possesses a substantial structural deficit. A structural deficit arises when an area's share of national public expenditure is greater than an area's share of national government revenue. If the national accounts are in balance and Scotland accounted for the same shares of UK revenue and expenditure as in 1994/95, then Scotland would have a budget deficit equivalent to 1.35% of UK public expenditure/revenue.

All of the published estimates indicate that Scotland's expenditure share is higher than its revenue share. In addition, Table 2 presents recent evidence supplied by the Treasury in response to Parliamentary Questions relating to the 1979/80 to 1994/95 period. Column 1 sets out official measures of the UK General Government Borrowing Requirement (GGBR) excluding privatisation proceeds and North Sea oil revenues. A positive number indicates a deficit and a negative number a surplus. Treasury estimates of Scotland's share of the UK GGBR (excluding privatisation proceeds and oil revenues) are presented in the second column of Table 2 and used to derive the Scottish GGBR set out in the third column. For the years where the UK was in surplus, the Scottish deficit is estimated by taking 10.25% of UK spending and the population share of UK revenue. Column 4 contains estimates of the Scottish GGBR and is obtained by adding back population share of UK privatisation proceeds and 90% of UK North Sea

oil revenues.

This evidence is consistent with this view that Scotland experiences a structural deficit. First, Scotland's share of the UK deficit (excluding privatisation proceeds and North Sea Oil Revenue) is above its share of the UK population in every year. Second, Scotland's share of the UK deficit increases substantially as the UK moves into fiscal surplus in the late 1980s. Table 2 indicates that for much of the 1980s, Scotland would have been in surplus if she received 90% of UK North Sea receipts and population share of UK privatisation proceeds but that in the 1990's and Scotland would be in deficit on this basis. Forecasts of Scotland's fiscal position based on the structural deficit result are contained in Stevens (1997) and Woods (1997).

Table 3 indicates that total Scottish public spending per head is higher in Scotland than in most other parts of the UK. This is particularly the case for the areas which will be controlled by the Scottish parliament. The UK operates a system of equalisation which results in transfers from richer to poorer areas, and it is possible to argue that the higher *per capita* expenditure in Scotland is justified by greater needs. In some cases greater spending is required in Scotland in order to ensure an equal provision of services given its more spatially dispersed population. Reference is also made to higher Scottish unemployment, greater levels of poverty, and poorer health statistics, again reinforcing the needs-based case for higher public expenditure north of the border.

In addition, there is a suggestion that in terms of some criteria the conventional allocation of expenditures to Scotland overstates its true share. Many of the services enjoyed by the Scottish people are provided from outwith Scotland. For example, Scotland is allocated its population share of UK defence spending on the basis that the service is provided equally to everyone in the UK. However, the South East and South West is heavily over represented in the supply of such services and benefits disproportionately from the multiplier effects of the first round of such spending.

The last needs assessment was conducted with reference to 1976 and indicated that spending per head across a range of services within the Scottish Office block required to be 116% of corresponding English levels. It seems unlikely that the current levels of expenditure could be justified by a rational assessment of Scottish needs. In the case of economic indicators, Scotland's relative position

compares favourably with the situation pertaining in the mid 1970's. However, economic blessings are extremely unequally distributed across Scotland with Lothian, Grampian and Tayside well above the UK average on many criteria and other areas well below the average.

The view that Scotland's *per capita* expenditure cannot be justified by objective needs was enunciated forcefully in the dying days of the recent General Election by outgoing Scottish Secretary, Michael Forsyth, who claimed that unpublished official estimates indicated that Scottish Office expenditure was £2.5bn above assessed needs. A similar view informs reports by the Constitutional Unit (1996) and IPPR (1996) but is hotly contested by many Scottish politicians, at least in public.

Ultimately, as Midwinter (1991) has pointed out, an assessment of needs is a subjective decision made on the basis of objective data. In other words, the establishment of need is ultimately a political judgement. The 1976 exercise has been severely criticised and a new framework for establishing needs is warranted. The objective factors chosen will have a bearing on the result as would any consideration of the spatial distribution of MIRAS and the location of public service provision. Thus, the official assessments trailed by Michael Forsyth may or may not be acceptable to a Labour Treasury. However, we repeat that the prevailing view is that we would be hard pressed to justify our present level of spend with reference to any rational computation of 'needs'.

In this section, we have sought to establish that, with or without North Sea oil, a Scottish Parliament will spend more per head on identifiable services than in the UK and Scotland will receive a transfer to support the provision of all public services enjoyed by Scots. Scots are provided with a significantly higher expenditure *per capita* on public services than south of the border, and this may be difficult to justify on the basis of a needs assessment. These facts constrain the choices of funding a Scottish Parliament and, in particular, suggest that it is unlikely that a Scottish Parliament could use its tax-varying powers to reduce the standard rate of income tax in Scotland.

#### 4. MODELLING THE SCOTTISH ECONOMY

Any assessment of the macroeconomic impact of the Tartan Tax on the Scottish economy will depend on the underlying vision of markets and the

degree of spatial integration between the regions and nations which comprise the UK. We therefore begin with a brief discussion of the main alternative perspectives on regional economies.

In a UK context, the traditional and broadly Keynesian view of regions embodies intuitive notions of imperfectly competitive, non-clearing markets characterised by limited spatial integration which results in moderate migration responses. This approach is often augmented with the idea of increasing returns to scale and the possibility of cumulative causation and persistent (and widening) disequilibria. (See eg Armstrong and Taylor, 1993, for a discussion.)

At the other end of the spectrum is a neoclassical perspective, held by many US regional economists, which is founded upon universal competition and rapid labour market adjustment through migration flows, so that regions are characterised as being in virtual continuous spatial competitive equilibrium (eg Schacter and Althaus, 1989).

We believe that the evidence provides little support for the more extreme forms of these alternative visions. The idea of continuous spatial general equilibrium seems to us obviously inapplicable in the UK and probably also in the US context (Harrigan and McGregor, 1993). Moreover, the traditional Keynesian view, in which markets play little or no role, now seems rather naive and also lacks supporting evidence. However, some modern approaches combine elements of the earlier perspectives in a way which makes rejection on the basis of available evidence more problematic.

For example, Minford *et al* (1994) modify the neoclassical view by allowing for labour immobility among the unskilled. Krugman (1990) includes imperfectly competitive commodity markets and increasing returns to scale in a neoclassical model of two regions which does not (at least on Krugman's interpretation) yield the radical policy implications associated with the earlier (informal) Keynesian models with similar characteristics. However, this set-up seems immediately applicable only to the industrialisation phase of regional development. Porter's (1990) emphasis on industrial "clusters", which has been influential in the thinking of Scottish Enterprise National (SEN), also echoes aspects of earlier increasing returns models, although here the emphasis is on product heterogeneity and innovation in a sectorally disaggregated context.

Our own position is heavily influenced by the imperfectly competitive macroeconomic model that has become increasingly dominant in UK macroeconomic analysis (Layard, Nickell and Jackman, 1991). This retains the emphasis on markets associated with the neoclassical perspective, but the presence of imperfect competition in the labour market implies the existence of involuntary unemployment. Although at the national level this approach incorporates imperfectly competitive commodity markets (and could include increasing returns), we simplify here by assuming perfectly competitive regional commodity markets. No radical changes would necessarily result to our conclusions from imperfectly competitive commodity markets *per se*.

We further assume, for simplicity, that Scotland can be approximated by a small open region model in which Scottish activity in has no influence on prices and quantities in external markets. Since Scotland accounts for less than 9% of UK GDP, this may be a reasonable first approximation, and one which allows us to avoid use of a complete interregional framework. Interest rates are likewise assumed to be exogenous to Scotland which is regarded as a price-taker in UK financial markets.

Our preferred view of the regional economy is embedded in the structure of AMOS which is a computable general equilibrium framework calibrated to capture the key features of the Scottish economy. AMOS is not a forecasting model but is used to conduct simulation of a wide range of policies and is designed to capture the economy/system wide ramifications of policy options. The approach is to start with the Scottish economy in equilibrium and to conduct a policy change such as raising Scottish income tax by 3p. The model works out the effects of the policy on all parts of the Scottish economy and compares the properties of the new equilibrium with the previous situation. The model answers questions concerning the impact of policy on a wide range of variables such as migration, employment, unemployment, earnings, inflation and GDP.

A brief description of AMOS is presented here with a fuller account available in Harrigan *et al* (1991). AMOS is a simplified model with only 4 types of transactor and 3 types of commodities produced by 3 types of industry. The transactors comprise households, the non household personal sector, corporations and government. These transactors trade and consume the commodities produced by manufacturing industry, a non-manufacturing

traded sector and a sheltered sector whose goods and services may provide inputs to traded goods but which are largely not directly traded outwith Scotland.

There are 4 major components of final demand: consumption, investment, government expenditure and exports. Consumption depends on real disposable income. Real government expenditure is equal to the base year level plus an additional amount corresponding to the revenues raised by the Tartan Tax. This results in government spending becoming dependent on the entire general equilibrium of the system which is exactly what would happen if the Tartan Tax were implemented. Exports and imports are determined via an Armington link (Armington (1969)) which has the effect of making Scottish trade flows sensitive to relative (to the rest of the UK and the rest of the world) prices.

The treatment of investment is a little more complex in that the model can be run to produce either period by period short run equilibria or a single long run equilibrium. The difference relates to the assumptions concerning the capital stock and investment. In the period by period simulations, both the total and sectoral composition of the regional capital stock is fixed in each period. Each sector's capital stock is updated according to a simple capital stock adjustment process in which investment in each period equals depreciation plus some fraction of the gap between the actual and the desired capital stock. Desired capital stocks are those which minimise the cost of production and actual stocks reflect last period's stocks adjusted for depreciation and gross investment.

In long run equilibrium, desired and actual capital stocks must correspond. Accordingly, in long run simulations, the capital stock is determined inside the system and again dependent on cost minimisation criteria. In long run equilibrium, investment is equal to depreciation of the optimal capital stock.

Population is likewise endogenous and is updated in period by period simulations in a similar way to the capital stock. Our approach is based on Layard *et al* (1991) which sees migration persisting until disparities between regional and UK real wage rates and unemployment are eliminated. In long run equilibrium there is zero net migration.

## 5. THE MACROECONOMIC CONSEQUENCES OF THE "TARTAN TAX"

Much of the debate over the economics of devolution has focussed on the likely impact of the "tartan tax", so we consider this issue in some depth. We have seen that, if imposed at the maximum rate, this is estimated to generate some £390m of additional revenues that will be used to increase public sector expenditures in Scotland. We are therefore concerned here with the likely impact of a *balanced budget fiscal expansion*, which on impact would increase both tax revenues and government expenditures by some £390m. Recall that the total assigned budget is likely to be around £14¾ billion. The "tartan tax" is therefore comparatively "small beer". However, it is important as the only source of additional revenue which is, in principle, completely at the discretion of the Scottish Parliament.

We simplify the analysis in a number of respects, although we do return to consider the possible implications of these simplifications. We consider that the only real choice for the Scottish Parliament, given the structural public sector deficit, is whether to *increase* the standard rate by 3p. We further assume that the assigned budget is not cut as the tax is levied, so that the revenues from the "tartan tax" are genuinely additional to the budget of the Scottish Parliament, and that the increment to government expenditures does not directly stimulate the supply-side. We begin with a non-technical discussion of likely effects and then provide a summary of available empirical evidence<sup>3</sup>.

### (a) Long run theory of a balanced-budget fiscal expansion of in a regional economy

A comprehensive analysis of the impact of the balanced-budget fiscal expansion involves three main considerations. First, there is the aggregate demand effect of the expansion, abstracting from any knock-on price and wage effects. This is the subject of basic textbook treatments of the "balanced budget multiplier". Secondly, there are the supply effects that are induced by the aggregate demand stimulus, reflecting the extent to which capacity and labour supply constraints tend to limit the expansionary output effects of this change and stimulate price rises instead. Thirdly, there is the independent supply effect which reflects any impact of the tax hike on the wage bargaining process. Specifically, this third effect relates to employees'

reaction to the reduction in the take home pay caused by the tax increase. We consider each of these effects in turn.

The basic idea underlying the aggregate demand effect is that the increased government expenditure stimulates demand directly, whereas the increase in taxes has its impact effect on disposable income. Consumption falls by less than disposable income, given a positive propensity to save, and so aggregate demand increases. However, the theory of consumption and aggregate demand on which this model is based is very simple. In more sophisticated settings a number of objections can be raised. Thus, traditional macroeconomic analysis emphasises the likely rise in interest rates and consequent "crowding out" effect on private sector expenditures, notably investment. Since, as noted above, a region such as Scotland can be regarded as a "price-taker" in integrated financial markets, as a first approximation, this is not a major concern for our analysis<sup>4</sup>.

In the long run, a permanent increase in government expenditure and taxation is argued to reduce wealth and lead to an offsetting reduction in consumption. However, the conditions required for this to be exactly offsetting are not plausible. In any case, in Scotland, government expenditure is less import-intensive than consumption, so that even a direct replacement of consumption by an equal amount of government expenditure would stimulate the demand for domestically produced goods. (See eg Oates (1972) for further discussion<sup>5</sup>.)

In simple accounts, this aggregate demand stimulus induces a corresponding extension of aggregate supply with no rises in prices. However, matters are likely to be more complex in practice. In the short-run the fixed nature of capital stocks and the limited availability of labour constitute resource constraints on the regional economy. These constraints imply that aggregate supply over such periods would not be extended without some increase in prices<sup>6</sup>, although during recessions excess capacity is likely to create an output range over which prices respond very little to demand stimuli.

However, over the long-run the supply of both labour and capital in the region increases, through in-migration and investment respectively. Given a small, open region like Scotland, this increase in labour and capital is likely to result in a much bigger induced supply response in the *long-run*.<sup>7</sup> Note that, while the induced supply response may



moderate the real output effects of the boost to demand, the overall effect remains expansionary.

Once we take account of the impact effects of the tax on wage bargaining, however, a contraction in output and employment becomes possible. The direct effect of the tax change on the supply side, which is quite independent of the other effects, has a potentially contractionary impact. The introduction of the "tartan tax" reduces the after-tax real consumption wage of Scottish workers. If they respond by seeking to restore their take-home pay through upward pressure on the (gross) wage paid by firms this introduces an adverse supply shock: the cost of labour to firms increases and they, in turn, are compelled to raise prices at any given level of output. As a consequence there will be a decline in Scottish competitiveness which would tend to reduce the demand for Scottish exports and increase Scottish demand for imports.

To provide a complete analysis of such "tax-shifting" effects we first consider the factors which govern its extent and then assess its likely macroeconomic impact. An important influence on tax-shifting is the nature of the wage bargaining system. The simplest case is where wage bargaining is conducted at the national level, with the nominal wage effectively being exogenous to a small, open region such as Scotland. If the national bargaining system survived the introduction of differential income tax rates, the implication is that there would be no upward pressure on the nominal wage and so no adverse supply shift. In this case then the "tartan tax" would stimulate output and employment in the Scottish economy through the expansion in aggregate demand.

Much recent literature argues, however, that wage bargaining is regionally-based (eg Blanchflower and Oswald, 1994; Layard, Nickell and Jackman, 1991), and here the factors governing the degree of tax-shifting are a little more complex. The two key influences are the degree to which workers value the increased government expenditures that the levying of the "tartan tax" makes possible, and the extent to which this valuation is then reflected in the wage bargaining process.

For example, one possibility is that workers feel no worse off after the introduction of the tax relative to the position prior to the change. Here the loss of disposable income at the margin is just compensated for by the increased amenity generated by the higher government expenditure made possible by the "tartan tax" revenues. If, in addition,

workers allowed this feeling of being "no worse off" to be fully reflected in their wage bargaining behaviour, so that they do not push for even partial compensation of the loss of disposable income generated by the tax, then there would again be no adverse independent supply-side effect.

What would be the likely overall effects of the "tartan tax" in these circumstances? We know that there is a stimulus to aggregate demand and if amenity effects fully compensate for disposable income loss, then there is no adverse impact effect on aggregate supply. In these circumstances the "tartan tax" would be good news for Scottish output and employment in the long-run since only the aggregate demand stimulus would be present in this case, and given a very responsive supply side in the long-run, the demand stimulus would ultimately have little impact on prices and wages, but would have a major impact on output and employment.

More generally, if there is regional bargaining and workers do not value the amenity effect of increased expenditures as much as their loss of take-home pay, and/or if workers simply do not moderate their wage claims by the full value of the increased amenity, there will be some upward pressure on nominal wages. This tax-shifting into higher wages (which is additional to any effect induced by the demand stimulus) also impacts on prices, and the resultant loss of Scottish competitiveness leads to a contraction our exports and a substitution away from domestic goods in favour of imports. This supply-side impact is therefore unambiguously contractionary.

Overall, however, the net effect of the "tartan tax" on output and employment is ambiguous here and depends on whether the expansionary demand effect outweighs the contractionary supply effect of the "tartan tax". Our policy simulations presented below suggest that if Scottish workers were all to succeed in fully compensating themselves for the loss of take-home pay through pushing up their gross wage (an outcome we consider very unlikely), then the adverse supply side effect would in fact predominate, and output and employment would contract.

#### **(b) Empirical and Simulation evidence**

To determine the likely empirical effects of the "tartan tax" we have to assess the likely scale of both the stimulus to the demand side and the wage push/ tax-shifting supply side effect, and estimate their likely impact on the Scottish economy. As

argued above, this requires a knowledge of the operation of the entire Scottish economy<sup>8</sup>. However, our model of the Scottish economy (AMOS) contains all the information required to conduct such an analysis, with the important exception of the extent to which, under regional bargaining, the “tartan tax” will be shifted forward. Determining the size of this adverse supply disturbance is especially difficult since we have no experience of spatially differentiated income tax rates in the UK, and therefore no basis for econometric investigation of its effect on wage bargaining and migration in particular<sup>9</sup>.

We do have two types of evidence that may be relevant, relating to both the effects of income taxes on *national* demand and supply sides and the effects of “local” income taxes in fiscal federalist economies where they have been long-established. However, the evidence is not compelling in either case. First, the impact of income tax rate changes on national bargaining remains controversial, with conflicting evidence ranging from full “tax-shifting” on to wages to none at all (in which case there is no impact effect of the tax on the supply side). (See eg Church *et al*, 1993, and Knoester and van der Windt, 1987.) In any case, given that in a regional context workers may avoid the tax through migration, the relevance of the national evidence is questionable.

Secondly, while evidence on the key effects of fiscal federalism is comparatively limited, it seems that: regional public expenditures can at least partially offset the negative impact of taxes on migration (Day (1992)); regional balanced budget fiscal expansions can stimulate growth (at least if expenditures are not simply redistributive) (Helms (1985)); and regional income taxes are not fully shifted forward into wages (Wallace, 1993). However, the evidence is not nearly strong enough to allow any firm parameterisation of the likely impact of spatially differentiated income taxes on the supply side.

Because of the uncertainty about supply effects in particular, we simulate the impact of the introduction of the “tartan tax” under alternative assumptions. We report the estimated long-run impact on GDP, aggregate employment and the unemployment rate for two alternative assumptions about aggregate supply. If there is Scottish-specific bargaining in the labour market and if all workers secure full compensation for the reduction in take home pay by pushing up their gross wages, then we

estimate that GDP would fall by some 1.2% in the long-run, after all migration and investment adjustments are complete. Total employment is expected to fall by 1.33% (as is the numbers of unemployed), but the unemployment rate is ultimately unaffected<sup>10</sup>.

We do not believe, however, that this case has much practical significance. Many workers are currently paid in accordance with national pay awards (notably in the public sector), and a modest differential income tax may not affect this. Thus employees in multi-plant, multi-region firms would seem unlikely to be compensated for the local tax rise (or any induced rise in prices). Furthermore, those who are geographically immobile or who are members of weak unions may be unable to force compensation following the introduction of the “tartan tax”. Finally, there are likely to be some who feel as well off after the tax as before, or who at least do not feel worse off by the full amount of the fall in take home pay (because of their valuation of the amenity associated with the increased expenditures), and who reflect this in their wage aspirations.

If all workers were subject to national bargaining, the long-run results would GDP and employment actually rise, by 0.45% and 0.42% respectively; the unemployment rate falls by 0.72%<sup>11</sup>. If bargaining is in fact Scottish-specific, but workers value the amenity effect of the expenditures just as much as the loss of take home pay, then nominal wages do not rise because of “tax-shifting”, and the results are consequently very similar to the national bargaining case<sup>12</sup>. Of course, as we have already emphasised, this is a very special case and, more generally, there is likely to be some upward pressure on wages, but not to the extent implied by the “full compensation” case reported above.

Employment effects prove to be very sensitive to the degree of tax-shifting and it transpires that if, in aggregate, over 30% of the reduction in the take-home wage is compensated for by tax-shifting, then the overall macroeconomic effect of the “tartan tax” is likely to be contractionary.

### (c) Some extensions to the basic analysis

Both our theoretical discussion and empirical results are predicated upon a number of simplifying assumptions, so we now briefly consider the likely impact of relaxing a number of these.

While we have assumed that the “tartan tax”

revenues will be additional to the assigned budget, the possibility of the UK Treasury ultimately reducing the assigned budget in an offsetting fashion is worthy of note. Of course, if this were to happen the beneficial demand effect of the increased expenditures would be neutralised by the reduction in the assigned budget, so that the overall impact of the “tartan tax” would inevitably be contractionary. A Scottish Parliament would, of course, not knowingly introduce the “tartan tax” in such circumstances, but the worry is that in the long-run, especially given the presence of a “hostile” government in power in Westminster, this outcome cannot be entirely discounted.

Clearly the effects of the “tartan tax” must depend to some degree on the use to which the increment to revenues is put. In our discussion and model simulations we have assumed that it simply has the same composition as existing (non-social-security) expenditures, and we have not allowed for any direct supply-side effects of these expenditures, such as are argued to attend improvements in infrastructure (and in an endogenous growth context, investment in human capital). This is likely to be important in practice, though our approach reflects the absence of any indication about the likely use of the additional tax revenues.

It would probably be inadvisable, at least from the perspective of effects on the aggregate economy, to use the revenues to attempt to affect income redistribution. What evidence there is suggests that this is unlikely to have beneficial effects on regional growth or attract in-migration/ limit out-migration. However, this is not an argument against redistribution *per se*, rather it is an argument in support of the traditional public finance view that any income redistribution is best undertaken at the level of the nation as a whole.

In practice, we know that some workers are governed by national wage agreements while others are more obviously subject to “local” labour market influences, and this particular source of heterogeneity would appear to rule out the “worst case” result identified above. However, there is also quite a bit of evidence to suggest that, in the UK at least, migration is selective in age and skill. Allowance for this in our analysis would be likely to reinforce the results obtained above, improving the “good news” cases (characterised by in-migration) and causing any “bad news” (out-migration) to get worse.

Allowance for differential skills also leads naturally

to consideration of the probable effects of allowing for differential household incomes. In a progressive tax-expenditure system a hiking of “local” income tax rates may be thought to encourage out-migration of higher income households and in-migration of poorer households, especially if expenditures are targeted on the latter. However, it is entirely possible that some expenditures, for example, on education, would be more highly valued by the better off, and it is also worth recalling that the “tartan tax” proposals imply that higher rates of income tax would be unaffected. The evidence from existing fiscal-federalist states is not clear cut on the presence of any adverse migration shifts of this kind<sup>13</sup>

## 6. CONCLUDING REMARKS

We conclude with a brief summary of our overall analysis of economics of the tartan tax. First, we argue that, as the majority of commentators believe, Scotland has, for some time, experienced a “structural” public sector deficit ie a deficit that would remain even if the Scottish economy operates at full capacity utilisation. This conditions our analysis in a number of respects, in particular in our treatment of the “tartan tax” as an essentially one-way option.

However, this analysis should remind everyone in Scottish public life that, inside or outside the UK, there is not a pot of gold to throw at Scotland’s economic and social problems. Constitutional change does not result in one extra penny to spend on Scottish public services and support for individuals and businesses. Indeed, under certain circumstances, the creation of either a devolved or separate Scottish parliament may reduce the level of public services below that which might otherwise have emerged.

Adjustment of the total budget through the use of the “tartan tax” does not, contrary to some claims, inevitably imply the loss of output, employment and population in Scotland. If the Scottish people genuinely wish increased government expenditure in Scotland and, importantly, if they are prepared to pay for this in the form of higher income taxes without seeking compensating changes in their gross wage, then the fiscal innovation of the “tartan tax” may have significant beneficial effects on employment, output and migration. However, even in the worst likely scenario the adverse macroeconomic impact is relatively small and spread over a considerable time period.

If the Scottish people do not wish higher public expenditures, or if they are not prepared to pay for them through lower take-home pay, then this should be reflected in the outcome of the referendum on tax-varying powers. Ultimately, if the power to raise income taxes is given to the Scottish Parliament, some future Scottish government will be elected on a mandate of tax-funded higher spending. Voters should not vote for the "tartan tax" if they do not wish increased expenditures financed out of their income taxes. However, voters should not vote against the Tartan Tax in the belief that such expenditure would inevitably damage Scottish living standards and prosperity.

If there is a "yes" vote on the tax-varying power in this context, it would imply expected positive macroeconomic effects from its use, since it would otherwise be irrational to vote for it. However, it is conceivable that some may vote for the tax anticipating both higher government expenditures and compensated take-home pay, in the knowledge that others (lower skilled, immobile, and those in weaker unions) are likely to suffer any adverse effects. In addition, there will be many voters who do not pay income tax. It would be instructive if future opinion polls broke down attitudes towards the Tartan Tax according to whether respondents were or were not income tax payers and attempted to ascertain whether supporters regard the tax as a free lunch for them at the expense of others.

It is probably best for supporters of the tax to give up suggesting that the tax power is unlikely to be used and to take the argument head on. However, it is sensible to argue that early use will be resisted. Survey evidence suggests that British and Scottish people are prepared to pay higher taxation for improved public services but are less prepared to vote in administrations committed to such policies. This may reflect a public perception that the increased taxes may not be spent appropriately. In short, British and Scottish people may want to pay more for greater services but don't trust politicians to deliver.

If this is the case then an appropriate strategy may be statutorily to rule out use of the tax varying powers in the first term of the new parliament. This would allow the Scottish parliamentarian's time to demonstrate credibility in administering the considerable resources secured via the assigned budget. In addition, such a hiatus would allow a full discussion amongst employers and employees of the damaging effects of 'tax shifting behaviour'. In many ways the Tartan Tax is like the social

contract pursued by the Callaghan government. If it is to be successful then the trade off between a higher social wage and a lower private wage must be fully explained and digested.

Overall, our review of Scottish devolution set down here and elsewhere does not lead us believe that the macroeconomic case either for or against devolution *per se* is compelling. While devolution undoubtedly does provide opportunities for influencing the Scottish economy, possibly significantly, the scale and even direction of effects depends on the particular combination of policies pursued by the Scottish Parliament and on the reactions of the Scottish people to them. There are no magic wands to wave at Scotland's problems and no inevitable panaceas due to constitutional change.

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## ENDNOTES

1. The formula is named after Joel Barnett, a former Labour Chief Secretary to the Treasury. The formula was until recently based on 1976 population figures which allocated Scotland £10 and Wales £5 for every £85 change in expenditure on comparable English programmes. This meant Scotland receiving 11.6% and Wales 5.88% of any *change* in English expenditure. (See Bell *et al* (1996), Heald (1992).)

2. Michael Portillo, who was Chief Secretary to the Treasury in 1992, cut Scotland's share to 10.66% of changes in comparable English expenditure and 10.06% of changes in combined English and Welsh programmes such as Law and Order.

3. The analysis of this section draws liberally on McGregor *et al* (1997b), which provides a more formal theoretical and empirical analysis of the issues.

4. It is true, however, that the post-tax interest rate received by Scots will fall, and this could inhibit Scottish saving, but we regard this as a second order effect and abstract from it in what follows. (It would in any case tend to reinforce the demand stimulus.)

5. It has been suggested that some types of government expenditure substitute directly for private sector expenditures (eg education, health, subsidized leisure facilities), so that an increase in government expenditure will result in an immediate, partially-offsetting contraction in consumption. However, there is little evidence of such an effect in the UK and we again abstract from it.

6. More formally, even if there is no source of nominal inertia in the system, so that workers bargain for real wages for example, the regional aggregate supply curve will be non-vertical. This is because of the wedge between the real consumption wage, which governs wage-setting, and the real product wage, which is relevant to labour demand. As domestic prices increase nominal wages need to increase less than proportionately to restore the real consumption wage given the presence of imported goods in households' consumption bundle.

7. Any persistent barrier to labour mobility or to investment will result in a non-horizontal AS curve.

8. For example, recall that the "supply side" depends on: labour supply (or wage-setting by unions); labour demand and the aggregate production function. In fact, the simple one good model, by abstracting from the presence of a substantial "sheltered" (comparatively non-traded sector) considerably understates the complexity.

9. The impact on aggregate demand is more straightforward in that it is governed by the relationships already embodied in the model, including the relative import intensity of government as against consumption expenditures.

10. This reflects the absence of any nominal inertia in the system combined with the fact that migration continues for as long as Scottish wage and unemployment rates differ from their corresponding values in the rest-of-the UK.

11. Since national bargaining implies that the region is a nominal-wage-taker, the region is characterized by the presence of nominal inertia in this case, and the unemployment rate is affected in this case.

12. The main difference is that the unemployment rate returns to its original value in this case: there is no nominal inertia here.

13. McGregor *et al* (1997b) also discuss: short-run adjustment paths to the long-run equilibria considered in the text; the sensitivity of results to changes in the values of important parameters in the AMOS model.

**Table 1**  
**Scotland's Fiscal Position in 1994/95**  
(excluding privatisation proceeds)

|                              | £bn         | % UK total  |
|------------------------------|-------------|-------------|
| Identifiable Expenditure     | 23.1        | 10.5        |
| Non Identifiable Expenditure | 3.3         | 8.5         |
| Other Expenditure            | 3.9         | 10.9        |
| <b>total</b>                 | <b>30.3</b> | <b>10.2</b> |

Source: Scottish Office (1996)

**Table 2**  
**Scotland's Fiscal Position**  
1979-1995

|              | UK GGBR (ex Oil & Privatisation Proceeds) £bn | Scotland's share (%) | Scottish GGBR (ex Oil Revenues and Privatisation Proceeds) £bn | Scottish GGBR (inc Privatisation Proceeds and Oil Revenues) £bn | Scottish GGBR (inc Privatisation Proceeds and Oil Revenues) 1996/97 prices £bn |
|--------------|---|----------------------|--|---|--|
| 79/80        | 13.2  | 15.0                 | 2.0  | -0.2  | -0.6   |
| 80/81        | 17.5  | 17.0                 | 3.0  | -0.4  | -0.9   |
| 81/82        | 13.5  | 12.0                 | 1.6  | -2.5  | -5.0   |
| 82/83        | 15.9  | 17.0                 | 2.7  | -2.2  | -4.2   |
| 83/84        | 19.8  | 15.0                 | 3.0  | -5.0  | -9.1   |
| 84/85        | 23.3  | 13.0                 | 3.0  | -8.0  | -13.6  |
| 85/86        | 20.9  | 14.0                 | 2.9  | -7.5  | -12.2  |
| 86/87        | 14.1  | 21.0                 | 3.0  | -1.7  | -2.8   |
| 87/88        | 7.8   | 50.0                 | 3.9  | -0.7  | -1.1   |
| 88/89        | -1.5  | 0.0                  | 1.1  | -2.3  | -3.2   |
| 89/90        | 0.0   | 0.0                  | 2.0  | -0.5  | -0.6   |
| 90/91        | 7.1   | 57.0                 | 4.0  | 1.5   | 1.9  |
| 91/92        | 22.8  | 22.0                 | 5.0  | 3.4   | 3.9  |
| 92/93        | 47.3  | 17.0                 | 8.0  | 6.1   | 6.8  |
| 93/94        | 53.5  | 17.0                 | 9.1  | 7.5   | 8.0  |
| 94/95        | 45.8  | 17.0                 | 7.8  | 5.8   | 6.1  |
| <b>total</b> |   |                      |  | <b>-6.5</b>   | <b>-26.0</b>   |

Source: Stevens (1997)

**Table 3**  
**Scotland: 1994/95**  
Identifiable General Government Expenditure per capita

|                                      | UK=100     | England=100 |
|--------------------------------------|------------|-------------|
| Agriculture                          | 192        | 251         |
| Trade, Industry, Energy & Employment | 168        | 203         |
| Transport                            | 105        | 104         |
| Housing                              | 171        | 197         |
| Other Environmental Services         | 132        | 142         |
| Law, Order & Protective Services     | 105        | 111         |
| Education                            | 126        | 131         |
| National Heritage                    | 132        | 129         |
| Health & Personal Social Services    | 122        | 126         |
| Social Security                      | 108        | 111         |
| <b>Total</b>                         | <b>120</b> | <b>125</b>  |

Source: Scottish Office (1996)



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