



Department
for Business
Innovation & Skills

**Equality Impact
Assessment (EQIA)**

Growth Deals

JULY 2014 BIS/14/965

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Growth Deals: Local Growth Fund allocations in England

Introduction

1. Section 149 of the Equality Act 2010 imposes a legal duty, known as the Public Sector Duty (Equality Duty), on all public bodies, to consider the impact on equalities in all policy and decision making.
2. The Equality Duty requires a public authority, in the exercise of its functions, to:
 - a) Consider the need to eliminate unlawful (direct or indirect) discrimination, harassment and victimisation and other conduct prohibited by the Equality Act;
 - b) Advance equality of opportunity between people who share a protected characteristic and those who do not share it; and
 - c) Foster good relations between people with protected characteristic and those who do not share it.
3. The public sector Equality Duty came into force across Great Britain on 5 April 2011. It means that public bodies have to consider all individuals when carrying out their day-to-day work – in shaping policy, in delivering services and in relation to their own employees. The Equality Duty is not a duty to achieve a particular result, namely to eliminate unlawful discrimination or to promote equality of opportunity and good relations between persons of different protected groups. It is a duty to have due regard to the need to achieve these goals.
4. The decision-maker must consciously take this need into account, and in deciding how much weight to accord to the need, have due regard to it. Due regard is the regard that is appropriate in all the circumstances. The choice on how much weight to attach to the countervailing factors is a matter for the decision-maker. If adverse impacts upon the three matters identified in section 149(1) are identified, the decision-maker should consider whether to adopt measures to mitigate or remove that impact, but is not required to do so provided they have had due regard to the need in question.
5. This document sets out an analysis of the potential equalities impacts of Growth Deals and the allocation of the Local Growth Fund (LGF). We will continue to review these impacts as we build our evidence base.
6. Equality Impact Assessments (EQIA) are an important framework for demonstrating due regard through considering evidence and analysis to help identify the likely positive and negative impacts that policy proposals may have on certain protected groups and to estimate whether such impacts disproportionately affect such groups.

7. Any queries about this initial Equality Analysis should be addressed to:

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Scope

8. This analysis looks at the current distribution of people with protected characteristics across Local Enterprise Partnership (LEP) areas in England and considers the potential equalities impacts of LGF allocations.
9. We are aware of the current gaps in our evidence base, given the lack of available data on one of the protected characteristics indicated below under the evidence section. We will outline the impacts, both positive and negative, of the LGF allocation outcomes on the protected groups as identified under the Equality Act 2010 (and listed below) as part of our detailed due consideration.
10. The impact of programmes and projects funded through the LGF are not, however, expected to be within scope of this analysis. These will be delivered by LEPs and their local partners and will be subject to separate equalities impact consideration by the LEPs/local partners. Where available, our evidence base will include quantitative data from LEPs.

Description of the policy

11. In his review of UK growth, published in October 2012, Lord Heseltine made a case for increasing the decentralisation of economic powers in England from central government to local leaders who are best placed to understand the opportunities and obstacles to growth in their own communities.
12. The Government's Response to Lord Heseltine's review, published March 2013, set out the commitment to negotiate a Growth Deal with every LEP, building on the success of City Deals.
13. The 39 LEPs cover every local authority in England. LEPs are local partnerships of business and civic-leaders to provide leadership in the delivery of local growth. They

are focused around functional economic geographies rather than administrative boundaries and are independent of Government.

14. Through Growth Deals, LEPs can seek freedoms, flexibilities and influence over resources from Government; and a share of the new LGF to target their identified growth priorities.
15. The underpinning policy aim of Growth Deals is to ensure that all areas across England experience economic growth that is proportional to the opportunities identified therein and make an increased economic contribution to the national economy.

Local Growth Fund

16. The £2bn LGF will come into effect in April 2015 and the Government has committed to maintaining the Fund at a minimum of £2bn a year over the next Parliament, (£10bn over 5 years to 2021). £930 million will be allocated competitively for 2015/16 – the majority of the remainder of 2015/16 will be allocated by formula, through transport majors commitments.
17. To access LGF resources, LEPs were required to identify local economic growth priorities and develop a Strategic Economic Plan (SEP). Allocation of the Fund was determined by the strength of each LEP's Plan, subject to an assessment process against criteria as set out in the guidance, *Growth Deals: Initial Guidance for Local Enterprise Partnerships* published in July 2013.

The Evidence base

18. This section analyses the effect of the proposed funding decision on particular groups with protected characteristics under the 2010 Act. The funding decision in question allocates a certain amount of funding to LEPs in England.
19. There is, however, a limit to the impact this analysis will have on the subsequent spending decisions. This is because the LEP is ultimately responsible for how the funds are to be allocated and Government, therefore, does not have sufficient information on how the LEPs will decide to spend their funds. To mitigate against any potentially undesirable funding outcomes, Government will recommend through the deal documents, that LEPs adhere to the public sector Equality Duty when apportioning their funds. Further, Government could undertake research ex-post to inform future decision making.
20. To determine if the allocation of LGF differentially impacts upon certain groups, this analysis assesses the levels of funding (in per capita terms to control for differences in population) for each of the geographic areas against the prevalence (or absence) of

members of those groups. For instance, if the allocation consistently provided the lowest amounts of funding per capita to areas with a high proportion of ethnic minorities, it might be concluded that the policy negatively impacts on ethnic minorities. It would then be the Government's responsibility to show due regard to this effect and subsequently decide whether to proceed with the decision or identify measures that mitigate against that effect through a change in policy.

21. The following characteristics are protected characteristics under the Public Sector Equality Duty (PSED):

- age;
- disability;
- gender reassignment;
- marriage and civil partnership (section 149 (1) (a) only);
- pregnancy and maternity;
- race;
- religion or belief;
- sex; and
- sexual orientation.

22. The data against which the analysis is conducted are data on the above characteristics, where available, and per capita funding levels under the proposed decision based on total LEP allocations for the entire funding period, 2015/16–2020/21. The EQIA uses total funding figures comprising the competitive element for 2015/16, and confirmed and provisional allocations for 2016/17–2020/21. Analysis of each protected characteristic against the above funding figures has been carried out; both including and excluding the pre-committed spend. The proposed decision is based on allocations to LEP areas, which are constructed using local authority (district/unitary) level data retrieved from the ONS. There are 21 LEPs that have overlapping boundaries, i.e. local authorities that sit within more than one LEP. These have been accounted for by dividing the total population of the respective local authorities by two. The methodology used to compile the population and protected characteristic data is set out in more detail under Annex A.

23. Currently, using existing data sources, we are able to look at the current distribution across LEP geographies of people who share the following protected characteristics:

- age;
- disability;
- race;
- religion or belief;
- sex;
- pregnancy and maternity;
- sexual orientation; and

- marriage and civil partnership

24. To determine whether any of the above protected characteristics are favoured or disfavoured by the LGF, this analysis will determine the strength of the relationship between the independent variable – the protected characteristic – and the dependent variable – the funding per capita for each LEP, and how confident we can be that this relationship has not occurred due to chance. The strength of the relationship can be determined by running a linear regression¹ which will calculate the R squared value; a statistical measure of how close the data lie to the fitted regression line (line of best fit). R squared calculates how much of the variability of the response data around the mean is accounted for by the model, on a scale from 0 to 1. A score of 0 implies that none of the variability can be explained by the model, implying no correlation; and a score of 1 denotes that all of the variability can be explained by the model, implying perfect correlation. To ensure that the LGF is not favouring or disfavoring any of the above characteristics, this analysis should be identifying R squared values of, or close to, 0, with anything less than 0.3 implying a weak or non-existent relationship. The regression will also indicate how confident we can be that any relationships did not occur due to chance i.e. they are statistically significant. A significance level of 95% was used, which means that if a relationship is identified as statistically significant then there is a probability of less than 5% of such a relationship occurring due to chance.

25. Should additional data on protected characteristics by LEP area become available, we will review this assessment.

Current distribution of protected characteristic age in LEP areas

26. This section analyses whether any age group is particularly favoured or disfavoured through the LGF allocation decision. To make the data manageable, the age groups have been structured as follows:

- 0-14 years
- 15-24 years
- 25-44 years
- 45-64 years
- 65+ years

27. The graphs below show the LGF per capita for the total funding period 2015/16–2020/21, excluding and including pre-committed spend, for each LEP against the proportion of the population in the 15-24 years age group. The proportion of 15-24 year olds in the LEPs ranges from 11.12% to 14.63%. There is minimal variation from the trend line, as evidenced by the very low R squared values (excluding pre-committed: 0.059, including pre-committed: 0.135), leading to the conclusion that there is a weak

¹ See Annex B for the technical note on the regression model used in this EQIA.

relationship between this particular age group and the level of funding. However, the relationship is statistically significant, which suggests that although the relationship is weak, we can conclude it did not occur due to chance.

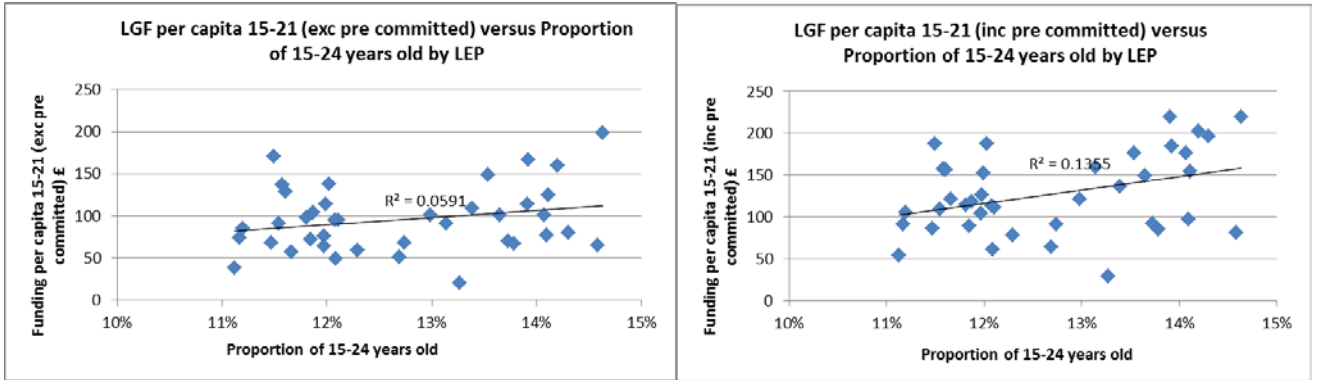


Figure 1: Scatterplots of LGF (excluding and including pre-committed) per capita against the proportion of 15-24 years old per LEP with regression line.

28. A similar pattern occurs across the other age groups and Table 1 below shows the R squared value for each. The values below show that there is no strong relationships between the 0-14, 25-44, 45-64 and 65+ age groups and the level of funding per capita of the LGF excluding pre-committed funds. Further, there are no strong relationships between any of the age groups identified and the total LGF 15/16-20/21 including the pre-committed funding, as evidenced in Table 2. These are also all not statistically significant.

Table 2 R² statistics for age categories when regressed against the LGF

Age profile	R squared 2015/16-2020/21 (exc. pre committed)	R squared 2015/16-2020/21 (inc. pre committed)
0-14	0.085	0.055
15-24	0.059	0.135
25-44	0.000	0.000
45-64	0.009	0.018
65+	0.027	0.026

29. The funding per capita across each group has been calculated below, by dividing the sum of all funding across the 39 LEPs allocated to each age group by the sum of the LEP proportions of the respective age categories. In this way, a theoretical value for the funding per capita for each of the age categories can be determined. Table 3 below

shows the result, noting that there is very little variation in the notional levels of funding, both excluding and including pre-committed funds, for each age across all the LEPs.

Table 3 Funding per capita for age groups

Age group	LGF funding per capita (exc. pre-committed) (£) 2015/16-2020/21	LGF funding per capita (inc. pre-committed) (£) 2015/16-2020/21
0-14	86.21	118.51
15-24	86.60	119.66
25-44	83.16	114.64
45-64	87.49	120.22
65+	88.58	121.62

Current distribution of protected characteristic *disability* in LEP areas

30. To determine the impact on disabled groups, this analysis compares the allocations against the proportion of the population claiming incapacity benefit. The number of incapacity benefit claimants, which is available at LEP level, is used as a proxy for the number of persons with a disability. Across the LEPs, the lowest proportion of disability claimants is in Buckinghamshire Thames Valley, at 0.77%, compared to 3.23% in Liverpool City Region. There is, therefore, a wide variation in the numbers of people claiming incapacity benefit.

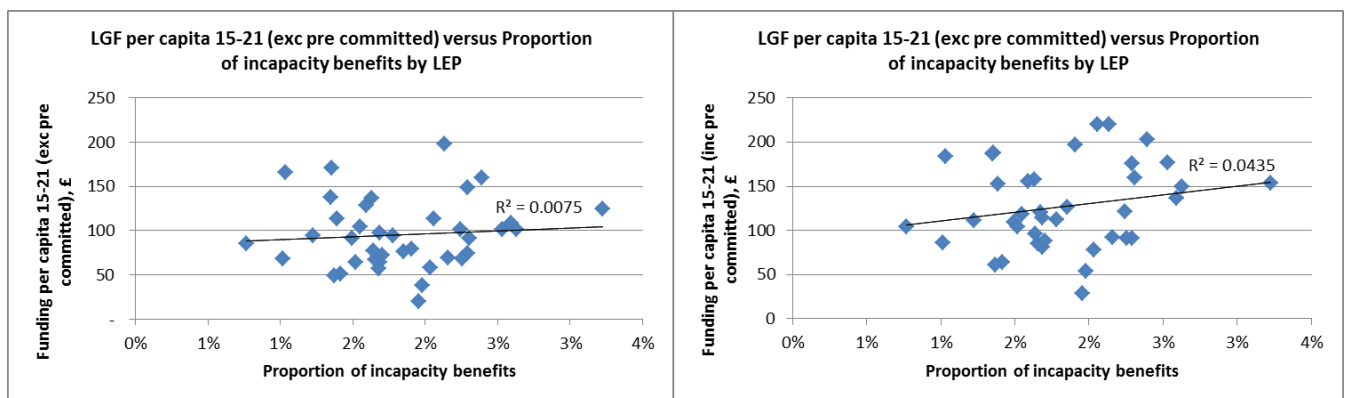


Figure 2: Scatterplots of LGF (excluding and including pre-committed) per capita against the proportion of the population with incapacity benefits per LEP with regression line.

31. The graphs above show the LGF per capita 15/16-20/21, excluding and including pre-committed funds, for each LEP against the proportion of people in the LEP claiming incapacity benefits. The low R squared value (0.008), indicates that there is a very

weak relationship between the amount of LGF per capita and the proportion of those on incapacity benefits (and this is also not statistically significant). We can, therefore, assume that the LGF is not favouring or disfavouring individuals claiming incapacity benefits. In addition, including the pre-committed funds in the total LGF figure does not change this conclusion, evidenced by the low R squared value of 0.044.

Current distribution of protected characteristic race in LEP areas

32. This section analyses whether any race is particularly favoured or disfavoured through the LGF allocation decision. The race profiles have been defined as follows:

- White (English/Welsh/Scottish/Northern Irish/British)
- White other (White Irish, Gypsy/Irish traveller, White other)
- Mixed/multiple ethnic
- Asian/Asian British
- Black/African/Caribbean/Black British
- Other ethnic group

33. The graphs below plot the LGF per capita 15/16-20/21, excluding and including pre-committed spend, against the proportion of individuals in the LEP who class themselves as being non-white, which includes all those listed above, excluding White (English/Welsh/Scottish/Northern Irish/British). This data is available at local authority level and has been aggregated up to LEPs. The analysis shows that there is no systematic correlation between the amount of LGF and the proportion of non-white individuals across the LEPs, which leads us to interpret that this group is neither favoured nor disfavoured as a result of government intervention.

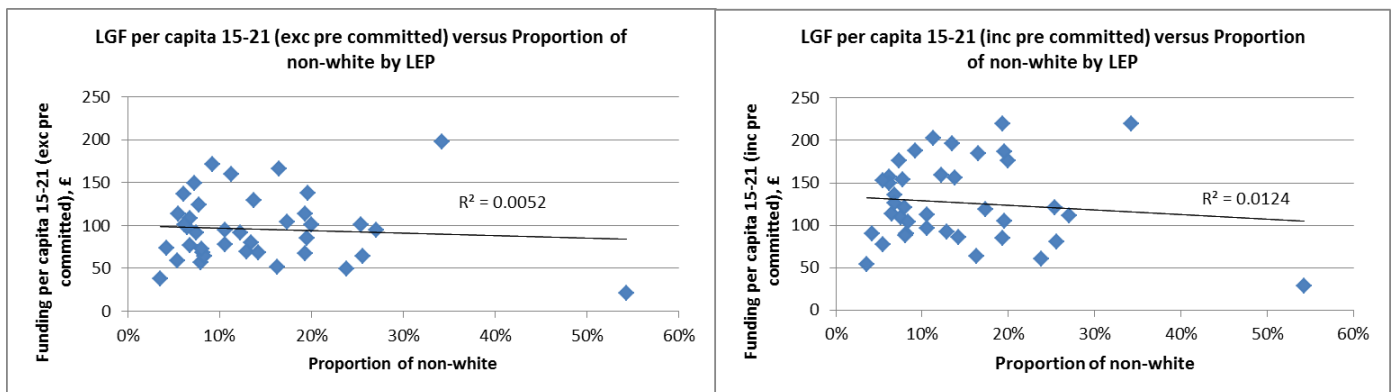


Figure 3: Scatterplots of LGF (excluding and including pre-committed) per capita against the proportion of the non-white per LEP with regression line.

34. A similar pattern emerges when analysing the data by each race, with R squared values ranging from 0.000 amongst the Mixed/multiple ethnic and Asian/Asian British populations to 0.053 in the White other population. Considering the inclusion of the pre-committed funds, the R squared values remain very low, ranging from 0.000 for

Asian/British Asian to 0.089 for White other populations. None of these are statistically significant.

Table 4 R² statistics for race categories when regressed against the LGF

Race profile	R squared 2015/16-2020/21 (exc. pre committed)	R squared 2015/16-2020/21 (inc. pre committed)
White	0.005	0.013
White other	0.053	0.089
Non white	0.005	0.012
Mixed/multiple ethnic	0.000	0.004
Asian/Asian British	0.000	0.000
Black/African/Caribbean/Black British	0.009	0.017
Other	0.007	0.013

35. Table 5 shows the funding per capita figures for the major ethnic groups. Funding is somewhat lower for some ethnic groups than others but there is no systematic bias. The main cause of this effect is the influence of London, with a very large and diverse population and relatively low funding per capita (due to the prosperity of the LEP area). By removing London from the analysis, the difference between the per capita funding figures for the ethnic groups is much reduced, highlighting the skew of London.

Table 5 Funding per capita for major ethnic groups

Race profile	LGF funding per capita (exc. pre-committed) (£) 2015/16-2020/21	LGF funding per capita (inc. pre-committed) (£) 2015/16-2020/21
White	90.45	124.55
White other	66.02	90.00
Mixed/multiple ethnic	74.68	102.10
Asian/Asian British	75.57	104.59
Black/African/Caribbean/Black British	58.21	78.78
Other ethnic group	62.85	86.22

Current distribution of protected characteristic *religion or belief* in LEP areas

36. This section analyses whether any religion or belief is particularly favoured or disfavoured through the LGF allocation decision. The religious groups have been defined as follows:

- Christian
- Buddhist
- Hindu
- Jewish
- Muslim
- Sikh
- Other

37. The graphs below plot the LGF per capita 15/16-20/21; excluding and including pre-committed funds, against the proportion of individuals in the LEP who are non-Christian, which includes all those listed above, excluding Christian. Data on these characteristics are available at local authority level and have been aggregated to LEP level. The proportion of non-Christian individuals in the LEPs varies considerably, from 0.98% in Cumbria to 22.16% in London.

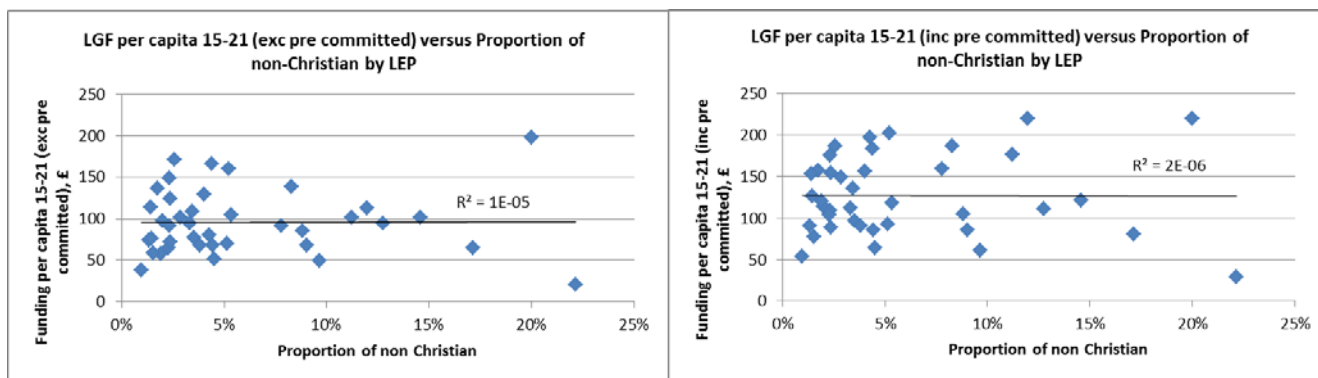


Figure 4: Scatterplots of LGF (excluding and including pre-committed) per capita against the proportion of non-Christian by LEP with regression line.

38. Despite there being considerable variation between the LEPs’ profiles of religious groups, there is no systematic correlation, evidenced by the very low R squared value of 0.000, between the amount of LGF and the proportion of non-Christian individuals within the LEPs. This allows us to conclude that this all-encompassing group has been neither favoured nor disfavoured as a result of the LGF allocations.

39. The table below provides the R squared values for each of the religious groups to determine if there is a strong relationship between each group and the amount of LGF in each of the LEPs. Figures range from 0.000 for Sikh populations to 0.057 for Other populations which, therefore, signifies no strong relationships across any group, and none of these are statistically significant. Including pre-committed funds draws the same conclusion, with R squared values ranging from 0.000 for Jewish populations to 0.096 for Other populations.

Table 6 R² statistics for religious categories when regressed against the LGF

Religious profile	R squared 2015/16-2020/21 (exc. pre committed)	R squared 2015/16-2020/21 (inc. pre committed)
Christian	0.005	0.002
Buddhist	0.045	0.080
Hindu	0.040	0.078
Jewish	0.002	0.000
Muslim	0.012	0.027
Sikh	0.000	0.012
Other	0.057	0.096

40. As with ethnic groups, funding is somewhat lower for some religious groups than others, despite the fact that there is no systematic bias. The main cause of this effect, as detailed previously, is the influence of London's very large and diverse population and relatively low LGF per capita, coupled with LEPs such as Liverpool City Region which has a relatively large funding allocation and a large majority of Christians residing in the LEP. Removing London from the population and funding figures reduces the disparity between those groups that receive the largest and smallest quantities of funding per capita.

Table 7 Funding per capita for major religious groups

Religious group	LGF funding per capita (exc. pre-committed) (£) 2015/16-2020/21	LGF funding per capita (inc. pre-committed) (£) 2015/16-2020/21
Christian	88.19	121.17
Buddhist	71.16	96.85
Hindu	58.81	78.12
Jewish	58.56	83.96
Muslim	77.47	110.10
Sikh	78.56	100.73
Other	70.34	109.16

Current distribution of protected characteristic *gender* in LEP areas

41. This section analyses whether males or females are being particularly favoured or disfavoured through the allocation of the LGF. As the geographical areas that are being funded are quite large, the variation in the make-up of the population by sex is small. The percentage of females varies from only 49.7% to 51.3%. The charts below plot the percentage of the population that are female compared to funding per capita, excluding and including pre-committed spend. Given the very low R squared (0.005) (and lack of statistical significance in the regression model) there is no systematic bias towards this protected characteristic concluding that there is no favouring or disfavouring in the allocation of the LGF. Including the pre-committed funds does not change the conclusion drawn, evidenced by the very low R squared value (0.020).

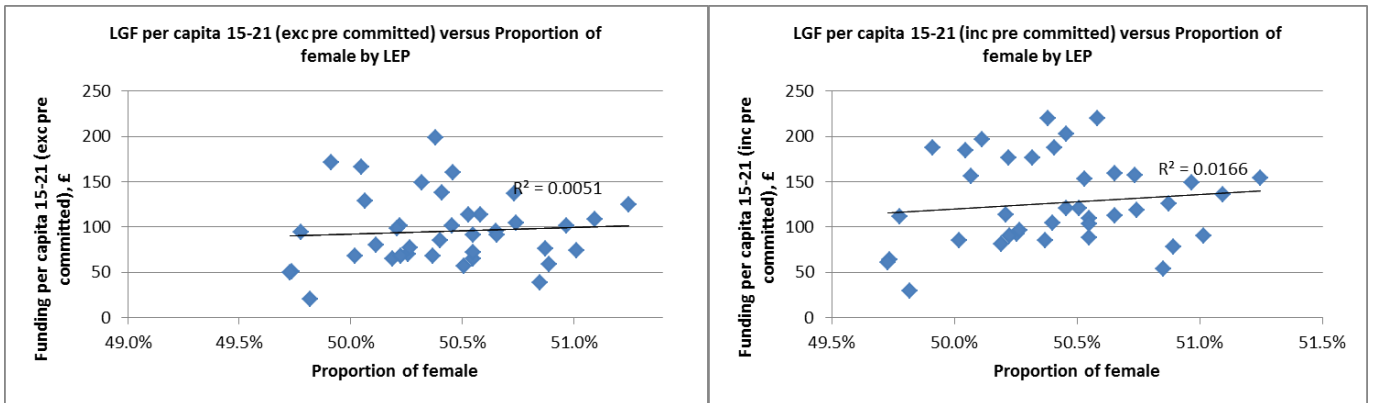


Figure 5: Scatterplots of LGF (excluding and including pre-committed) per capita against the proportion of female per LEP with regression line.

Current distribution of protected characteristic *sexual orientation* in LEP areas

42. Sexual orientation statistics are only available at NUTS1 (regional) level so the analysis has been carried out at this higher geographic level. Each of the 39 LEPs has been assigned the relevant proportion of lesbian, gay and bisexual (LGB) individuals of the region in which it resides. Whilst this analysis will not provide us with a conclusive answer as to whether the LGB group is favoured or disfavoured at the LEP level, it is still important to understand the trends at the regional level.

43. The charts below plot LGF per capita 15/16-20/21, excluding and including pre-committed funds, against the proportion of the population which define themselves as lesbian, gay or bisexual (LGB). The R squared figure is 0.020 (i.e. very low). Despite the lack of granularity of the data, the initial findings indicate that there is unlikely to be any strong relationships (and with no statistical significance) at the LEP level, leading us to anticipate that the proposed funding decision, therefore, does not favour or disfavour groups with a particular sexual orientation. Including the pre-committed funds reduces the R squared value further (0.007), leading to the same initial conclusion.

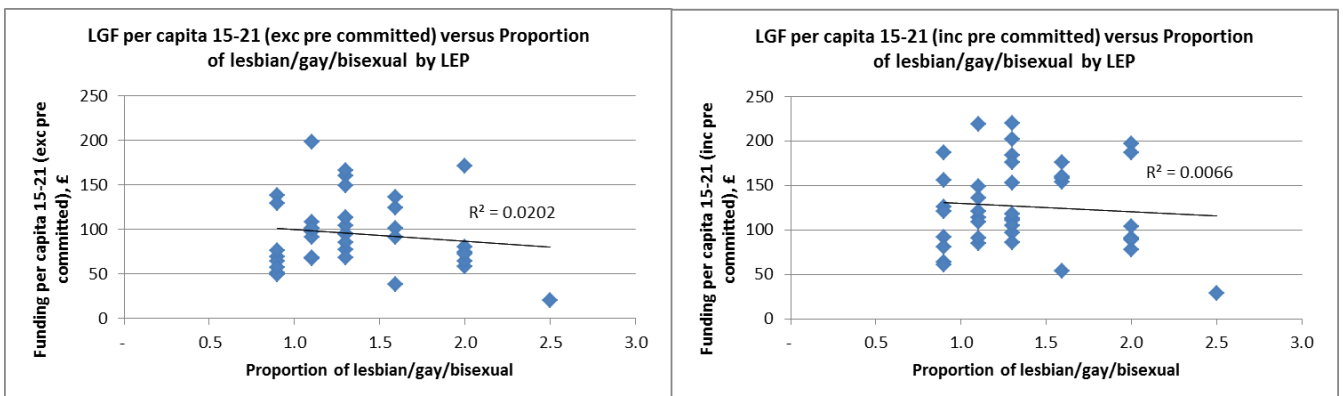


Figure 6: Scatterplots of LGF (excluding and including pre-committed) per capita against the proportion of Lesbian/Gay/Bisexual per LEP with regression line.

Current distribution of protected characteristic *pregnancy and maternity* in LEP areas

44. The statistic chosen for the protected characteristic pregnancy and maternity is the number of women in the relevant region who have seen a midwife or a maternity healthcare professional, for health and social care assessment of needs, risks and choices at any time during pregnancy. Given the lack of available data at local authority level, the data used is at NUTS 1 (regional) with each of the 39 LEPs assigned the relevant proportion of those individuals of the region in which it resides, much the same way as the sexual orientation statistics were assigned. Whilst this analysis will not provide us with a conclusive answer, it was considered important to include evidencing that this particular characteristic has been taken into consideration in the LGF allocations.

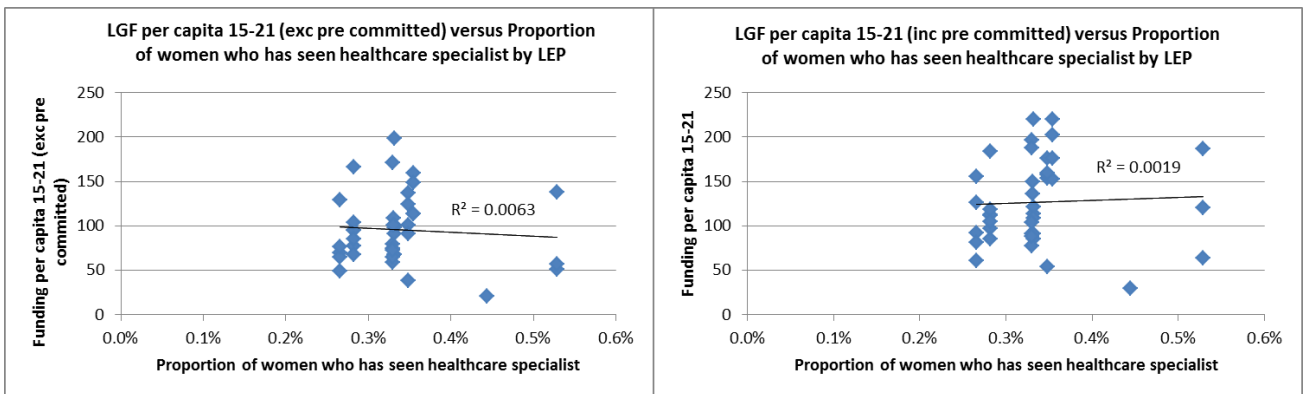


Figure 7: Scatterplots of LGF (excluding and including pre-committed) per capita against the proportion of women who seen a healthcare specialist during pregnancy per LEP with regression line.

45. The charts above plot LGF per capita, excluding and including pre-committed spend, against the proportion of the population who have seen a midwife or a maternity healthcare professional, for health and social care assessment of needs, risks and choices at any time during pregnancy. The R squared figures are 0.006 and 0.002 (i.e. very low). Despite the high level data, the initial findings indicate that there is unlikely to be any strong relationships at the LEP level, leading us to anticipate that the proposed funding decision, therefore, does not favour or disfavour this particular group of individuals.

Current distribution of protected characteristic *marriage and civil partnership* in LEP areas

46. This section analyses whether persons with marital or civil partnership status are being particularly favoured or disfavoured through the allocation of the LGF. As the geographical areas that are being funded are quite large, the variation in the proportion of people married or in a civil partnership is relatively small, ranging from 31.7% in

London to 43.2% in York, North Yorkshire and East Riding. The charts below plot the percentage of the population that are married or in a civil partnership compared to funding per capita, excluding and including pre-committed spend. Given the very low R squared (0.027) (and lack of statistical significance in the regression model) there is no systematic bias towards this protected characteristic concluding that there is no favouring or disfavouring in the allocation of the LGF. Including the pre-committed funds does not change this conclusion, evidenced by the very low R squared value (0.066).

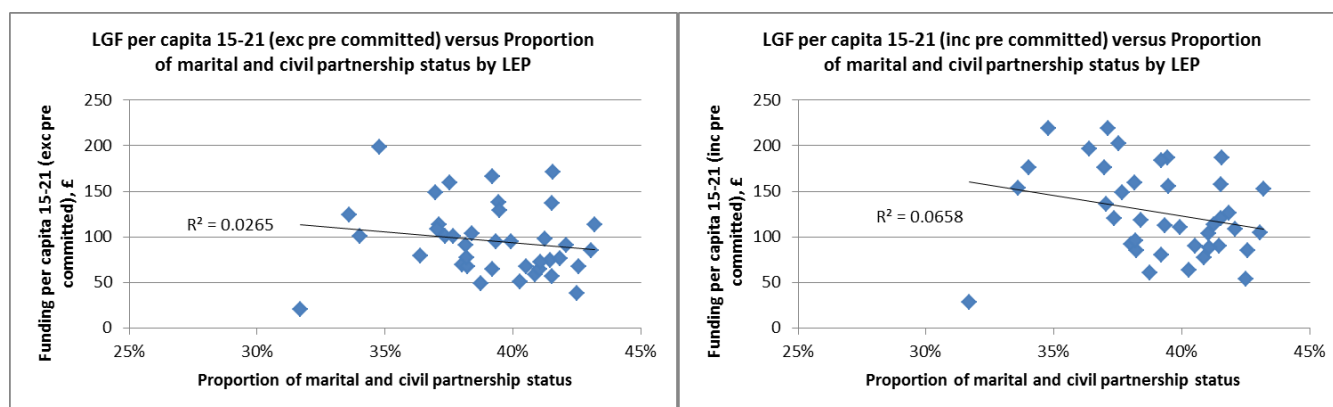


Figure 8: Scatterplots of LGF (excluding and including pre-committed) per capita against the proportion of marital and civil partnership status per LEP with regression line.

Other protected groups

47. Although due regard has been taken in relation to other protected groups, analysis on the protected characteristic below has not been carried out for the reasons set out as follows:

- Gender reassignment – lack of available data.

Key facts and findings

48. This analysis has shown that the proposed funding decision does not favour or disfavour any particular group with protected characteristics covered by the PSED.

49. For all the models except for the one where the characteristic is the 15-24 years old group in the LEP, t-statistics and the p-values show that there is no statistically significant linear dependence of the mean of LGF on the characteristics variables.

50. The model where the characteristic is the 15-24 years old group in the LEP shows that there is a statistically significant linear dependence of the mean of LGF on that characteristic. This suggests that although the relationship is weak, we can conclude it did not occur due to chance.

Conclusion and responsibility

51. Given the limited availability of data on the indicator identified in paragraph 46 above, it is difficult to form an early opinion on how the LGF allocations might impact this group of people. On this basis should we acquire further data on the remaining protected characteristic, being or becoming a transsexual person, we will carry out further equalities analysis in order to understand fully the current distribution within LEP areas.
52. Based on the analysis carried out thus far using the data available, we are able to preliminarily conclude that any disparities between outcomes for particular protected groups are too small to be of any considerable concern.
53. This is the position reached by this Equalities Analysis, having had due regard to the need to eliminate unlawful discrimination, as required by Section 149(1) (a) of the 2010 Act.
54. In terms of Section 149(1) (b) of the 2010 Act, as the analysis concludes that there is no adverse impact on any protected group, the proposed funding decision is neutral in advancing equality of opportunity between persons who share the relevant protected characteristic and persons who do not share it.
55. With regard to Section 149(1) (c) – fostering good relations between persons who share a relevant protected characteristic and persons who do not share it – insofar as ensuring groups with protected characteristics are not unduly impacted by the proposed funding decision, this Assessment also covers this section of the 2010 Act, but in general the need to fulfil this aspect of the duty is minimal.
56. By taking proper account of the analysis contained in this document when taking the allocation decision, the Government will demonstrate that it has shown due regard to its duties under all the relevant sections of the 2010 Act.

ANNEX A – Methodology

In order to conduct the analysis above data on each of the protected characteristics and the total population at LEP level was required. Given that data on characteristics and populations is not available directly at the LEP level, with the exception of disability data, we had to aggregate up from local authorities; the geographical construction used by the ONS.

Data sources for protected characteristics at LEP level

The following characteristics are protected characteristics under the Public Sector Equality Duty (PSED):

- age;
- disability;
- gender reassignment (data unavailable);
- marriage and civil partnership (section 149 (1) (a) only);
- pregnancy and maternity;
- race;
- religion or belief;
- sex;
- sexual orientation and;
- marriage and civil partnership

See Table 8 below for a list of the protected characteristics and data sources.

Table 8 Data sources and links

Characteristic	Data source	Link
Population ²	Mid-year population estimates (2012), Annual Population Survey, Local Authority, ONS	http://www.nomisweb.co.uk/query/select/getdatasetbytheme.asp?3&theme=&subgrp=
Age	Census (2011) Age Structure, Local Authority, ONS	http://www.nomisweb.co.uk/census/2011/ks102ew
Disability	Incapacity benefit/severe disablement by LEP, DWP benefits (2012), ONS	http://www.nomisweb.co.uk/query/select/getdatasetbytheme.asp?3&theme=&subgrp=
Race	Census (2011) Ethnic Group, Local Authority, ONS	http://www.nomisweb.co.uk/census/2011/ct0010
Religion or belief	Census (2011) Religion (detailed), Local Authority, ONS	http://www.nomisweb.co.uk/census/2011/ks209ew
Gender	Census (2011) Usual resident population, Local Authority, ONS	http://www.nomisweb.co.uk/census/2011/ks101ew
Pregnancy and maternity	Number of women who have been seen by a midwife or maternity health professional (2012) by region, Department of Health, IPMR	http://www.england.nhs.uk/statistics/statistical-work-areas/integrated-performance-measures-monitoring/maternity-data/
Sexual orientation	Sexual identity by region (2012), ONS	http://www.ons.gov.uk/ons/dcp171778_329407.pdf
Marriage and civil partnership	2011 Census: Marital and civil partnership status, Local Authority, ONS	http://www.ons.gov.uk/ons/taxonomy/search/index.html?nscl=Marriages%2C+Cohabitations%2C+Civil+Partnerships+and+Divorces&nscl-orig=Marriages%2C+Cohabitations%2C+Civil+Partnerships+and+Divorces&content-type=Dataset&content-type=Reference+table&sortDirection=DESCENDING&sortBy=pubdate

Limitations

Aggregating the local authority data on population and the protected characteristics to LEPs has a number of potential pitfalls associated. In 21 of the 39 LEPs there is at least 1 local authority that sits within more than 1 LEP. Using unadjusted LEP population figures – such as those provided by the ONS – involves double-counting the population of these overlapping areas (equal to 4.9m people) by assigning them to multiple LEPs. In order to avoid double counting, we have attempted to adjust the data for these overlapping local authorities by assigning half the population (both total population and the population of each of the protected characteristic groups) of the relevant local authorities to each LEP. The Office of National Statistics (ONS) recognises the limitations of the overlapping

² The aggregated LEP level population figures are provided in table 8 below.

boundaries and has endorsed the methodology used in this analysis. As evidenced in table 9, the difference between the actual and adjusted total population figures is marginal.

The limitations were addressed as follows:

For 19 of the 21 LEPs any overlapping boundary relates to a whole local authority area sitting in two different LEP areas. The exception is between Solent and Enterprise M3, where a local authority area is dissected between the two LEPs (i.e. cuts across local authority administrative boundaries). In this case, allocating half of the population to each LEP is not strictly correct. Due, however, to a lack of up to date information on the population divide (the latest available information for smaller geographic units is in the 2011 Census), and in order to maintain consistency with previous funding schemes (e.g. GPF, ESIF) we have not made any further adjustment. This has a marginal impact on the funding allocations of these two LEPs only.

To ensure consistency, the same allocation process has been applied to all data on protected characteristics that are published at local authority level. Where only regional data is available, this has not been treated.

Table 9 below contains population figures by LEP area. The unadjusted column contains ONS mid-year population estimates for 2012 aggregated to the LEP level; the adjusted column accounts for local authorities that appear in more than one LEP by halving their populations. This ensures that their population is not double-counted when aggregating local authority level populations up to LEP areas.

Table 9 LEP actual and adjusted population, 2012

LEP	Actual	Adjusted
Total Cumbria	499,104	499,104
Total Greater Manchester	2,702,209	2,702,209
Total Liverpool City Region	1,511,358	1,511,358
Total Cheshire and Warrington	905,998	905,998
Total Leeds City Region	2,972,611	2,606,661
Total Sheffield City Region	1,816,212	1,467,343
Total Derby, Derbyshire, Nottingham and Nottinghamshire,	2,122,998	1,890,964
Total Leicester and Leicestershire	988,304	988,304
Total Greater Birmingham and Solihull	1,960,207	1,626,502
Total Coventry and Warwickshire	871,106	871,106
Total The Marches	660,821	660,821
Total Greater Cambridge & Greater Peterborough	1,382,377	1,117,052
Total Hertfordshire	1,129,096	1,064,882
Total Oxfordshire LEP	660,772	589,361
Total Solent	1,557,641	1,293,383
Total West of England	1,080,626	1,080,626
Total Cornwall and the Isles of Scilly	540,178	540,178
Total Tees Valley	663,634	663,634
Total Greater Lincolnshire	1,046,937	882,888
Total South East Midlands	1,735,103	1,306,240
Total Thames Valley Berkshire	870,979	870,979
Total South East	4,020,473	3,930,503
Total Stoke-on-Trent and Staffordshire	1,102,026	906,710
Total Coast to Capital	1,943,936	1,710,148
Total New Anglia	1,597,634	1,437,148
Total Black Country	1,146,787	1,146,787
Total Worcestershire	569,032	430,643
Total North Eastern	1,938,676	1,938,676
Total York and North Yorkshire	1,138,533	721,475
Total Enterprise M3	1,644,070	1,379,812
Total London	8,308,369	8,123,926
Total Heart of the South West	1,677,625	1,677,625
Total Lancashire	1,465,668	1,465,668
Total Gloucestershire	602,159	602,159
Total Humber	921,190	589,197
Total Dorset	750,299	750,299
Total Swindon and Wiltshire	688,750	688,750
Total Northamptonshire	700,576	432,021
Total Buckinghamshire Thames Valley	511,488	422,592

ANNEX B – Technical note

A simple linear regression model is used to assess the statistical significance³ of the relationship between the LGF and the protected characteristics⁴.

The model helps to answer the following question:

Does the LGF correlate with the protected characteristics?

In our case, the dependent variable is LGF and the independent variables are the characteristics. Hence, we can write it in the following regression line for each protected characteristic.

$$LGF = intercept + \beta (\text{characteristic variables}) + \epsilon$$

The LGF is regressed against each of the characteristics.

Regression and Results

- In all the cases, the *coefficient of determination*, R^2 , is small showing that the relationship between LGF and the characteristics is weak. R^2 is often described as the proportion of 'variance' explained by the model.
- We also tested for the the significance of the coefficient of the characteristics variables using the t-test. The hypotheses are :

H_0 : The slope of the regression line is equal to zero i.e. $\beta = 0$.

H_a : The slope of the regression line is *not* equal to zero i.e. $\beta \neq 0$.

If the relationship between LGF and the characteristics variable is significant, the slope will *not* equal zero.

- For all the models except for the one where the characteristic is the 15-24 years old group in the LEP, t-statistics and the p-values show that there is no statistically significant linear dependence of the mean of LGF on the characteristics variables.
- The model where the characteristic is the 15-24 years old group in the LEP shows that there is a statistically significant linear dependence of the mean of LGF on that characteristic. This suggests that although the relationship is weak, we can conclude it did not occur due to chance. This could be because a high proportion of funding was for skills projects which would be directly targeted at those in this age group.

³ Statistical significance can be explained by the degree of confidence that the true relationship is close to the estimated relationship between two variables.

⁴ The protected characteristics are: age; disability; race; religion or belief; sex; pregnancy and maternity; and sexual orientation. Reference material for regression Analysis : <http://data.princeton.edu/wws509/notes/c2s4.html>

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