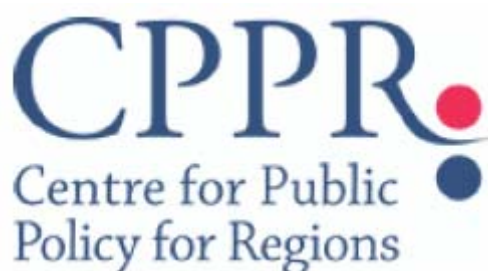


**PUBLIC SECTOR SPENDING AND REGIONAL
ECONOMIC DEVELOPMENT:
CROWDING OUT OR ADDING VALUE?**



Paper for



Andrew Cumbers and Kean Birch
Centre for Public Policy for Regions
University of Glasgow

January 2006

Executive Summary

- A recent debate in Scottish media and business circles has been highly critical of the role of the public sector in the Scottish economy. The debate has revolved around the extent to which public sector expenditure and investment has ‘crowded out’ the private sector, leading to poor national economic performance.
- Drawing upon both established theory and empirical evidence from the UK macroeconomy, the paper suggests that there is little evidence over the long term of a negative relationship between public spending and private investment.
- At an international level, there is no significant link between countries with high economic growth rates over the 1990s and levels of government spending and personal taxation. There is a small negative relationship between corporation tax rates and economic growth although outliers suggest this is not statistically significant.
- Equally significant is the relationship between tax receipts and income equality. Countries with higher state involvement generally have lower levels of income inequality, suggesting that government intervention remains important in ensuring wealth is fairly distributed.
- Claims made about Ireland as a successful example of what we term here a ‘minimalist state’ economy during the 1990s need to be critically appraised in the light of the considerable subsidy that the country has received from the European Union over the period in question.
- Claims that Scotland’s public sector has crowded out the private sector in recent years are largely unsubstantiated. Other sectors have shown more rapid rates of employment growth. Scotland’s public sector employment – at around one quarter of total employment – is less than the third claimed by critics.
- Scottish public sector institutions are critical to the success of the Scottish economy through providing basic infrastructure as well as key human and technological resources for emergent sectors such as biotechnology.
- The report argues for the need to move beyond a simple dichotomy of public sector ‘bad’, private sector ‘good’, to develop a more sophisticated understanding of how the two inter-relate in successful and balanced economies.

Introduction

At a private breakfast meeting with MSPs on 6th October, the chairman of Scottish Enterprise, Sir John Ward, allegedly made a comment comparing areas of the Scottish economy with the former Soviet Union by suggesting that government spending in Ayrshire was at “Eastern bloc” levels (see MacDonnell, 2005; Nelson, 2005; Smith, 2005). This comment, motivated by research data from Scottish Enterprise comparing public and private spending, stimulated a debate in the Scottish media about the role of the Scottish public sector in relation to economic growth and the ‘crowding-out’ of private investment. An article in *Scotland on Sunday* (9th October) argued that the Scottish public sector was “cash-bloated” and “efficiency-challenged”, alongside which it stressed the need to reduce taxes because high rates “depress the private sector” as does public sector employment, a position endorsed by Bill Jamieson, writing in the *SoS*'s sister paper *The Scotsman* (10th October). A week later *Scotland on Sunday* continued with this theme, presenting a series of possible solutions to the perceived effects of too much public spending. These included greater private involvement in health and education services.

The production of a critical analysis of Sir John Ward’s claims by Professor Brian Ashcroft of the Fraser Allander Institute later in the month added fuel to the debate. In his analysis, Ashcroft highlighted several flaws in the Scottish Enterprise figures and their presentation. Subsequently Fraser Nelson, writing in *The Scotsman* (27th October), sought to challenge this analysis, continuing to argue that the public sector ‘occupies’ around three-quarters of the economy in parts of Scotland. In *The Herald* (27th October), Mark Smith highlighted one of the main points of Ashcroft’s argument, that the Scottish Enterprise figures ignored “income generated by people who live in the area but work elsewhere”. Two weeks later, George Kerevan criticised Ashcroft in *The Scotsman* (9th November) for presenting “contradictory” arguments, whilst comparing Scotland unfavorably to Ireland and other small European countries such as Estonia where the key to economic success is perceived as a low tax, ‘minimalist state’ economy.

The purpose of this paper is to critically assess the claims at the heart of this debate that increased public sector spending is detrimental to economic growth, and that the most dynamic economies are those that have the smallest public sectors. The evidence is reviewed in four parts. In the first, we consider both the theoretical and empirical arguments for and against the ‘crowding out’ thesis. We then consider some international comparative data on the relationship between economic growth and the size of public expenditure. This is followed by data exploring the evidence that Scotland has in recent years seen a much greater increase in public sector spend relative to other parts of the UK. We then draw upon recent research into the role that the public sector has played in anchoring key new clusters of economic activity as part of a shift towards the knowledge-based economy.

‘Crowding Out’: empirical evidence and theoretical arguments

Crowding out in the context of the UK economy

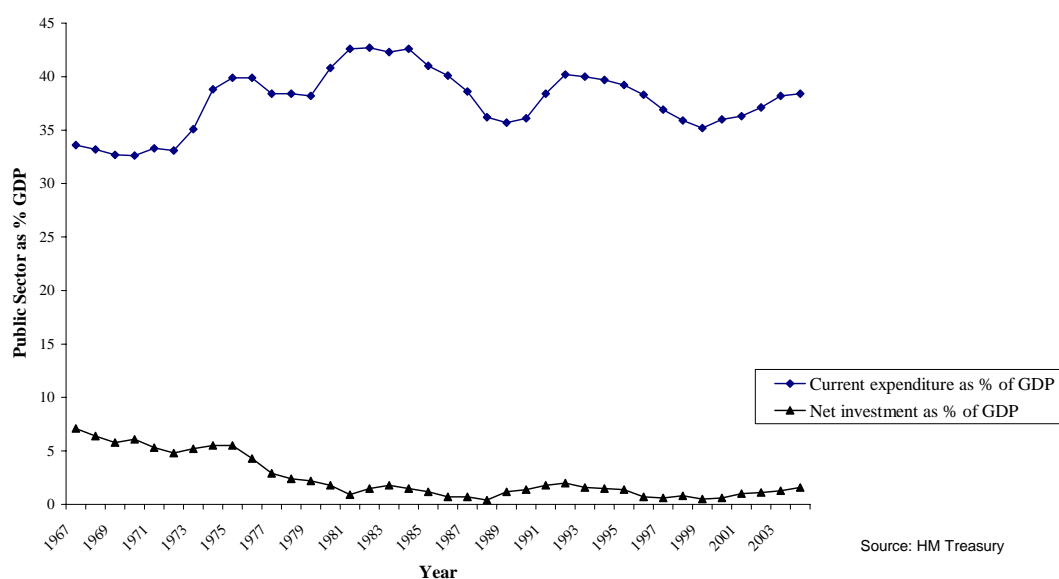
The general definition of crowding-out is when government spending in an equilibrium economy pushes out private investment by producing disincentive effects,

such as rising interest rates induced by government borrowing requirements, and consuming goods and services produced by the private sector, meaning that the private sector has to procure goods and services from an external source (i.e. import) (Griffiths and Wall, 2001: p.13-4). Crowding out arguments were central to the analysis of leading Conservative and neoclassical economists in the 1970s in explaining the decline of British industry. In particular, industrial decline was attributed to the displacement of private industry by the public sector, especially through the growth of non-market sectors like health and education.

Evidence for crowding-out effects can be derived from comparing potential with actual performance within an economy. If we take the average UK growth rate as the potential output that Scotland could achieve then it would appear that Scotland is underperforming. The argument that private investment is being crowded-out in Scotland is based on evidence of levels of economic growth, namely the lower relative performance in GDP growth against the UK average.

Whilst it is true that the Scottish economy has performed below the UK national average for a long period, certainly going back to the late 1970s, it would be difficult to make the argument that this is due to the crowding out effects of public expenditure. Treasury figures for 2005 show that public sector investment has declined significantly since the late 1960s. As a proportion of GDP, public investment declined from 7.1 % (1967-8) to less than 1 % by the mid 1990s, before rising under the current Labour Government to 1.6 % in 2004-5. In contrast, public expenditure has fluctuated considerably over the past three decades. Rising public expenditures in the 1970s reflected the particular circumstance of the time: rising oil prices, inflation, wage pressures, balance of payments problems and growing unemployment. Government expenditure may have contributed to rising inflation and interest rates, but was unlikely to be the key factor. Subsequent increases in expenditure during the 1980s and 1990s, up until 1997, were largely due to the effects of the economic cycle. In particular, the recessions of the late 1970s / early 1980s and early 1990s and rising unemployment were the main reasons for the rise in the state sector under the Thatcher and Major administrations. However, since a peak in the early 1980s, the trend over the longer term has been one of decline. Despite the decline in public sector investment and expenditure, there has not been a corresponding increase in private sector investment, which, as a recent paper by the Institute of Fiscal Studies noted, continues to lag behind countries such as Germany, France, the United States and Japan (Bloom and Bond, 2001: p.10).

Figure 1: UK Public Sector Expenditure and Investment 1967-8 to 2004-5



Crowding out since devolution

More recently, it has been argued that the relatively low level of recent GDP growth in Scotland, with an average annual rate of around 1.7 % between 2000 and 2003, is a direct result of public spending, as public expenditure ‘crowds out’ private spending, particularly associated with devolution. As Fraser Nelson noted in *The Scotsman* (27th October) ‘the government employs a third of the workforce, and pays another sixth to be either unemployed or claim incapacity benefit. There is less room for companies to grow.’ The implication is that government spending somehow has a direct and negative effect on private sector investment.

However, there are several problems with this argument, especially in the Scottish context. Most importantly, it conflates two very different aspects of possible crowding-out effects; (a) the macroeconomic effect on interest rates and investment, and (b) the structural effect on employment and firms. It also ignores the ‘crowding-in’ effects of public expenditure, such as that from education, infrastructure or research and development spending.

Responding to these arguments in the most recent *Scottish Economic Report* (December 2005), the Scottish Executive argued that there are several factors that need to be accounted for in any discussion. Firstly, government expenditure in Scotland is split between devolved and non-devolved budgets, with the devolved budget representing 60 % of the total. This means that the Scottish Executive only has a partial influence over crowding-out effects.

Second, the expression of “government expenditure as a proportion of GDP does not measure the public sector’s share of GDP” (Scottish Executive, 2005: p.77), meaning that characterising the dominance of a local economy by the public sector based on GDP proportion is misleading. GDP measures value added rather than total economic activity.

Thirdly, government expenditure consists of two aspects; (a) government services and (b) transfer spending. The first of these can be further split between procurement of (i) “intermediate” resources such as material for public organisations, and (ii) purchases from the private sectors. Government services procurement can therefore contribute to the economy and to private sector wealth, whilst transfer spending is a form of redistribution of income, rather than an element of crowding-out.

Finally, Scottish Executive policies have no effect on fiscal policy because government borrowing is an irrelevant factor in regional economies like Scotland’s as is the claim that increased spending necessitate increased taxation. In the Scottish context this latter point can be disregarded because Scottish spending “is collected via the UK tax system and distributed to the devolved administration in the form of a block grant in accordance with the Barnett formula” (ibid.: p.87).

Differentiating public spending from private investment

One important assumption of the crowding-out theory is that the public sector is less efficient than the private sector, which therefore means that private sector spending is more productive than public sector spending leading to higher rates of economic growth (along with attendant impacts on fiscal policy, interest rates, employment motivation etc.) (McGregor and Swales, 2005). In discussing the relationship between government spending and GDP growth, Martin Wolf (2003), of the *Financial Times*, has argued that the relationship between high spend and low growth is minimal, if existent at all, a finding reiterated by Chris Giles (2005) in his discussion of taxation and public expenditure. It is therefore difficult to sustain the claim that the public sector is either less productive than the private sector or impacts on economic growth. Further evidence for these claims is reviewed in the next section of the paper.

The simplistic analysis behind these arguments is not just that the private sector creates wealth and the public sector stifles it, but also that an increase in the public sector, in employment, in capital investment and in current expenditure somehow crowds out private investment. This idea comes from a very simplistic understanding of the relationship between private and public investment. This is based on two rather flawed assumptions: firstly, that private sector investment and public sector expenditure and investment are substitutable for each other; and, secondly, that the level of interest rates affects the rates of private sector investment. If interest rates are lowered, private sector investment will increase as the price of borrowing falls. Increased public sector investment and capital spending means more demand for borrowing, which leads to higher interest rates, which causes a decline in private sector investment. A highly flawed assumption here is that public and private investment inhabit the same market space and that if demand from the public sector – for investment funds – is reduced, this will lead to increased private sector investment in the economy as interest rates fall. However, this is not the case.

Public investment and private investment work on very different principles. It is important to reiterate here that public spending is largely directed at providing essential collective services and goods – public goods – in which the private sector will normally not invest. National defence and street lighting are the usual examples that are used, but in the context of the debate here, education, training, transport

infrastructure and even welfare provision are important. Public investment, in this sense, is focused on long-term investment that complements, rather than crowds-out, private investment, providing a basis for economic growth that would not be provisioned by the private sector. Private sector investment, on the other hand, is ultimately geared towards making profits and returns to shareholders. An important point to note here is that, whilst the level of interest rates may play a role in investment decisions, the critical factor for private firms is expected returns on capital – i.e. anticipated future profits. It follows that the interests of individual firms – in making a profit – do not always tally with those of the wider economy.

Recent problems arising from attempts by both Conservative and Labour administrations to induce private capital into long term public infrastructure projects through public-private partnerships have illustrated this point. To guarantee private sector involvement, the Labour Government has had to construct contracts and forms of market relations that offer very favourable returns to investors, whilst reducing the share of risk borne by the private sector. The result is often heavily inflated costs to the public purse, far beyond what would have been achieved under a more conventional public borrowing arrangement. This turns the original argument for PPPs on their head; that the private sector bears the risk and the public sector gets the benefit (Shaoul, 2005).

What is the relationship between economic growth and public spending?

Measuring economic performance

Alongside claims about ‘crowding out’, the idea is circulating that there is an inverse relationship between successful economic development and government intervention in the economy. Critics of the public sector claim that those economies performing best in the 1990s – an era of increased globalisation and open markets – are those that keep taxes low and restrict government spending. Such policies are perceived as the only route to economic growth in a context where business investment is increasingly mobile, trans-national and able to choose to invest in those economies where taxation levels and restrictions on business, (i.e. ‘red tape’) are kept to a minimum. Leaving aside the extensive evidence that business is not quite this footloose (see for example Hirst and Thompson, 1998; Dicken, 2003),¹ the question raised in the recent debate is do low tax, low public sector economies outperform those characterised by higher public spending and tax rates?

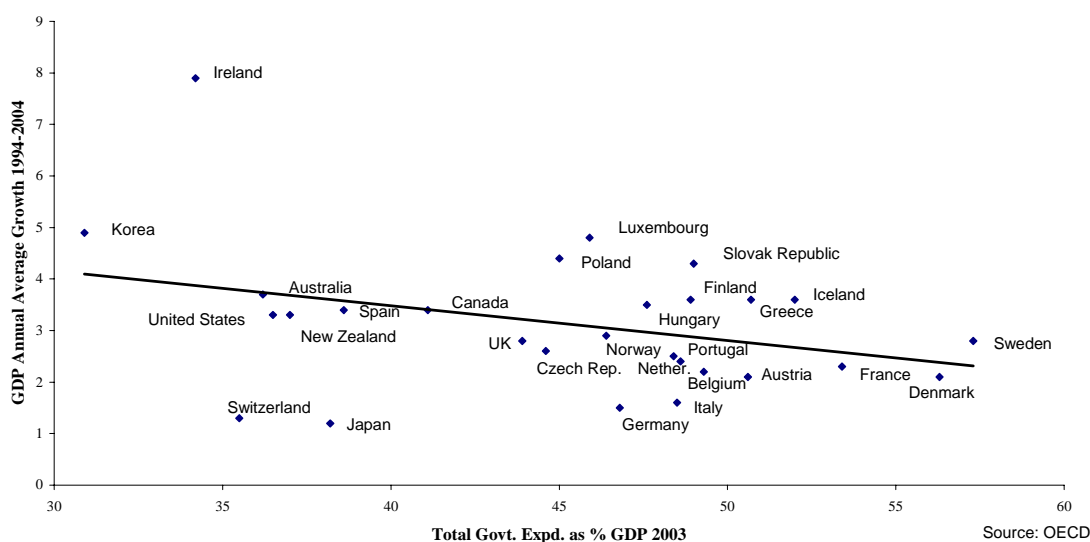
In contesting a recent Fraser of Allander report about the effects of higher taxation on economic growth, *The Scotsman* article states: ‘This has, for years, been disprovable by a simple chart plotting countries’ tax burden against their economic growth and national wealth’ (Nelson, 2005). However, no such evidence is provided in the article beyond some reference to Ireland and Estonia, without any supporting statistics.

If we actually consider the international comparative evidence to back up these claims, we find little discernible pattern in the relationship between economic growth and levels of public sector involvement in the economy (see Figure 2). The most

¹ For example, in his analysis of the top trans-national corporations between 1993 and 1999, Dicken found no significant increase in the extent of overseas operations and that the majority of firms remain reliant upon and heavily embedded in their domestic economies.

recent data for the OECD (i.e. the world's more advanced economies), shows that there is neither a strong negative or positive relationship between rates of economic growth (average annual GDP change) and government spending in the economy. States with low levels of public expenditure (i.e. under 40 % of GDP) account for the two highest performing economies in the OECD (Ireland and Korea) and the two lowest (Japan and Switzerland) over the period.²

Figure 2: GDP Growth versus Government Expenditure for OECD countries



There is also little evidence to back up ‘crowding out’ arguments with regard to data on taxation levels, with very low correlation figures for the relationship between GDP and total tax receipts or for the levels of highest income tax³. Whilst the data on levels of corporation tax provides some support for the ‘minimal state’ thesis, even this does not provide unequivocal support.⁴ In this respect, Ireland is clearly an outlier from the rest of the data, whilst the other states with corporation tax rates below 20% (Hungary and Iceland) do not perform much above the OECD average. The country ranked fourth in terms of low business taxation, Switzerland, has the second worst growth rate (after Japan) across the OECD.

As *Financial Times* columnist Martin Wolf, has noted: ‘no link exists between the size of government spending and something one could reasonably define as “international competitiveness”’. Wolf goes on to argue that ‘What does indeed matter is the efficiency with which money is spent... tax levels are only one of many determinants of economic performance. Far more important are: the quality of institutions, particularly of public administration and the judiciary, the security of property; the probity and public spiritedness of politicians; the soundness of money; the quality of education, health and infrastructure.’ (Wolf, 2005). Moreover, if we are concerned with a broader definition of economic development and exploring other measures of

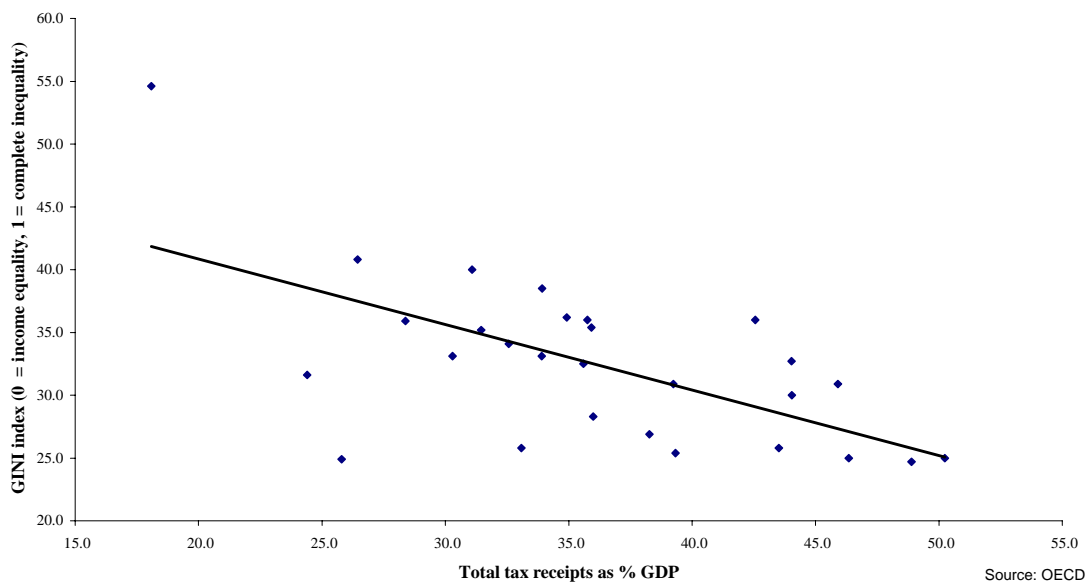
² A correlation analysis of the two variables using the OECD data confirms the absence of any significant relationship, giving an R² figure of 0.1 (where 1 = strong relationship and 0 = no relationship).

³ The R² figures for total tax receipts and 0.07 and 0.04

⁴ An R² figure of 0.3 which though higher than the other figures in indicating a negative relationship is still not a strong one, particularly when outliers are taken account of.

performance, public sector involvement in the economy has more beneficial effects. If we look at the relationship between levels of inequality in a country and the level of tax receipts as a proportion of GDP, we find a positive relationship, although, again, not a significantly high one. Nevertheless, it does add another layer of complexity to debates about the merits of a minimalist state (Figure 3).

Figure 3: The relationship between 'tax take' and inequality across the OECD countries



The Celtic Tiger: myths and realities

As noted above, Ireland, with its image as a low business tax haven, is a favourite for the critics of big government, especially in Scotland. As our GDP figures illustrate, there is no disputing the dramatic turnaround in the Irish economy in recent years. Over the period 1994-2004 it was the fastest growing economy in the OECD. However, a focus on national government expenditure is only part of the picture. Since its entry into the European Union in 1973 Ireland has been a major beneficiary of funds from the Common Agricultural Policy, regional development initiatives and social cohesion programmes. Since 1973 it has received over €34 billion of net investment from the EU (Source: European Commission services). Between 1984 and 1995 – key transition years - net EU receipts to Ireland were on average worth over 4% of national GDP. Even in 2003, Ireland was still receiving the highest net receipts of all EU countries at €1.5 billion or €391.70 for every Irish person. Including EU funding in this way would put the public sector share of GDP roughly on a par with the UK for the same period. Thus we would argue that public sector investment, albeit at the European scale, has had at least as significant a role in the Irish renaissance as entrepreneurialism and a low tax economy.

Behind the rhetoric of the Celtic Tiger are some less appealing characteristics. In particular, levels of inequality as measured by the GINI index reveal Ireland to be one of the most unequal countries in the OECD. Ireland's growth miracle has in this sense been highly unevenly distributed, both between rich and poor and geographically between the cities and outlying regions. Hot spots of development in Dublin, Cork

and Galway co-exist with continuing poverty and social dislocation in other parts of the country.

The Public Sector and the Scottish Economy

In responding to the analysis produced by Scottish Enterprise on the role of the public sector in the Scottish economy, Professor Ashcroft of the Fraser Allander Institute outlined three issues conflated by Scottish Enterprise: “the degree of *benefit* from public spending; the relative scale of public activities; and, whether on account of this scale there are harmful, or crowding out, effects on private sector activity” (Ashcroft 2005: 2).

Scottish Enterprise figures did not include imports, indirect taxes and subsidies, nor the net income derived from residents who worked outside the area. As such the measure it used (GVA) excluded several factors; i.e. external net income for a particular area. This is important in relation to Ayrshire because the Scottish Enterprise figures included workbase GVA estimates rather than residence based ones, which means that the importance of commuting to the Ayrshire economy was ignored. Ashcroft suggests that a better means to judge public expenditure is public employment, which ranges between 23 % and 32 % across Scottish LEC areas; a proportion significantly lower than the claims of three-quarters of the economy. A not insignificant point Ashcroft also made was that Scottish Enterprise actually provided no evidence that public spending was crowding-out the private sector, although Sir John Ward and subsequent commentators implied this consequence.

In Scotland, the level of public spending as a proportion of GDP was around 50 % in 2003, which is higher than the UK at around 44 %, but below the level of several other small-sized European countries with comparable population levels; see Table 1. Other countries have lower levels of spend, but the relationship between spending and growth is far from clear cut, especially when European Union (EU) subsidies are factored into the performance of Ireland. However, since the Scottish public spend does not impact upon fiscal policy in Scotland, because it does not affect interest rates, and therefore does not bear a direct relationship to overall interpretations of economic growth, it is more useful to consider structural features of the Scottish economy such as employment.

Table 1: Small European Country Government Spending

COUNTRY	GOVERNMENT EXPENDITURE AS % OF GDP (2003)	POPULATION (000)	AVERAGE ANNUAL GDP % GROWTH 1994-2004
Sweden	57.3	8,994	2.8
Denmark	56.3	5,401	2.1
Finland	50.7	5,228	3.6
Norway	50.7	4,592	2.9
Austria	50.6	8,175	2.1
Scotland	49.9	5,078	2.2
Slovakia	49	5,382	4.3
Switzerland	35.5	7,391	1.3

Ireland	34.2	4,044	7.9
---------	------	-------	-----

Source: OECD; Scottish data from Scottish National Statistics, Scottish Executive (2005)

In his criticism of Ashcroft's analysis, Nelson (2005) claimed that the public sector represented a third of the Scottish workforce. In reality, in 2004 it was actually closer to a quarter (23.6 %) according to ONS data; still above the UK average, but nowhere near a third. Compared to the rest of the UK, the growth of public sector employment lags behind many other regions, including the South East of England. The highest growth in proportion of public sector employment between 1999 and 2004 was in English regions like the North West (13.3 %), East Midlands (14.33 %), Eastern (17.15 %), and South West (12.65 %), rather than in Scotland (10.27 %), which was closer to the South East at 10.32 %.

Scottish Executive data suggests that public sector employment is around 28 % of total employment, although this data also shows that there have been more significant increases in private sector employment across a range of jobs than in the public sector and that the public sector share has fallen between 1996 and 2003 from 28.8 % to 27.9 %. Just as important is the composition of the Scottish workforce, with a declining number of jobs in the manufacturing sector where a boom from 1995 to 2000 subsequently collapsed between 2000 and 2002 (see McLaren 2003). The longer term collapse of Scotland's manufacturing and industrial base – particularly in coalfield regions such as Ayrshire – and the failure by either policymakers or Scotland's business sector to create alternative employment is arguably a much greater factor in continuing poor economic performance. That the public sector's share of total employment in these areas has risen in recent years is arguably more effect of industrial decline and economic underperformance than its cause.

The role of public sector institutions in the knowledge-based economy

At a broader level, there has been a growing recognition in academic and policy circles that forms of government intervention are critical for successful regional and national economic performance, particularly if growth is to be balanced with a more even distribution of wealth. Recent global financial crises and corporate scandals, such as the collapse of Enron, have demonstrated the dangers of unregulated economic development and trade. In this context, those arguing against 'Big Government' in Scotland are directing their ire at a 'straw man'. No serious economic commentators are arguing for Soviet style command economies, but there is recognition that the state and public sector have an important role to play in economic development, particularly if the needs of business are to be balanced against those of the wider population and the environment.

Moreover debates about how countries compete in the context of an increasingly knowledge intensive economy have identified the important incubator and anchoring roles played by public sector institutions in fostering growth in new local clusters linked to sectors such as information technology and biotechnology (Rodrigues et al 2002, Cooke 2002a, Cumbers and MacKinnon 2006).

Researchers stress the importance of the qualitative nature of the relationships between state and business, between public sector actors and the private sector in

fostering economic growth and more importantly adapting successfully to a dramatically changing global economy. Competitive success depends more and more upon the harnessing of key knowledge and skills, requiring long term commitments in a country's human and technology resources, which firms with short term profit horizons are increasingly unwilling to undertake. Governments need to take a more active part in 'systems of national and regional innovation' which involve intervention in education, training, R&D, labour market regulation and in the provision of finance and support for entrepreneurialism and innovation (Cooke 2002b).

Government investment has been critical in the success of a small country like Finland, which has developed a competitive presence in sectors such as IT, telecommunications (symbolised by the emergence of Nokia as world leader in mobile phones) and biotechnology. Crucially, the Finnish government expanded R&D expenditure from 1 to 3 % of GNP between 1980 and 1999 (Schienstock et al 2004). Contrast UK government expenditure on science and technology which remained static at 0.2% of GDP between 1987 and 2004 (HM Treasury 2005, p.38).

Reflecting the failure of past strategies to improve the competitive position of the Scottish economy vis-à-vis other UK and European regions, the Scottish Executive has recently recognised the importance of a more strategic role for government in facilitating successful economic growth. Scotland's national economic development framework, titled *Smart, Successful Scotland*, has reflected a qualitative shift in the premises of the nation's economic growth from a strategy emphasising the attraction of inward investment on the basis of low-cost advantages, low value added and labour-intensive activities, to one which attempts to redress issues of productivity, competitiveness and innovation (Scottish Executive, 2001).

Scotland's emergent biotechnology 'cluster' now employs around 8,700 people in Edinburgh, just under 4,000 in Glasgow and 3,500 in Dundee (Leibovitz 2004, p.1139). The public sector, in various forms, has played an important role in the development trajectory of the cluster. In the first place, the country's science base has provided the foundation for biotechnology. An ESRC Innogen Centre report by Alessandro Rosiello (2004) on specific life sciences policies highlights the important role that the public sector can play in connecting science and technology in public organisations like universities with private sector commercialisation. A critical factor is the overall investment in Scottish higher education (and schooling), which is now 40% more per capita than the rest of the UK. More specifically, Scotland is over-represented in the UK in terms of its share of university graduates in the life sciences, 'producing' a yearly average of 18 % of the UK's postgraduates in these fields (Leibovitz, 2004).

Aside from the education system, key public sector agencies have been important at different phases of the cluster's development. Scottish Enterprise has played an important role through interventions ranging from government grants or awards (i.e. SMART, SPUR) through to small company support, proof of concept funding and investment funds. Furthermore, initiatives taking more localised forms have been supported by Scottish Enterprise's local agencies. For instance, investment to the tune of £1.4 million is expected in order to develop a Centre for Biomedical Research in Edinburgh as "a life science knowledge hub" accompanied by other elements of

business and physical infrastructure. A Science Park is also being planned for the City of Dundee, while Glasgow's West of Scotland Science Park is promoted as Scotland's leading location for developing bioscience business (Leibovitz 2004).

But considerable innovation and entrepreneurialism has also stemmed from the public sector itself. The example of the Roslin Institute in Edinburgh is illustrative and far from unique. The Institute ventured into biotechnology in the early 1980s when it shifted its research orientation from farm animal breeding and production to technologies which could be used to create 'transgenic' animals which produce human proteins in their milk. The lack of interest, at the time, from the big pharmaceutical companies in commercialising this area of research led to the Institute's setting of up spin-out company, Pharmaceutical Proteins Ltd (PPL) in 1987 to take the technology to market. PPL gained world fame in 1997 when it created Dolly the Sheep, the first mammal cloned from an adult cell. By 2000, PPL Therapeutics had established its position as a specialist in the production of therapeutic proteins in the milk of transgenic animals, was engaged in collaboration with the German pharmaceutical firm Bayer in order to carry a lung disease drug through clinical trials, and expanded the potential geography of its operation to include the manufacturing and commercialisation of its drugs internationally, research and farming facilities in New Zealand and Virginia, and investing in a new manufacturing plant near Edinburgh (Cumbers et al 2006).

Conclusion

The example of the biotechnology industry serves to illustrate a much broader point about the relationship between public and private sectors in Scotland's contemporary economy. Recent criticisms of the public sector have tended to resort to old and largely discredited arguments about 'crowding out' which do not reflect the more complex ways that public spending interacts with business activity. The evidence that we have presented here suggests that there is no clear evidence, either historically, or through international comparison, that countries with high levels of public spending have a poorer economic performance than those with lower levels. Public spending however is important in ensuring that economic wealth is broadly distributed.

The attack on public services in Scotland is particularly misinformed about the realities of both the devolution settlement, the way tax and spending processes operate between Holyrood and Westminster and as a result of how crowding out would work in practice. It has also overestimated the role played by the public sector. Recent employment growth has been higher in the private sector, particularly in the services sector, whilst manufacturing continues to perform poorly. However, as we have noted, no evidence has been presented to make the link between public sector growth and poor manufacturing performance.

It is not surprising that business and media commentators rail against the public sector. There is nothing new to arguments for low taxation from business and corporate lobbyists. From the perspective of an individual businessman or entrepreneur, more tax paid to government can mean less finance for investment in a firm or business. However, at the aggregate of the economy as a whole, there is little evidence that reductions in public expenditure lead to greater business investment. If anything, the opposite seems the case. As the IFS has noted, business investment in

the UK as a whole continued to lag behind the experience of many competitor countries during the later half of the 1990s, despite a drop in government expenditure. Meanwhile, as the venerable *Observer* economics correspondent, William Keegan continually reminds us in his column, the UK's better economic performance than much of the rest of the European Union in the first half of the 2000s was due to increased public sector investment at a time when private sector investment and growth was relatively static.

Nevertheless, levels of public investment and expenditure in Scotland and the UK the recent past have still been low by historical standards. Indeed, the evidence from countries and regions that are competing successfully in new knowledge economy sectors is that greater levels of strategic public investment are required in areas such as science and technology, R&D and education to facilitate innovation and entrepreneurship. Private sector investment remains low, particularly in manufacturing activity, despite numerous policies such as tax credits and reduction in corporation tax geared towards stimulating it. In this sense, the policy debate needs to move away from the simplistic story that business is 'good' and government is 'bad' to a more informed analysis of how private and public sectors interact in successful and balanced economies.

References

Ashcroft, B. 2005 'Outlook and appraisal', *Quarterly Economic Commentary*, 30(3): 30-12.

Barnes, E. 2005 'How to say 'Do Svidanya' to our Soviet Scotland' *Scotland on Sunday*, 16th October 2005.

Bloom, N. and Bond, S. 2001 'UK Investment: High, Low, Rising, Falling?' London: Institute for Fiscal Studies, Briefing Note No.18.

Cooke P 2002a *Knowledge Economies: Clusters, Learning and Cooperative Advantage*. Routledge, London.

Cooke 2002b *Industrial Innovation and Learning Systems: Sector Strategies for Value Chain Linkage in Less Favoured Regions*, Regional Industrial Research Report No. 37, University of Cardiff, Centre for Advanced Studies.

Cumbers, A. and MacKinnon, D. 2006 *Clusters in Urban and Regional Development*. Routledge, London.

Cumbers, A. Leibovitz, J. and MacKinnon, D. (2006 forthcoming) Institutional Features, Path Dependencies and Regional Industrial Change: Comparing Mature and Embryonic Clusters in an Old Industrial Region. *Journal of Enterprise and Innovation Management*.

Dicken, P. 2003 'Placing' firms: grounding the debate on the 'global' corporation. In J. Peck and H. W. C. Yeung (eds) *Remaking the Global Economy*. Sage, London.

Giles, C. 2005 'Public expenditure not a serious threat to growth' *The Financial Times*, 20th April 2005.

Griffiths, A. and Wall, S. 2001 *Applied Economics*, London: FT Prentice Hall.

Hirst, P. and Thompson, G. 1998 *Globalization in Question*. Polity, Cambridge.

HM Treasury 2005 *Public Expenditure Statistical Analyses 2005* (available at http://www.hm-treasury.gov.uk/economic_data_and_tools. Last accessed 11th December 2005).

Jamieson, B. 2005a 'Ward's 'Soviet Scotland' warning deserves debate, not firing squad' *The Scotsman*, 10th October 2005.

Jamieson, B. 2005b 'Executive plays down 'crowding out' fears' *The Scotsman*, 3rd December 2005.

Kerevan, G. 2005 'Forget the People's Republic of Scotland, what we are is the UK's biggest banana republic' *The Scotsman*, 9th November 2005.

MacDonell, H. 2005 'State dependency 'at Eastern bloc levels' *The Scotsman*, 7th October 2005.

McGregor, P. and Swales, K. 2005 'Economics of Devolution/Decentralization in the UK: Some Questions and Answers', *Regional Studies* 39(4): 477-494.

McLaren, J. 2003 'Scotland's improving economic performance: a long-term comparative study', *Quarterly Economic Commentary* 28(2): 42-48.

Nelson, F. 2005 'Spinning good news from Scotland's crisis' *The Scotsman*, 27th October 2005.

Rodrigues, M. J., Lundvall, B-A., Esping Andersen, G., Soete, L., Castells, M., Telo, M., Tomlinson, M., Boyer, R. and Lindley, R. M. 2002 *The New Knowledge Economy in Europe: a Strategy for International Competitiveness and Cohesion*. Edward Elgar, Cheltenham.

Rosiello, A. 2004 'Evaluating Scottish Enterprise's Cluster Policy in Life Sciences: A Descriptive Analysis', University of Edinburgh: Innogen Working Paper No.16.

Schienstock, G., Kautonen, M. and Koski, P., 2004 Escaping path dependency: the case of Tampere, Finland in Cooke, P., Heidenreich, M. and Braczyk, H-J. (eds) *Regional Innovation Systems: the Role of Governance in a Globalized World*. UCL Press, London.

Scotland on Sunday 2005 'Leader: Killing with Kindness' *Scotland on Sunday*, 9th October 2005.

Scottish Enterprise 2001 *A Smart Successful Scotland: Ambitions for the Enterprise Networks*. Edinburgh, Stationery Office.

Scottish Enterprise 2004 'Scottish Life Sciences Strategy: Achieving Critical Mass', Glasgow: Scottish Enterprise.

Scottish Enterprise 2005 'Scotland - competing with the world', Glasgow: Scottish Enterprise.

Scottish Executive 2005 'Scottish Economic Report', Edinburgh: Scottish Executive.

Shaoul, J. 2005. The private finance initiative or the public funding of private profit? in C. Greve and G. Hodge (eds) *The Challenge of Public Private Partnerships: Learning from International Experience*, Edward Elgar, London.

Smith, M. 2005 'Enterprise chairman accused of talking 'nonsense'' *The Herald*, 27th October 2005.

Wolf, M. 2005 'More public spending does not lead to slower growth' *The Financial Times*, 23rd March 2005.