

# Reform of the Barnett Formula with needs assessment: can the challenges be overcome?

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**Abstract.** Block grants to the UK's devolved administrations (DAs) are allocated using the Barnett formula. There have been widespread calls to replace this formula with one based on some form of spending needs assessment, but two obstacles to doing so have been raised. First, there is an argument that the DAs would be unable to agree on how needs should be assessed, and second it is less clear how needs assessment might work in the case of devolved governments which can pursue different spending policies. This paper investigates the first issue by analysing the extent to which the Scottish and English formulae for allocating funding for health and education within each country are statistically similar, , and the second issue through a hypothetical policy simulation analysis.

JEL codes: H71, H72, H77, R50

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## 1. INTRODUCTION

The devolved administrations (DAs) in Scotland, Wales and Northern Ireland (NI) have almost complete autonomy over policy and spending decisions for devolved areas of policy – which include health, education, local government, environment, housing and transport. To finance this spending they rely almost entirely on block grants from the UK Government.

These block grants (or more precisely, the annual changes in them) are determined by the Barnett Formula. Introduced in 1979 in Scotland and Northern Ireland, and in 1980 in Wales, the Barnett Formula determines the change to each DA's grant based on changes in spending on comparable (i.e. devolved) services in England, and the DA's population (HM TREASURY, 2010). For example, if the UK government announces a £100m increase in health spending in England, if 99% of all UK health spending is comparable<sup>i</sup>, and if Scotland's population is 10% of England's, then the Scottish Government's budget would increase by £9.9 million. Any Barnett-calculated change is added to the existing grant (the baseline). It follows that each territory's current grant level is a function of the baseline grant that the territory received in 1979, and all subsequent applications of the Barnett formula.

The Barnett formula was introduced on the assumption that it would be a temporary measure, and it has been criticised for two main reasons.

First, it ignores the relative spending needs of the DAs and England, and is therefore seen as inequitable (MCLEAN, et al., 2008, SELECT COMMITTEE ON THE BARNETT FORMULA, 2009, INDEPENDENT COMMISSION ON FUNDING AND FINANCE FOR WALES, 2010). The grant allocations have often been accused of being too generous to Scotland and NI, but less so to Wales (MCLEAN and MCMILLAN, 2005, MACKAY and WILLIAMS, 2005). Although the Barnett Formula bears the brunt of this criticism, the allocations to the DAs are as much the result of arguably generous baseline grant allocations when the formula was introduced, as with the formula itself<sup>ii</sup>.

Secondly, the formula bases change in the DAs' block grants on changes in spending by government departments in England. The notion of basing grant to a devolved government on the policy decisions of another parliament seems inconsistent with the aims of devolution. Admittedly, the DAs need not follow English policy and spending decisions at departmental level, but with very limited tax-raising powers they cannot vary their total levels of public spending. Given that the DAs are generally elected with more social democratic mandates than the current Westminster government, some would argue that the Barnett Formula effectively forces the DAs to become 'policy takers' (TRENCH, 2012)<sup>iii</sup>.

Despite these criticisms, the Barnett Formula has remained the preferred mechanism for allocating grant to the DAs since 1979, suggesting that it also has some advantages. One is that it gives the DAs stable and predictable funding (SELECT COMMITTEE ON THE BARNETT FORMULA, 2009, paragraphs 49-50). The stability arises because the formula applies only to change in grants. This fact also ensures that the Treasury cannot attack the budgets of the DAs collectively or sequentially. From a technical perspective the formula is also simple to operate (and does not require protracted inter-governmental negotiations), and it has been argued that it is 'fair' in that it provides equal funding increases to each DA.

The political economy literature has sought to explain the Barnett formula's longevity by characterising it as part of a more nuanced 'formula plus influence' funding system funding which has advantages for both the central and devolved governments (CHRISTIE and SWALES, 2010), and which represents the 'codification of a bargaining outcome' (SMITH, 2006). Simply put, this argument asserts that the DAs relatively generous grants reflect their bargaining power, due to a combination of the threat to secede from the Union and their geographical and political distance from the centre (MCLEAN and MCMILLAN, 2005, CHRISTIE and SWALES, 2010, HALLWOOD and MACDONALD, 2009). In this analysis, the fact that 90% of the UK's tax revenues from North Sea oil and gas exploitation are attributable to Scottish waters, together with a relatively stronger support

for independence, is used to explain Scotland's more generous grant allocation relative to Wales. Indeed, it has been argued that Scotland's higher spending per capita than England's since 1980 effectively represents a redistribution of North Sea oil revenues generated in Scottish waters (Ashcroft, 2013).

However, recent years have seen growing calls for the Barnett formula to be replaced, or at least reviewed. The House of Lords Select Committee on the Barnett Formula (2009) argued that: 'Public spending per head of population should be allocated across the United Kingdom on the basis of relative need, so that those parts of the UK which have a greater need receive more public funds to help them pay for the additional levels of public services they require as a result' (paragraph 81).

This conclusion was reiterated by the Holtham Commission (INDEPENDENT COMMISSION ON FUNDING AND FINANCE FOR WALES, 2010), and more recently by the Commission on Devolution in Wales (COMMISSION ON DEVOLUTION IN WALES, 2012), which recommends that the possible future transfer of some income tax powers to the Welsh Government should be conditional on developing a 'fairer' block grant allocation mechanism. The calls to replace Barnett seemed to intensify during 2013, with both the All Party Parliamentary Group on Taxation (2013) and the Local Government Association in England (LOCAL GOVERNMENT ASSOCIATION, 2013) recommending that the Barnett Formula should be replaced by a needs based spending assessment.

There is also recognition within Scotland of the merits of replacing the Barnett Formula. In the event of a no vote on Scottish Independence at the referendum in September 2014, it is likely that there will follow significant debate on which further fiscal powers might be devolved to the Scottish Government. The two most prominent manifestos on the table at this point are those of 'Devo-More' put forward by IPPR (Trench, 2013), and 'Devo-Plus', proposed by Reform Scotland (Rennie, 2012). Both of these proposals envisage Scotland's future fiscal settlement involving both a higher level of autonomy for tax raising, combined with a block grant determined by some assessment of relative spending need. , and

Through the Scotland Act 2012, the Scottish Government will acquire powers to raise around one third of its budget revenue from income tax and some smaller taxes. The Commission on Devolution in Wales (COMMISSION ON DEVOLUTION IN WALES, 2012) has recommended conferring similar tax raising powers on the Welsh Government. However, the block grant will remain the DAs' main source of revenue for the foreseeable future.

It therefore seems opportune to explore the possibility of basing the future, smaller, block grants on some form of needs assessment<sup>iv</sup>. This paper explores two main arguments which have been put forward against using needs assessment for the DAs.

The first argument against needs assessment is that the normative dimension of needs means that it will be impossible for the DAs to agree on a needs assessment formula. To examine this issue, this paper presents the results of a detailed comparison of the spending needs formulae used to allocate resources for education and health within England by the Westminster Government with the formulae used to allocate resources for education and health within Scotland by the Holyrood government. The aim of this analysis is to compare how the English and Scottish formulae assess the relative spending needs of different regions and territories. Arguably, the more similar their allocations are, the greater is the likely scope for acceptable compromise on Barnett replacement. This is not to say that a Barnett replacement should use either the English or Scottish formulae for health or education, but rather to identify where disagreements around needs assessment are likely to arise, and to help inform the legitimate starting points for the DAs in any negotiations with the UK Government around what might constitute a reasonable suite of needs indicators, and where the limits of a 'fair' block grant settlement may lie.

The second argument against needs assessment is that it might be impracticable where devolved governments can pursue quite different spending policies. Implicitly, needs assessment seems to require a broad consensus between governments about the size and scope of the public sector, so that needs assessment might seem problematic if this consensus does not exist (for example,

because of divergent policies in the funding of major public services such as health or higher education). This issue is particularly problematic in the UK case because of the dominance of England in population terms. To examine this issue, the paper explores how a grant allocation system might work satisfactorily if a) the different territories have different spending priorities and b) there is substantial asymmetry in the relative size of those territories; it then discusses the political viability of the suggested schemes.

The findings draw on a detailed analysis undertaken from 2011-2013 as part of an ESRC funded project to consider options for replacing the Barnett Formula. This analysis had several components, including consideration of devolved government funding arrangements in several other relevant countries, interviews with high profile UK-based policy makers<sup>v</sup> to explore some of the political economy aspects surrounding the Barnett Formula and its possible replacement, citizens juries with residents of the different UK territories, and comparison of the spending needs formulae used to allocate resources within individual UK territories.

The paper is structured as follows. Section 2 outlines in broad terms the options for replacing the Barnett Formula, illustrated by reference to arrangements in a number of other countries. Section 3 explores how far the UK territories may be able agree on how needs should be assessed, given the normative dimension of what constitutes need. It suggests that the pattern of grant allocations made by the Westminster and Holyrood governments' needs assessment formula are generally similar, and identifies where key issues may arise in determining what constitutes spending need. Section 4 explores the problems of using needs assessment when devolved governments could have quite different public spending plans. Section 5 concludes.

## **2. OPTIONS FOR REPLACING THE BARNETT FORMULA**

One simple alternative to the Barnett Formula would be to allocate grant to the DAs on an equal per capita basis. This would be procedurally transparent, but by ignoring spending needs (and devolved tax revenues), it would probably result in major changes in the level of resource available to each

DA, and lead to a markedly different pattern of spending from the current situation. In 2011/12, per capita spending on broadly devolved services was 29%, 20%, and 11% higher in NI, Scotland, and Wales respectively than the UK average (HM TREASURY, 2012)<sup>vi</sup>.

Although the current allocations are not, as noted previously, based on an assessment of spending need, there is a general recognition that spending needs are somewhat higher in the DAs than in England (INDEPENDENT COMMISSION ON FUNDING AND FINANCE FOR WALES, 2010, MCKEAN and MCMILLAN, 2005, MACKAY and WILLIAMS, 2005, MIDWINTER, 2002). Allocating grant on an equal per head basis is arguably at odds therefore with the notion of the UK as a union state. MACKAY and WILLIAMS (2005) for example argue that transfers from richer to poorer regions are what 'keeps the Kingdom united'. Indeed, the Calman Commission (COMMISSION ON DEVOLUTION IN WALES, 2012) and the Independent Commission on Funding and Finance for Wales took it for granted that the financial arrangements for devolution should respect the principle of comparable access to public services in all regions (BOADWAY and TREMBLAY, 2012)

Few if any countries allocate grant to territories purely on an equal per capita basis. However Canada and Germany, for example, while using grants to offset different tax revenues in the provinces and Länder, largely ignore their spending needs<sup>vii</sup>. Canada, while enshrining revenue equalisation into its Constitution, has repeatedly rejected the idea of equalising the spending needs of its provinces. LECOURS and BELAND (2010) attribute this to the 'inter-state' nature of Canadian federalism, where party affiliation is much less important than provincial interests and identities, and needs assessment is seen as a threat to provincial autonomy.

Needs assessment is already used within each of the UK territories to distribute resources to health boards, local authorities, schools, and colleges (SMITH, 2006, NATIONAL AUDIT OFFICE, 2011). These needs assessment formulae typically attempt to build-up a detailed picture of spending needs for individual service areas. The formulae are developed by analysing how the use of a given service, or the costs of providing it, vary according to factors such as the demographic and socio-economic

characteristics of the local population, and the costs of delivering public services in different parts of the country. These needs assessment approaches are called ‘bottom-up’ models because they seek to identify needs indicators, based on an underlying causal theory about how they influence a particular element of service delivery.

Such ‘bottom-up’ needs assessment formulae continue to evolve in sophistication. The Department for Health in England for example is investigating the use of ‘person-based resource accounting’ (BARDSLEY and DIXON, 2011), whilst BRAMLEY (2011) develops an illustrative ‘outcome-based’ resource allocation framework applied to Welsh schools. However, many existing needs based allocation formulae have been criticised both on methodological grounds such as circularity and ‘ecological fallacy’ (STONE and GALBRAITH, 2006, SMITH, 2003, GALBRAITH and STONE, 2011), and more practical grounds such as length, complexity, and a lack of transparency which leads to assertions that the formulae are open to political manipulation (HILBER, et al., 2011, JOHN and WARD, 2001).

Internationally, similar allocation formulae are sometimes used to allocate grants to sub-national government. The Australian Government allocates grant to States using a detailed, bottom-up approach to assessing States’ spending need across 14 categories of spending. This system is often cited as one from which the UK could draw lessons (SELECT COMMITTEE ON THE BARNETT FORMULA, 2009, KAY, et al., 2005), although its critics point to its complexity – its latest methodological report runs to 700 pages (COMMONWEALTH GRANTS COMMISSION, 2010).

However, needs assessment does not have to be so complex. Two recent reports have argued that grant should be allocated to the UK DAs based on a simple ‘top-down’ assessment of their spending needs. In a top-down approach, a basket of indicators is used to explain overall expenditure need for a DA, but no attempt is made to link particular indicators to specific service blocks.

- The House of Lords Select Committee (SELECT COMMITTEE ON THE BARNETT FORMULA, 2009) argued in favour of replacing the Barnett Formula with a simple formula with around eight indicators of relative need. The Committee rejected more detailed approaches because it saw them as overly prescriptive and as ‘trespassing on the domains of the devolved administrations’.
- The Holtham Commission (INDEPENDENT COMMISSION ON FUNDING AND FINANCE FOR WALES, 2010) recommended that a Barnett replacement formula should follow a top-down approach, arguing that a ‘simple’ top-down model could adequately mimic some of the more complex local authority and NHS bottom-up approaches.

Following reform of its regional financing system in 2009, Spain now uses a very simple equalisation formula to assess the spending needs of its Autonomous Communities (ACs), the aim being to enable ACs to provide similar levels of essential welfare state services while making a similar fiscal effort (BOSCH, 2009). The formula is transparent, containing some seven variables, but has little theoretical underpinning – its simplicity reflects the set of parameters that Spain’s 14 ACs were able to agree on (Bosch, personal communication).

Some authors have argued for an even simpler approach, where need is assessed by just one proxy indicator. MCLEAN and MCMILLAN (2005) for example propose the use of ‘inverse GDP’ as a ‘politician-proof’ proxy of need which could be used to increment the block grant. The objection to this inverse GDP measure is that there are many influences on public policy spending needs that may not be well related to it (HEALD, 2009).

Whatever the form of spending needs assessment proposed, there are two issues in particular that make it potentially more challenging to use needs assessment for the DAs than for local authorities. First, that the territories may be unable to agree on a formula to assess their spending needs; second, the specific challenges that arise in implementing needs assessment in the case of devolved

governments that have substantial policy autonomy. The remainder of this paper considers these issues in detail.

### **3. ISSUES IN NEEDS ASSESSMENT (1): WOULD TERRITORIES AGREE ON NEEDS?**

A major argument used against replacing the Barnett Formula with needs assessment is that needs assessment is inherently subjective (MIDWINTER, 2002). The normative aspect of determining needs raises difficult questions about which needs are 'legitimate' rather than the result of a policy choice, and which indicators should be used to measure needs. The subjectivity of determining spending needs leads some authors to argue that needs assessment for the UK's DAs will be unworkable, as politicians will be unable to agree what a needs-based formula would look like (MCLEAN and MCMILLAN, 2005). Thus MIDWINTER (2006) argues that 'Needs assessment would not resolve the problem, it would simply change the politics of resource allocation away from the unfairness of Barnett to the inequity of the needs formula'.

This paper examines this issue by comparing the needs assessment formulae that England and Scotland use to allocate resources for health and school education within their jurisdictions. Specifically, the paper compares the relative spending needs of different areas as assessed by the English and Scottish formulae. The rationale for this analysis is not to argue that a Barnett-replacement formula should look like either the English or Scottish health/education allocation formulae (or even a hybrid); indeed, using 'internal' allocation formulae as the basis for allocations between territories is likely to pose several difficulties in the long-run, one being that DAs may feel that they should 'use' any national funding formula to allocate resources within their own territory, leading to homogenisation of sub-national formulae and lack of policy discretion at DA level, and another being that the use of internal formulae to inform DA-level grant allocations may create perverse incentives in the way that DAs design their internal needs formulae. Instead, the objective is to consider how far the English and Scottish formulae have a similar perspective on how the

spending needs of different territories and regions vary. Arguably, Barnett reform, if it occurs, will be based around inter-governmental negotiations as to appropriate funding levels, as opposed to development of any single replacement formula. This analysis can inform the starting points for such negotiations to take place. The fact that the Scottish health and education allocation formulae have been developed to allocate resources within a different policy and institutional set-up from England's suggests that the Scottish formulae may allocate resources in a different pattern from England's formulae. But if the formulae actually allocate resources very similarly, then perhaps the assessment of spending need is not as subjective or contestable as some have suggested. We focus on health and education as these are the two largest items of devolved expenditure, accounting for over half of all DA spending.

First, consider health allocation formulae. The Scottish Government uses a detailed needs assessment formula to allocate the majority of its health budget across 14 territorial health boards. In England, a needs assessment formula is used to allocate the large majority of NHS spending across 150 territorial Primary Care Trusts. In both England and Scotland, these healthcare allocation formulae have been in place, in one guise or another, since the late 1970s.

Each territory's health formulae aims to allocate resources in line with the varying spending needs of the different health boards, given the demographic, socio-economic and morbidity characteristics of their populations, and the costs of delivering health services in different parts of the country. But the formulae have been evolved separately over many years by different governments which have, in recent years especially, pursued quite different agendas for their respective national health services (GREER, 2004, FORBES, et al., 2010). Given this divergence, it might be expected that the English and Scottish health formulae would allocate resources for health quite differently.

To test the hypothesis that the English and Scottish assessments of relative health spending needs differ significantly, we applied each formula in turn to all 176 health boards in the UK<sup>1</sup>, and then aggregated them to each of the nine English regions and three UK territories. To compare the results, we use each formula to give each of these areas a need score which relates spending need in that area to the average English spending need which we took as 1. For example, a score of 1.1 indicates that an area has a spending need 10% above the English average. The formulae are complex and rely on numerous indicators; (blinded for review) describe the formulae and the methodology in further detail.

To test the similarity of the formulae, the relative need scores for each area according to the Scottish formula were regressed on the equivalent need scores according to the English formula, i.e.:

$$ESN_i = \alpha_0 + \alpha_1 SSN_i + e_i \quad (1)$$

where ESN is the per capita spending needs of area i according to the English formula, and SSN is the per capita spending needs of area i according to the Scottish formula. If the two formulae actually assessed relative needs for each area identically, then both the coefficient  $\alpha_1$  and  $R^2$  would equal 1.

Another major area of DA spending is education. The Scottish Government uses a formula to allocate school education resources to local authorities (LAs) in Scotland; likewise the Westminster government uses a formula to allocate resources for school education to LAs in England (blinded for review). As with health, there are differences between the Scottish and English education systems. These relate not only to different exam and curriculum frameworks and age of transition from primary to secondary school, but also to subtler differences in the use of performance frameworks and league tables, and the degree of school autonomy in curriculum implementation. Moreover, the allocation formulae themselves measure and weight things such as pupil disadvantage and rurality in different ways. The interesting question that arises is whether these differences in policy and

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<sup>1</sup> 150 English PCTs; 14 Scottish Health Boards; seven Welsh Health Boards; and five Northern Irish Health and Social Care Trusts.

allocation formulae result in different patterns of allocations across the territories. As with health, we examine this question by applying the English and Scottish education formulae in turn to the UK's local education authorities, aggregating the results to the level of the English regions and UK devolved territories, and comparing the formulae using equation (1).

Table 1 shows the results of applying equation (1) to both the health and education formulae.

Column A considers the similarity of the education formulae. We cannot reject the hypothesis that the coefficient  $\alpha_1$  is equal to unity, which indicates that, on average, the two formulae assess the relative needs of the 12 regions for education spending in the same way. The  $R^2$  of 0.70 however suggests some variation around this average relationship. The area where the formulae disagree most is London. Its score is 1.17 on the English formula but only 1.02 on the Scottish formula. This difference arises chiefly because the English formula includes an 'Area Cost Adjustment' (ACA) which adjusts assessed spending needs in areas with high labour market and other factor costs. The Scottish education formula allows for these types of cost to a lesser extent, and is instead more likely to compensate areas for the costs associated with sparsity and rurality.

**Table 1: Regression results**

*Regression of regional spending needs assessed by the English formula on regional spending needs assessed by the Scottish formula*

	Education formula (A)	Education formula (excluding ACA) (B)	Health formula (C)	Health formula (excluding ACA) (D)
Coefficient on Scottish formula ( $\alpha_1$ )	1.108 (0.227)***	1.204 (0.066)***	0.636 (0.138)***	1.06 (.088)***
$R^2$	0.701	0.971	0.68	0.94

*Standard errors in parentheses. \*\*\* = significant at 1% level. N=12 in all cases*

Column B repeats the regression in column A after removing the ACA element of the English formulae. The two formulae now appear very similar, with the English formula explaining 97% of the variation in the Scottish formula. The coefficient  $\alpha_1$  however has increased to 1.2 (and is statistically

different from unity), suggesting that the English formula is scaled slightly more ‘steeply’ – giving relatively more resources to the most needy regions and relatively less to the least needy.

Column C presents the results of regressing the English health need scores on the Scottish health need scores. The coefficient  $\alpha_1$  of 0.64 is significantly, less than unity, and the  $R^2$  of 0.68 suggests some variation about this average. As with the education formula, much of the discrepancy between the formulae arises because the English health formula contains an ACA which tends to allocate relatively more resources to London and the south east. Excluding the ACA from the English formula and re-running the regression (column D) sees the coefficient  $\alpha_1$  rise to 1.1 (we cannot reject the null hypothesis that  $\alpha_1$  is equal to one) while the  $R^2$  increases to 0.92.

This analysis suggests that if ACAs are ignored, then the English and Scottish need formulae, for both education and health appear very similar in how they estimate relative need. Figure 1 compares how each formula assesses relative per capita spending needs of the UK regions and territories. It shows how both formulae assess Scotland’s per capita education needs as the same as England’s average of 1.0, while needs are slightly higher in Wales and much higher in NI. The English and Scottish health allocation formulae also trend in a similar way, with both formulae assessing NI, Scotland, Wales and the northern English regions as having higher than average health spending needs, the southern English regions as having below average needs, and the East Midlands having average health spending needs.

But if the English and Scottish need formulae produce similar estimates of regions’ spending needs only when the ACAs are excluded, would England and Scotland be able to agree on a common approach to the labour market cost problems that the ACAs seek to address?

On the one hand, it could be argued that there is scope for acceptable compromise here. The Scottish health formula does allocate marginally more resources to health boards in urban areas to compensate for higher labour costs, so the principle of allocating more to areas which face higher

factor costs is enshrined within the Scottish formula. Given that Scotland is willing to make some adjustment for these costs, it seems possible that it would agree to make rather more allowance for the much larger problems that arise in and around London.

However, there is an ongoing debate in England itself about the relatively high per capita public spending in London engendered by the ACAs. People's views here depend on their beliefs about the geographical agglomeration of activity in south-east England. One view is that agglomeration increases productivity at a national level, and that public sector pay structures should reflect this; (PROPPER and VAN REENEN, 2010) argue that current pay structures in the NHS are not sufficient to address the public-private funding gap in high-cost areas, resulting in poor NHS service quality. Another view is that agglomeration brings high external costs, which the current system of public expenditure tends to exacerbate, and that 'there is a strong economic and social case for spreading income and wealth creation more evenly' (MACKAY AND WILLIAMS, 2005). As ELLIOT et al. (2005) highlight, there is a difficult balance between efficiency and equity in the allocation of resources across regions.

Momentum to replace Barnett will of course depend on the outcome of various factors, including the Scottish independence referendum in September 2014, the UK Government elections in 2015, the Scottish Government elections in 2016, and elections to the Welsh and Northern Ireland Assemblies). Discussions as to the future of the Barnett formula in the event of a 'no' vote at the Scottish independence referendum are playing a prominent role in the current independence debate, with the SNP arguing that the Westminster government will dismantle the Barnett formula as a result of a no vote, whilst David Cameron has pledged to maintain Barnett until at least the end of the current parliament (although he can make no guarantees beyond this).

Although the current Coalition Government has made it clear that Barnett-replacement is not on the agenda during this parliament, a 'no' vote at September's Scottish independence referendum is likely to trigger renewed pressure to replace the Barnett formula by needs assessment. This pressure

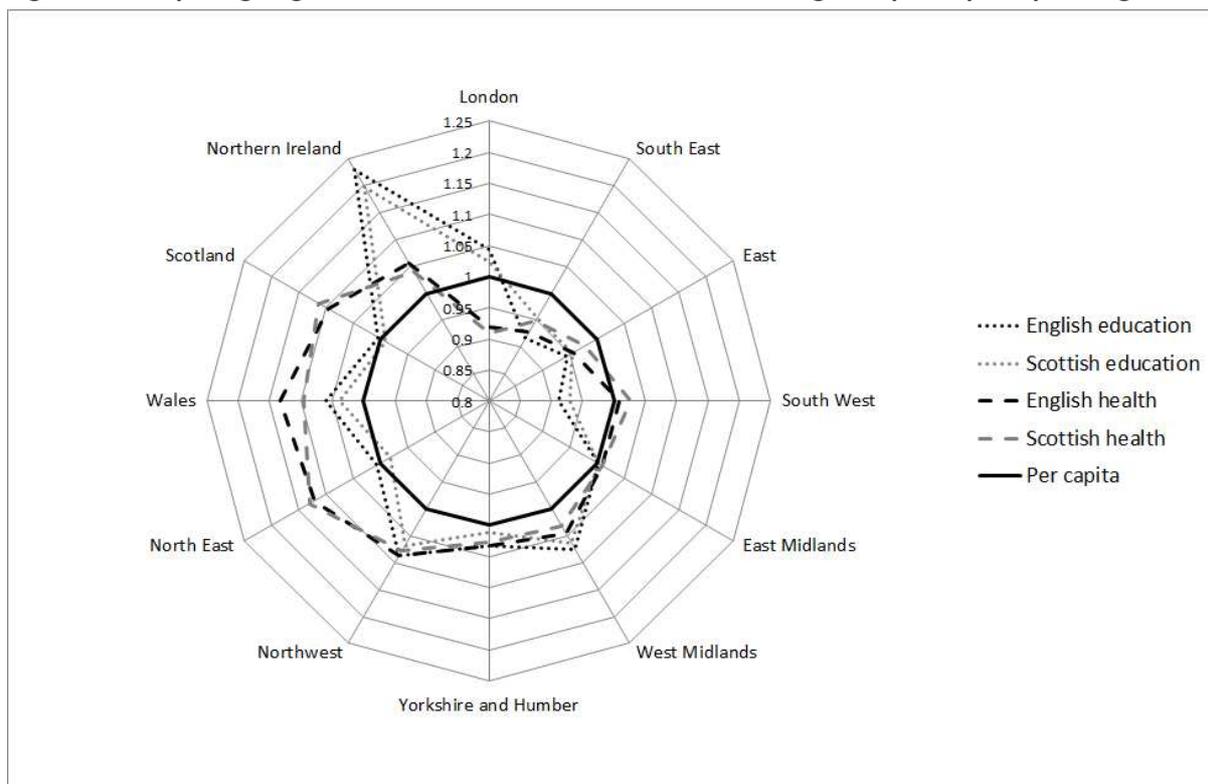
will come not only from English local government and its representatives and from the Welsh Government, but also from some politicians in Scotland, particularly if they see acceptance of Barnett formula reform as representing the best 'exchange' for devolution of further fiscal powers. The future of Barnett post-2016 is likely to depend on, among other things, the relative influence of Welsh, Scottish and NI MPs in the Westminster Government at that time (Barnett reform is arguably less likely with a Labour Government at Westminster, as Scottish Labour MPs will wish to maintain Scotland's perceived funding advantage through Barnett).

The results of the analysis in this section suggest that there are more similarities than differences in the pattern of grant allocations made by the English and Scottish needs assessment formulae for health and education, with the major area of disagreement relating to the treatment of factor costs. This is not to say that the development of a needs based replacement for Barnett will be politically easy<sup>viii</sup>. Nor do we suggest that a Barnett replacement should be based on either the English or Scottish formulae, or even a hybrid of the two. Indeed, using a sub-national formula to allocate resources at national level may create perverse incentives in how DAs might design their own formulae; and Wales and NI are likely to feel institutionally disadvantaged if a Barnett replacement was based on English and Scottish funding formulae rather than their own.

Nonetheless, the analysis may be useful in establishing a starting point and negotiation positions for each DA in the event of Barnett reform. Results suggests that Scotland's spending need for health, relative to England, ranges from 7% - 11% higher per capita, depending on whether the English or Scottish health formulae are used for assessment. For education, Scotland's spending needs are between 1-2% below England's depending on which formula is used. Health and school education combined account for around 50% of the Scottish Government's devolved budget, so it is possible that Scotland's spending need for other services may be higher. But it seems unlikely that Scotland's spending need for the remaining 50% of public services is sufficiently high to justify its 20% per capita spending advantage over England. If our analysis had been based purely on the English

allocation formulae (as was the case for the Holtham report), then a Scottish Government could argue that the English formulae did not adequately reflect Scotland's spending need, perhaps because it did not adequately reflect the influence of sparsity on the costs of public service provision. However, the Scottish Government would be in a weaker position in this regard given that their own formula have been used to estimate the broad parameters of its spending need envelope.

**Figure 1: Comparing English and Scottish formulae estimates of regions' per capita spending need**



Notes: the axis shows each regions' per capita need score where average need in England is equal to one. The ACA is excluded from the English formulae

#### **4. ISSUES IN NEEDS ASSESSMENT (2): COULD NEEDS ASSESSMENT HANDLE DIFFERENT SPENDING PRIORITIES?**

Any needs-based system of grants for the DAs must identify – either implicitly or explicitly – some standard spending policies to use as the basis for determining grants. Under the Barnett Formula, the grants paid to the DAs change in line with changes in English spending, implying that English spending policies are taken as the standard. HEALD (2009) describes this as policy decisions in

England having 'first-mover advantage', which seems counter to the spirit of devolution. (The counter-argument is that the incremental allocations through Barnett are driven by UK Government decisions on England – creating perverse incentives for MPs from Scotland, Wales and NI to vote in favour of spending increases on devolved services in England, regardless of the perceived merits of the proposed policy).

This feature of the Barnett Formula is becoming increasingly problematic now that major differences in public service provision are arising between England and the DAs, with the DAs' preferring a more social democratic approach to public services. One example concerns the decision in England to reduce public spending on higher education, offset by the introduction of tuition fees, which resulted in lower block grants for the DAs. Another example is the trend in England, but not Scotland, toward greater use of competition and commissioning frameworks in health provision (NATIONAL AUDIT OFFICE, 2012).

This section considers how a system of grants based on needs assessment could operate when the DAs pursue different models of public service provision. We are not talking here about minor differences in policy for specific departments, but of major differences in the model of public service delivery, which we assume can be proxied by aggregate public spending per capita. The challenge is to design a system of needs assessment which does not take the model of public service provision and the associated level of per capita spending in England as the standard. The specific difficulty in this respect is that England dominates the other DAs in terms of size, and this needs to be borne in mind when determining how any other policy standard is specified.

It should be noted that DAs cannot freely choose their own spending levels unless they have some tax-raising powers. No matter what block grant scheme is used, a DA without tax powers will have to match any grant changes with spending changes. If DAs do have some tax-raising powers and use them to vary their spending levels, then one possibility would be to use some measure of mean aggregate public spending across the UK territories as the 'standard' against which future spending

needs are assessed. Table 2 considers a scenario where DAs have some tax-raising powers, and it compares using English spending as the standard with using two alternative measures of mean spending.

It might be expected that one of these alternatives would be a weighted mean of spending in England and the DAs, with each area's weight being taken as its population. However, as England accounts for 84% of the total population, there would be very little difference between using this mean for standard spending and using English spending, so Table 2 ignores this possibility.

One of the alternative measures which Table 2 does consider is a mean calculated by giving the spending figures of England and the DAs equal weights. The other measure is a hybrid between using populations for weights and using equal weights: on this hybrid, the mean of spending in England and the DAs is again calculated as a weighted mean, but here each area's weight is taken as the square root of its population. Using square roots may seem arbitrary, but it was proposed by PENROSE (1946) as a means of allocating voting weights in a delegation, and it has subsequently been considered as the basis for apportioning representation in both the UN Parliamentary Assembly and the EU Council of Ministers (SLOMCZYNSKI and ZYCZKOWSKI, 2006).

The comparisons in Table 2 are based on the following illustrative assumptions:

- The populations of the four territories are as given in Panel 1 row 1.
- The territories have agreed on a top-down needs formula which assesses their relative per capita need to spend at a given time (across all devolved services, and relative to UK average need of 1.00) as in Panel 1 row 2.
- The UK government determines a total sum to allocate in grants, to support spending on devolved services, in the light of its budgetary position and other spending responsibilities.

Table 2 takes this sum as £3,000 per capita.

- The UK government wishes to allocate this grant total between England and the DAs for the forthcoming year.
- Just as the DAs can vary tax rates on devolved taxes in their areas, so the UK government can vary its tax rates on ‘devolved’ taxes in England. Indeed, the spirit of allowing the DAs to change their spending provided they change their tax rates suggests that the UK government should alter English tax rates whenever it changes spending in England.
- Any spending changes needed to offset inflation are ignored for simplicity.
- For simplicity, England and the DAs have equal per capita tax bases. Each scheme in Table 2 could readily be adapted to offset any actual differences, but this paper focuses on the specific issue of spending needs equalisation, rather than revenue equalisation .
- Once the grants for the forthcoming year are calculated and announced, each territory decides to repeat the current year’s spending in the forthcoming year. (If an area changed its spending, then it would need to make a matching change in its tax revenue.)

The following analysis effectively takes a broad measure of ‘policy’ in each area to be indicated by its total spending on devolved services and its relative needs score. For example, if Scotland’s spending need was 3% higher than England’s, and if per capita spending on devolved services was £5,000 in England and £5,150 in Scotland, then the analysis assumes that England and Scotland are pursuing equivalent policies. Although this approach to measuring policy differences is not sensitive to changes in the distribution of spending between different devolved services, it is indicative of major differences in public service provision in each territory.

*Grant allocation and tax rates when per capita spending is similar in all territories*

Before showing how the various standard spending schemes handle a case where policies vary between areas, Panel 2 of Table 2 shows what happens if policies are uniform. In this panel, and those which follow, all the figures are in pounds per capita. Suppose the territories adopt policies which lead them in the current year to spend the sums shown in row 3. If each area had average

needs, then the spending required to pursue these policies would be £5,000 (row 4). With each area having this figure of £5,000, the standard spending will be set at £5,000 (row 5) irrespective of whether English spending or any form of mean spending is used as the standard. Allowing for needs, the actual spends that would be required for these policies are as shown in row 6.

With standard spending at £5,000, and the government determining a total grant of £3,000, the implication is that the government expects any territory which sets the standard spending to raise a tax revenue of £2,000; this is taken as the standard tax yield for the forthcoming year (row 7). The grant for each territory for in that year will be as shown in row 8: it is set equal to the row 6 spending that the area would require for standard services, minus the row 7 standard tax yield.

Assuming that each territory maintains its current level of spending in the forthcoming year, then its spending will be as shown in row 3. Its required tax revenue will be as shown in row 9, which equals its spending (in row 3) minus its grant (in row 8). Row 9 shows that each territory can continue to have the standard service level next year with the same standard tax of £2,000.

#### *Grant allocation and tax rates when per capita spending is very different between territories*

The key challenge for a future UK grant scheme is to handle cases where the territories pursue policies which result in very different levels of total per capita spending (over and above differences that resulted from differences in spending need). Panels 3, 4 and 5 consider this possibility for a hypothetical case where English spending has been cut by 20%. These panels take standard spending as follows.

- Panel 3 takes standard spending as English spending.
- Panel 4 takes standard spending as mean spending, with each territory given equal weight.
- Panel 5 takes standard spending as mean spending, with each territory's weight equal to the square root of its population.

Each panel takes the same set of actual spending figures for the current year, as repeated in rows 10, 17 and 24. If each area had average needs, then the spending required for these policies would be as shown in rows 11, 18 and 25. In each panel, the figure here is £4,000 for England and £5,000 in each DA, so England is pursuing cheaper policies.

In Panel 3 standard spending is taken as the English figure of £4,000 (row 12). In Panel 4 standard spending is taken as the mean with each country given an equal weight, which is £4,750 (row 19). In Panel 5 standard spending is taken as the mean with each country's weight equal to the square root of its population, which is £4,432 (row 26). Allowing for needs, the spending required in each area for these different measures of standard spending are shown respectively in rows 13, 20 and 27.

In each case, the UK government has determined a total grant of £3,000. This implies that the UK government expects any territory which sets the standard spending to raise a tax revenue that is £3,000 less than standard spending. So in Panel 3 the standard tax yield for the forthcoming year is taken as £4,000 minus £3,000, that is £1,000, as in row 14. In Panel 4 the standard tax yield for the forthcoming year is taken as £4,750 minus £3,000, that is £1,750, as in row 21. And in Panel 5 the standard tax yield for the forthcoming year is taken as £4,432 minus £3,000, that is £1,432, as in row 28.

In each case, the grant to each territory for the forthcoming year is set equal to the spending that it would need for standard services minus the standard tax yield. So in Panel 3, the grants equal the row 13 standard spending figures minus the row 14 standard tax yields, and are shown in row 15. In Panel 4, the grants equal the row 20 standard spending figures minus the row 21 standard tax yields, and are shown in row 22. And in Panel 5, the grants equal the row 27 standard spending figures minus the row 28 standard tax yields, and are shown in row 29.

Each panel assumes that each territory maintains its current spending in the forthcoming year, so the identical sets of spending figures shown in rows 10, 17 and 24 are assumed to apply once again.

In each panel, the tax each territory will require equals this spending figure minus its grant. So in Panel 3, the required taxes will equal the row 10 spending figures minus the row 15 grants, and are shown in row 16. In Panel 4, the required taxes will equal the row 17 spending figures minus the row 22 grants, and are shown in row 23. And in Panel 5, the required taxes will equal the row 24 spending figures minus the row 29 grants, and are shown in row 30.

It is instructive to refer back to the tax rates in row 9 when each area pursued policies that would require spending of £5,000 in an area of average needs. Here each area needed to raise the same amount, £2,000, in taxes. In contrast, rows 16, 23 and 30 show what might happen to tax rates if England reduces its spending by 20 per cent. If, as in row 16, English spending is taken as the standard, then tax yields in England will fall by £1,000 while tax rates in the DAs must rise by £60, £20 and £80 respectively.

**Table 2: Grant allocation with two alternative measures of standard spending**

<b>Row</b>	<b>England</b>	<b>Wales</b>	<b>Scotland</b>	<b>NI</b>
<b>Panel 1: Key data</b>				
1 Population (million)	50	3	5	2
2 Relative needs score	0.9912	1.06	1.02	1.08
<b>Panel 2: if each area had average needs, then its current policies would cost £5,000 per head. So if standard spending is set at England's figure, or at a mean spending figure based on any set of weights, then it will be set at £5,000, with the effects shown below. (All figures in £ per head.)</b>				
3 Actual spending	4,956	5,300	5,100	5,400
4 Actual spending if area had average need (row 3/row 2)	5,000	5,000	5,000	5,000
5 Standard spending if area had average need	5,000	5,000	5,000	5,000
6 Standard spending allowing for need (row 5 x row 2)	4,956	5,300	5,100	5,400
7 Standard tax yield for forthcoming year	2,000	2,000	2,000	2,000
8 Block grant for forthcoming year (row 6 – row 7)	2,956	3,300	3,100	3,400
9 Actual tax in forthcoming year (row 3 – row 8)	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>
<b>Panel 3: if each area had average needs, then England's current policies would cost £4,000 per head while the DAs' current policies would cost £5,000. Using England's figure of £4,000 for standard spending would have the effects shown below. (All figures in £ per head.)</b>				
10 Actual spending	3,965	5,300	5,100	5,400
11 Actual spending if area had average need (row 10/row 2)	4,000	5,000	5,000	5,000
12 Standard spending if area had average need	4,000	4,000	4,000	4,000
13 Standard spending allowing for need (row 12 x row 2)	3,965	4,240	4,080	4,320
14 Standard tax yield for forthcoming year	1,000	1,000	1,000	1,000
15 Block grant for forthcoming year (row 13 – row 14)	2,965	3,240	3,080	3,320
16 Actual tax for forthcoming year (row 10 – row 15)	<b>1,000</b>	<b>2,060</b>	<b>2,020</b>	<b>2,080</b>
<b>Panel 4: if each area had average needs, then England's current policies would cost £4,000 per head while the DAs' current policies would cost £5,000. If each area is given equal weight, the mean is £4,750. Using this mean for standard spending would have the effects shown below. (All figures in £ per head.)</b>				

17	Actual spending	3,965	5,300	5,100	5,400
18	Actual spending if area had average need (row 17/row 2)	4,000	5,000	5,000	5,000
19	Standard spending if area had average need	4,750	4,750	4,750	4,750
20	Standard spending allowing for need (row 19 x row 2)	4,708	5,035	4,845	5,130
21	Standard tax yield for forthcoming year	1,750	1,750	1,750	1,750
22	Block grant for forthcoming year (row 20 – row 21)	2,958	3,285	3,095	3,380
23	Actual tax for forthcoming year (row 17 – row 22)	<b>1,007</b>	<b>2,015</b>	<b>2,005</b>	<b>2,020</b>

**Panel 5: if each area had average needs, then England's current policies would cost £4,000 per head while the DAs' current policies would cost £5,000. If each area is given a weight equal to the square root of its population, the mean is £4,432. Using this mean for standard spending would have the effects shown below. (All figures in £ per head.)**

24	Actual spending	3,965	5,300	5,100	5,400
25	Actual spending if area had average need (row 24/row 2)	4,000	5,000	5,000	5,000
26	Standard spending if area had average need	4,432	4,432	4,432	4,432
27	Standard spending allowing for need (row 26 x row 2)	4,393	4,698	4,521	4,787
28	Standard tax yield for forthcoming year	1,432	1,432	1,432	1,432
29	Block grant for forthcoming year (row 27 – row 28)	2,961	3,266	3,089	3,355
30	Actual tax for forthcoming year (row 24 – row 29)	<b>1,004</b>	<b>2,034</b>	<b>2,011</b>	<b>2,045</b>

If standard spending is instead taken as a mean where each territory has an equal weight, as in Panel 4 row 23, then England's tax yield will fall a little less, to £1,007, while those elsewhere will rise much less by £15, £5 and £20. The DAs' taxes change less here than in Panel 3 because lower English spending has less effect here on the standard spending figures for the DAs, and so has less effect on their grants. However, although giving the DAs equal weights to determine standard spending standard might be closer to the spirit of devolution than using England's figure, such a scheme implicitly gives much less weight to each individual in England than it gives to each individual in the DAs. This may make the Panel 4 scheme unacceptable, especially given recent evidence that the English electorate is increasingly likely to express discontent at a perceived favourable treatment of the DAs within the UK constitution (WYN JONES, et al., 2013).

An alternative is the intermediate scheme in Panel 5, which takes standard spending as a mean where each territory has a weight equal to the square root of its population. Here, as shown in row 30, England's required tax yield will fall to £1,004, while those for the DAs will rise by £34, £11 and £45. These are all intermediate figures between those shown in rows 16 and 23.

If any of these schemes resulted in large changes to the level of block grant to be allocated to a DA, there would need to be agreement as to the speed of convergence from the existing grant level to the target level. As noted previously, this would create an additional political challenge to be addressed.

A potential concern with the schemes in panels 3, 4 and 5 is the large differences in taxes that result between England and the three DAs, with the DAs requiring much higher taxes per head than England. Apart from the fact that these panels illustrate an extreme case, where England cuts spending on devolved services by 20 per cent, it must also be remembered that the DAs, despite having higher taxes, benefit from higher spending on public services. Taking Panel 5 as an example, Scotland raises £1,007 per capita more in tax than England, but it also spends £1,135 more on public services. Under Tiebout's classic description of fiscal federalism (TIEBOUT, 1956), such variation in

rates of taxation and public services across territories might be seen as an advantage of devolution, as it allows citizens to migrate to the territory which most closely provides the mix of taxation and public services that maximizes their welfare. Nonetheless, widely differing tax structures across the DAs are likely to be politically unacceptable, and the high degree of factor mobility between the UK territories is likely to undermine the extent to which large variations in tax structures are economically feasible (blinded for review).

In summary, Table 2 examines the consequences for a system of needs-based grants of the DAs following a markedly different model of public spending from England. Assuming that the DAs hold a reasonable degree of tax power, the analysis shows that a grant scheme could theoretically operate to ensure that the DAs' grants are not determined purely by English spending decisions, which seems closer to the spirit of devolution than the Barnett formula.

But could such a scheme operate in practice? First, it requires the DAs to have substantial tax-raising autonomy. It is possible to envisage this for Scotland, with the Scotland Act (2012) giving the Scottish Parliament revenue control equivalent to about 30% of its budget. Appetite for tax devolution in Wales and NI is lower and discussions at a much earlier stage, presumably in part due to the fact that Wales and NI have lower tax capacity than England and Scotland. Having asymmetrical tax powers would complicate the grant allocation system.

Second, the Panel 4 and 5 schemes may require a clearer degree of separation between UK-wide and England-specific functions of the UK Parliament than exists at present, given its assumption that the UK Parliament bases grant allocations on the spending decisions on devolved services in each country. However, although reform may be far off, there are increasing calls for some form of England-specific political arrangements within the UK constitution (WYN JONES et al. 2013, LOCAL GOVERNMENT ASSOCIATION, 2013).

Third, the dominance of England in population terms creates an additional set of challenges in the way in which the spending needs standard is set. Population weighted means would exert pressure on the DAs to match English spending, or face punitive tax rates, whilst schemes that place more weight on the policies of the DAs may be politically unacceptable in England.

Thus whilst it may be theoretically possible to envisage a system of grant allocation for territories pursuing different models of public service provision, it is equally clear that significant constitutional and political constraints would have to be overcome for such a scheme to work in practice.

However, the general issues discussed here do potentially start to become relevant as soon as the DAs gain some tax powers, which in Scotland's case will be in 2016; it is thus an issue that needs consideration.

## **5. CONCLUSIONS**

The Barnett Formula mechanism for allocating block grant to the UK's DAs is unsatisfactory for two reasons. First, it does not consider the DAs' spending needs. Second, it bases changes to the DAs' grants on public spending changes in England, without any consideration of the DAs own spending priorities.

There have been increasing calls to replace the Barnett Formula with some form of spending needs assessment, but there are two major challenges to doing so:

- First, it is unclear how likely it is that devolved governments would agree on a formula to assess their relative spending needs;
- Second, the fact that devolved governments can pursue very different policies and models of public spending makes it harder to determine the policy 'standard' against which to assess needs.

By comparing how health and education spending needs are assessed within England, with the way that these needs are assessed within Scotland, this paper has shown that these two countries have

similar perspectives on the relative spending needs of the UK's regions and territories. The similarity is perhaps surprising, as it follows over ten years of devolution, during which time the countries have pursued different policies regarding the NHS and education. There are of course some differences in how the English and Scottish formulae assess the relative spending needs of regions, but these differences may not be as great as some assume. Nonetheless, it can also be argued that small differences in assessed per capita need can translate into large differences in the level of total block grant allocation to a DA, so even small differences may prove contentious. However, the similarity between the English and Scottish formulae in how they assess relative spending needs of different regions and territories may provide a useful starting point for any inter-governmental negotiations around reform of the Barnett Formula.

The only notable area of disagreement between the English and Scottish assessments of relative spending need concerns the allowance made for the higher labour market costs in the English formulae. The fact that these types of costs are not included in the Scottish formulae however is not the result of a political decision to exclude them. It simply reflects the fact that these types of costs are not a major 'issue' for resource allocation within Scotland.

However, the extent to which there would be scope for compromise between English and Scottish politicians in agreeing on a needs assessment formula for allocating resources to the UK territories will depend in part on the political make-up of the Westminster and devolved parliaments, and the outcomes of the Scottish independence referendum in 2014. Bargaining positions will depend on the extent to which each DA is prepared to 'give ground' on arrangements for block grant allocation in return for meeting their objectives for tax devolution. Bargaining positions will also be influenced by economic considerations: for example, to the extent that Scotland's current and past block-grant allocations have been argued to (implicitly) reflect the value of North Sea oil revenues from Scottish waters, a decline in those revenues in future (as seems likely) may make Barnett reform more likely (COMERFORD, 2013; MCLAREN and ARMSTRONG, 2014). Whilst a one-off cut to any DA budget is

very unlikely, it does seem possible that there may be scope for negotiation around a new formula that we see DA funding levels converge more quickly towards an appropriate measure of relative need (MCLAREN and ARMSTRONG, 2014).

Regarding the second issue, this paper has shown that provided the DAs have a reasonable degree of tax-raising autonomy, it is theoretically possible to design a grant allocation scheme that takes into account the spending decisions of each UK territory in determining each territory's grant. The schemes take the territories' current spending as an indication of their policy choice, and take the average policy choice of the territories as a standard to use when calculating grant entitlements. The schemes have the advantage that, should England pursue a markedly different public policy agenda, English policy decisions do not completely dictate the level of grant received by the DAs. This seems more in keeping with the spirit of devolution, than a scheme which bases grant allocations on English spending only. In practice however, the DAs may find that the high degree of factor mobility across the UK territories constrains their ability to operate a markedly different tax system from that pursued in England (ref blinded for review). If this were the case, then the individual DAs are likely to find that their tax and spend decisions are interdependent with those of England.

Demand to replace the Barnett Formula with a spending needs assessment is growing, particularly within England and Wales, but also among some of those in Scotland who argue for the replacement of the Barnett Formula alongside further tax devolution. Greater tax autonomy for the DAs may increase the likelihood of Barnett replacement as part of wider fiscal reforms. However, developing a needs assessment replacement for the Barnett Formula will not be easy. This paper has shown that, while the UK and Scottish governments have generally similar perspectives on how spending needs for education and health should be assessed, there are also likely to be areas of disagreement. Whether there is appetite to reach acceptable compromise on these issues may depend on whether moves towards greater fiscal autonomy for the DAs signal a move away from the principle of equal access to services in different parts of the UK towards a more federalist structure of Union in which

it becomes more acceptable to address any remaining vertical fiscal imbalance through a simple per capita mechanism (or where equalisation focusses on revenues rather than spending needs). While not wanting to predict which of these two paths is more likely, it is hoped that this paper makes a useful contribution to the debate around the options for funding the UK DAs.

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## Endnotes

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<sup>i</sup> Comparability is the extent to which services delivered by UK Government departments correspond to services within the budgets of the DAs in terms of their primary function. 99.1% of Department of Health services are comparable with the services provided by the DAs (the only Department of Health service that is not comparable relates to healthcare payments for UK citizens in the European Economic Area, and these account for 0.9% of the Department's budget).

<sup>ii</sup> A mathematical property of the Barnett Formula is that it should induce convergence in per capita spending levels between the devolved territories and England over time. This is because, for a given nominal increase in 'English' spending, the per capita spending increment is the same across administrations, and thus the effect of the different initial spending levels should become proportionately less over time. However, it is clear that convergence has not occurred as quickly as it would have been expected to, due to the success of the devolved territories in periodically bargaining for additional grant increments outwith the operation of the Barnett formula (Christie and Swales, 2010).

<sup>iii</sup> In addition to it producing allocations that are unfair, the Barnett Formula is also criticised for being 'procedurally unfair'. This criticism relates to the lack of transparency that exists in how the Treasury determines which elements of English spending are 'consequential' (i.e. relate to policy that is devolved to the DAs), and the lack of a transparent process for arbitrating these decisions (MCLEAN, et al., 2008, SELECT COMMITTEE ON THE BARNETT FORMULA, 2009).

<sup>iv</sup> If the DAs were to gain additional tax-raising powers, then any future grant allocation mechanism would presumably need to consider how the revenue-raising capacity of the DAs might be equalised (particularly in the case of Wales and NI, which have significantly lower tax capacities than England or Scotland). This paper however focuses uniquely on issues surround the identification of spending needs; the issue of how spending and revenue equalisation might interact in a UK-wide system of devolved government is subject of ongoing work, funded by the ESRC.

<sup>v</sup> We are grateful to the following individuals for giving up time to share their views: former First Minister of Scotland Jack McConnell; former First Minister of Wales Rhodri Morgan; Professor Gerard Holtham; former Catalan Minister of Finance Antoni Castells; Nuria Bosch (Institut d'Economia de Barcelona); Ieuan Wyn Jones AM; former MSP Jeremy Purvis; former MSP Derek Brownlee; former NI Public Spending Director Richard Pengelly; and Lord Richard, Lord Sewel and the Earl of Mar and Kellie (all members of the House of Lords Barnett Committee 2009).

<sup>vi</sup> In its Public Expenditure Statistical Analysis (PESA), HM Treasury publishes estimates of territorially identifiable public expenditure by broad service area. By considering only those service areas which are largely devolved (including health, education, economic development, housing, environmental protection, recreation and culture, and policing in Scotland and NI but not Wales) but excluding spending on non-devolved service areas (defence and social protection) gives a reasonable estimate of per capita spending relativities on devolved services, following HOUSE OF LORDS SELECT COMMITTEE ON THE BARNETT FORMULA (2009).

<sup>vii</sup> The German system makes only a very limited attempt to equalise the Länders' spending needs. Special purpose grants are allocated to Länder with a population below 4 million) in recognition of the economies of

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scale in public service provision that larger Länder can achieve; and some additional grants are allocated to Länder of the former East Germany to support the reconstruction process, although these are being phased out (BUETTNER, 2008).

<sup>viii</sup> In addition to agreement around appropriate spending relativities, agreement as to the timescales over which any DA might be expected to transition to a different grant level to that which it currently receives (should a DA be found to be substantially over or under funded currently) will also be politically challenging, particularly if the transition lasts across several parliamentary terms.