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# Students Brief

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## DEFENCE EXPENDITURE IN SCOTLAND

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Guns versus Butter is the most frequent example used by lecturers to illustrate the nature of economic choice to students. Samuelson was the first to popularise the example while introducing the subject of production possibility frontiers in the first edition of his economics textbook in 1948, and it soon passed into the literature. However, the choice is as old as the subject of economics itself, for we find Adam Smith in his **Inquiry into the Nature and Causes of the Wealth of Nations** (1776), posing the question of 'opulence or defence' and settling for the latter. His reasoning finds a modern echo today: an independent opulent country that did not defend itself against warlike neighbours would soon cease to be both independent and opulent.

Scotland, like any other part of the United Kingdom, is defended by the resources provided by the UK defence budget of approximately £12 billion a year. If we were simply assessing the annual (and strictly notional) contribution from Scotland to the rest of the UK of its share of the UK defence budget it would be appropriate to take some ratio of Scotland to the UK and apply it to the defence budget. This has been the practice in the past and the most popular Scottish ratio appears to be that of its population as a percentage of the UK's, though others have been suggested (such as the ratio of Scottish GDP, or personal income). On a population basis the Scottish 'share' of UK defence expenditure would be in the order of £1 billion a year, or just under 10%.

However, such attributed ratios have a strictly limited value in that their choice is arbitrary - one ratio compared to another could produce shares varying by many tens of millions of pounds - and their economic meaning is unclear. No such actual budgetary transfers within the regions of the UK takes place and notional transfers of this nature do not correspond in any way to the actual transfer of military resources.

The actual disposition of military resources within Scotland (or any other part of the UK) is not determined by population or any other ratios but by what is thought necessary for the defence of the UK as a whole. Hence, an economist's interest in the UK defence expenditure in Scotland must be based on the strategic or convenience criteria of the Ministry of Defence - in other words it must account for actual and not notional expenditures.

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\*The views expressed are those of the author and not necessarily those of the Fraser of Allander Institute.

Defence as a subject suffers from a dearth of reliable data. There are very good reasons for this. Defence data is, or can be, useful to those who have little regard for the interests of the UK. Hence, there is a veil of secrecy imposed by government on defence matters. If this is regarded as irksome in a democracy we should note that the Soviet Union provides a **single line** for defence in its state budget and resolutely refuses to disclose anything more either to its own or to foreign citizens. Moreover, the **official Soviet Defence Budget** has remained static at 17 billion roubles for nearly ten years though by western estimates it totals about 80 billion roubles and has been expanding at more than 5% per year. Soviet defence spending must represent something like 10% to 14% of Soviet GNP (compared to less than half that in the NATO countries).

In contrast, the UK produces a 150 page **Annual Statement on the Defence Estimates** that provides minute details of defence expenditures and policy (even the marital status of its forces, how many telephone extensions have been 'saved' in cuts and the sickness records of service personnel etc). The disposition of UK defence forces, their costs and equipment are given each year and additional details are provided in the reports of the House of Commons Select Committee on Defence. In the case of the United States of America, the amount of detail made public about its defence forces is even more impressive. Literally, volumes of detail are printed each year and it is not unusual for the US government to make public what is still officially secret in the UK.

However, even with all this detail it is still not possible to get the kind of information of interest to research workers and, quite rightly, we cannot realistically expect the Ministry to provide information just because it might be of interest to economists! We must make do with what is available and make intelligent estimates of the rest.

Scotland's geographic position gives it a strategic importance in the provision of UK defence. Much attention is given to the UK commitment to the defence of Federal Germany against a possible invasion by Warsaw Pact (WARPAC) armed forces. This British commitment was agreed in the Brussels Treaty of 1955 which requires a British army of 55,000 troops to be permanently stationed in Federal Germany. These troops constitute the British Army of the Rhine (BAOR) and they are supported by the Second Tactical Airforce of the RAF. In all, this British treaty commitment (to defend a 65 kilometer wide stretch of the German border) costs £1.9 billion a year to the British taxpayer.

Naturally, the focus of attention in Britain tends to be concentrated on the 'central German front' and this leads the casual observer to think of Scotland as a 'rear area' of UK defence. Nothing, however, could be further from the truth. Britain faces not one front but two, and the second front is to the north of Scotland in what is known as the 'Faeroes Gap' (a line running from Greenland through Iceland and the Faeroes to the northern coast of Scotland).

The area to the north of Scotland is vital to the security of Britain and its North Atlantic Treaty (NATO) allies. It is through this air and sea space that the Soviet Union's forces have to pass if they are to get into the North Atlantic. The Soviet Northern Fleet is the largest of the four

Russian fleets dispersed throughout the world. It has over 270 submarines (of which 90 are nuclear missile launchers) and 250 surface ships. Altogether the manpower of this force totals over 120,000. In addition, the Soviet Long Range Airforce regularly flies missions from the Kola Peninsular down the coast of Norway and the east and west coast of the UK and back to its bases in the Soviet Union.

For the UK, the Soviet commitment of air and naval forces in the air and sea space to the north of the UK makes Scotland in the front line as far as defence is concerned. It is to be expected therefore that defence provision in Scotland would reflect this strategic importance.

Table 1 shows the distribution of defence employment in Scotland.

**TABLE 1 DEFENCE EMPLOYMENT IN SCOTLAND**

Armed Forces		18,000
of which (approximately):		
Royal Navy	9,000	
Royal Air Force	4,500	
Army	4,500	
MOD Civilians		22,000
MOD Contractors		13,000
<b>TOTAL</b>		<b>53,000</b>

The striking point in this table is the extent of the commitment of defence forces to the **maritime** role in Scotland. Of the 18,000 uniformed service personnel in Scotland about 13,500 are in the Royal Navy or Royal Airforce. The balance of about 4,500 are in the Army. The significance of this deployment is heightened when it is noted that the bulk of the army personnel are **not** deployed in Scotland in an operational sense; they are almost exclusively on a 'home posting' or training tour. The 45 Commando, stationed at Arbroath, is tasked to deployment to northern Norway in the event of hostilities being threatened but this is the only unit stationed here with such a role. In other words, the Ministry of Defence does not envisage the use of the Army in the defence of Scotland.

The naval and airforce deployments are almost exclusively operational. The maritime forces deployed in Scotland must be able to patrol the air and sea space of the Faeroes Gap, monitor **all** movements through it and be able to intervene effectively there if necessary. An ability to 'plug the Gap' is given a high priority in British defence provisions. This is one reason why there are also 2,400 United States naval personnel stationed in Scotland at the Holy Loch submarine base and at the Edzell communications centre.

One instrument for meeting these roles is provided by the British submarine squadron that is based at Faslane on the Clyde. British nuclear powered 'hunter killer' or attack' submarines engage in long patrols in the north Atlantic and they are supplied, repaired, and refitted from Faslane on the Clyde and Rosyth, near Edinburgh. They are controlled by the communications headquarters at Pitreavie in Fife.

In addition, there is a maritime contribution from the RAF, flying out of the airstations at Lossiemouth, Kinloss, Leuchars, Macrihanish and Stornoway. This consists of two elements: maritime surveillance (Nimrods) and interception (Phantoms etc). The surveillance role is crucial in anti-submarine warfare, and brings aircraft, surface ships and submarines into co-ordinated search and destroy missions of enemy submarines and surface ships.

Modern technology requires early warning and identification of approaching aircraft and to this end a system of radar stations are sited across Scotland. There is a master radar station at Buchan (nr Aberdeen), supported by 'slave' nations in the Faeroes, Saxa Vord (Shetland) and Benbecula (Hebrides). These stations are absolutely essential to the maritime and air defence of the UK, for without them the interceptors would not know what to look for, or where to look.

The RAF also has important training areas in Scotland (Cape Wrath, Tain and Rosehearty) for bombing and low flying practice. But the bulk of its forces have an operational role.

Faslane is also the home base of the Polaris submarine fleet. This nuclear strategic force consists of four boats, one of which is **always** on station somewhere in the north Atlantic. It acts as Britain's nuclear deterrent and its power is awesome, to say the least. Each Polaris submarine packs more explosive power than all the ordnance dropped in World War 2 and could fire its 16 missiles in about 5 minutes at 15 minutes notice from London. British policy makes absolutely clear to the Soviet Union that in the event of a nuclear attack on the UK, the Government reserves the right to respond and inflict considerable damage to the Soviet Union beyond any conceivable gains they could make by attacking the UK. The military significance of this powerful deterrent force is regarded as being such that no sane government in the Soviet Union would safely contemplate a nuclear attack on the UK without risking utter destruction of its own territory.

So much for the 'hardware' deployed in Scotland. What of the actual expenditures? Here we begin to encounter data deficiencies. Take manpower for instance. According to statistics issued by the Scottish Office there are approximately 37,000 domiciled Scots serving in the UK armed forces. This is considerably more than the numbers of service personnel stationed in Scotland (18,000). Clearly, the majority of the 37,000 Scots who normally reside here are stationed elsewhere at any one moment. The low numbers of army personnel in Scotland (under 5,000) suggest that the bulk of the Scottish regiments are assigned to duty tours in BAOR, Hong Kong, Belize, Northern Ireland, Gibraltar, Falklands and the rest of the UK. In a sense, Scotland 'exports' military man (and woman) power in the army and 'imports' maritime forces from the rest of the UK, though the exact balance cannot be established - obviously some Scottish servicemen join the Royal Navy, the marines and the RAF.

Of the £12 billion spent on defence, how much is spent in Scotland? This calculation must be distinguished from shares of total UK defence expenditure attributed to Scotland using some global ratio or other. For example, consider the complications of using the ratio of 37,000 domiciled Scots to the UK armed forces (340,000 in 1980). In what sense can we consider income of the 37,000 Scottish servicemen being spent in Scotland

when the evidence shows that most of the servicemen (and their families) are on postings outside Scotland at any one moment?

Or take, for instance, the question of military hardware produced in the rest of the UK and deployed in Scotland. What economic meaning is there in assigning the cost of, say, the nuclear submarines which were built in Barrow in England to the Scottish economy? Obviously none at all. The capital cost of the nuclear submarines is expended at the time of their construction. There is no economic meaning to depreciation in defence costs as the submarines do not earn an income stream to pay for them. The capital costs of the submarines (and all other defence equipment) are charged to the defence budget at the time of the expenditure and they are not depreciated over their service life. Hence, if no Scottish firms contributed to the construction of the nuclear submarines there can be no expenditure arising from their construction that can be credited to the Scottish economy.

In the case of the running costs of the submarines, these can be regarded as expenditures in Scotland if the resources are purchased from within the Scottish economy. If Scottish firms supply oils, parts, victuals, services and such like to the submarine base at Faslane, or the refitting yard at Rosyth, they receive incomes for doing so and these are injections into the Scottish economy. Of course, the largest input into the Scottish economy is likely to be that of incomes of personnel working for the Ministry of Defence at its Scottish bases and this can be estimated from the employment figures provided by the MOD.

The general point must stand, namely, that the original hardware costs of the defence equipment used in Scotland had an economic effect confined to the regions where they were procured and not the Scottish economy. But Scotland, like other regions of the UK, does have a share in defence procurement. Yarrows builds frigates, Ferranti and Marconi-GEC supply electronics for aircraft, missiles and helicopters, and British Aerospace builds light trainers and supplies refitting of engines (as does Rolls Royce). These are direct expenditures into the Scottish economy (net of any inputs purchased into Scotland from elsewhere - a modern frigate, for instance, would import from the rest of the UK about 60% of its cost).

There are large gaps in data of actual defence expenditures in Scotland and we are compelled to find a method of estimation that bears some resemblance to reality. In the absence of official figures we must make the assumption that employment is proportional to total costs. In the case of service personnel and civil servants this is reasonable as pay and allowances are nationally negotiated. For contractor employment it is also reasonable as the mix of procurement expenditure is not geographically determined, ie the 'high' technology industries are represented in Scotland, as are the more basic items. Only in the case of 'other expenditure', which covers land and buildings, works and buildings, miscellaneous stores and services, fuel, clothing and administration etc, does the estimate risk being arbitrary. The alternative is no estimate at all, which places an unrealistic demand for accuracy in what is after all, merely a 'working guess'. Hence, in Table 2, the Scottish defence employment under each category is taken as a proportion of total UK defence expenditure under that category and for 'other expenditures' the average of the other ratios is used.

In Table 2 the estimated defence expenditure in Scotland is shown. This suggests a direct expenditure into Scotland from MOD of about £770 million. The nature of the data precludes a more accurate figure of the net flow of defence expenditures into Scotland. For instance, some of the incomes

**TABLE 2 ESTIMATED DEFENCE EXPENDITURES IN SCOTLAND, 1980/81**

<b>PRINCIPAL HEADINGS UK DEFENCE BUDGET</b>	<b>UK TOTALS £ BILLION</b>	<b>SCOTLAND £ MILLION</b>
Armed Forces and Civilian Pay, Pensions and Allowances	4.9	338
Defence Equipment	5.4	297
Other Expenditures	2.0	135
<b>Total</b>	<b>12.3</b>	<b>770</b>

received by Royal Navy and RAF personnel will be remitted to their families in the rest of the UK and some of the incomes of Scottish troops stationed elsewhere will flow in the reverse direction. Also, some Scottish firms will be sub-contractors of firms elsewhere in the UK who are supplying MOD with equipment and some firms outside Scotland will be in the reverse relationship. The extent of the leakages from or to the Scottish economy cannot be discovered without additional details.

We do know that about £770 million is a 'first guess' estimate of UK defence expenditure in Scotland and that this represents about 53,000 jobs. We also know the deployment of defence forces in Scotland and its strategic importance to UK (and NATO) defence. For the moment that is about the extent of our public knowledge about defence and the Scottish economy.

#### **SUGGESTED READING**

The Ministry of Defence publishes the **Statement on the Defence Estimates** each year and the 1982 issue is due (but delayed by the Falkland's crisis). It is available from HMSO. So are the Reports of the Defence Committee of the House of Commons which are on various subjects and include evidence from experts (in and out of the Ministry) on defence matters.

For examples of the use of attributed ratios (the population of Scotland etc) to estimate Scottish defence expenditures see:

**HM Treasury, Estimates of Central Government Revenue and Expenditure Attributable to Scotland in the Financial Year 1967/68, HMSO, London 1969.**

McCrone, Gavin, **Scotland's Future: The Economics of Nationalism**, Blackwell, Oxford, 1969.

Johnston, T L, Buxton, N K, & Mair, D: **Structure and Growth of the Scottish Economy**, Collins, London, 1971.

The Scots in the UK Armed Forces ratio is used in:

Begg, H M, Lyth C M, & Sorley R: **Expenditure in Scotland 1961/71**, Scottish Academic Press, Edinburgh, 1975.

For studies of the economic impact of defence installations in Scotland see:

Greenwood, D & Short J: **Military Installations and Local Economies: A Case Study: The Moray Air Stations**, Aberdeen Studies in Defence Economics, No 4, Aberdeen University, 1973.

Short J, Stone T & Greenwood D: **Military Installations and Local Economies: A Case Study: The Clyde Submarine Base**, Ibid, No 5, Aberdeen University, 1974.

For discussion on Scotland's strategic defence role see:

Kennedy, Gavin, 'Defence', in MacKay D (editor): **Scotland 1980: The Economics of Self-Government**, Q Press, Edinburgh, 1977.

For defence economics in general, see:

Kennedy, Gavin: **The Economics of Defence**, Faber, 1975

or **Burden Sharing in NATO**, Duckworth, 1979

or **Defence Economics**, Duckworth, 1982 (in press).