

EFFECTS OF DEPRIVATION WITHIN EVALUATIONS USING THE IMPACT & INSIGHT TOOLKIT

HOW DOES DEPRIVATION AFFECT ORGANISATIONS AND THEIR RESULTS?

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January 2025
<https://impactandinsight.co.uk/>

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1 INTRODUCTION

The UK government releases statistics on the level of deprivation in local areas throughout the country. Deprivation can be measured in terms of employment, health, income, education and other factors. The Office for National Statistics (ONS) combines these to create an overall index for each area across England (ONS, 2019).

Cultural organisations using the Impact & Insight Toolkit operate in regions with varying levels of deprivation and attract people who similarly live in regions with varying levels of deprivation.

Within this report we explore the relationships between the experiences of people who attend cultural works, the level of deprivation in the places cultural organisations are based and where the people experiencing the work live. It answers these main questions:

- Do organisations in more deprived areas tend to attract people who live in more deprived areas?
- Does the overall experience of people differ based upon the deprivation of the area where they live?
- Do organisations in more deprived areas tend to choose different outcome metrics (dimensions) to those in less deprived areas?
- Do people from more deprived areas respond differently to outcome metrics (dimensions) when compared to people from less deprived areas?

2 KEY FINDINGS

1. Organisations located in the most deprived areas tend to attract respondents who are also from the most deprived areas.
2. Organisations located in the least deprived areas tend to attract respondents who are also from the least deprived areas.
3. Regardless of the areas of different deprivation respondents, most had an overall positive experience.
4. The dimensions 'Connection' and 'Pride in Place' were scored higher by respondents from the most deprived areas when compared with the least deprived.

3 METHODOLOGY

3.1 Deprivation Data Source

Postcodes of survey respondents and organisations are matched with the deprivation levels reported in the ONS English indices of deprivation 2019 for that area.

Only data collected in Culture Counts by users of the Impact & Insight Toolkit since the 1st of April 2023 to the 25th of January 2025 was used.

3.2 Deprivation Measures

Organisations and respondents are mapped to deprivation via postcode; they are given a deprivation index, rank and decile if the postcode is a valid English postcode.

Rank: An area with highest rank (1st) is the most deprived area with an area of lowest rank (35000th) being the least deprived area.

Decile: Like rank, but multiple areas can be in the same decile. With the 1st decile being the most deprived and the 10th decile being the least deprived.

Index: a weighted value of deprivation factors quantifying deprivation in an area. A higher value indicates higher deprivation.

Throughout this analysis deprivation is referred to as least, moderate and most. These are defined as follows:

- Deciles 1,2,3 grouped as most deprivation
- Deciles 4,5,6,7 grouped as moderate deprivation
- Deciles 8,9,10 grouped as least deprivation

3.3 Statistical Techniques

3.3.1 Chi-squared

Where we are looking at the difference in proportion between different deprivation levels, the chi-squared test (Pearson, 1900) is used. The p value is then compared to our significance level of $\alpha = 0.05$ to judge statistical significance.

3.3.2 Kruskal-Wallis H Test

The Kruskal-Wallis H test (Kruskal & Wallis, 1952) is used to compare two samples to see if they belong to each other. It is ideal for dimension results since it is a rank-based non-parametric test that compares the distributions of the groups without assuming normality (dimension results are highly skewed towards 1). A significant result indicates at least one group differs from the others, but a further test is required to locate any differences. To judge statistical significance, the p value output of this test is compared to our significance level of $\alpha = 0.05$.

3.3.3 Bootstrapping

Since dimension responses do not fit a distribution for simple statistical tests, responses are bootstrapped (Efron, 1979). Bootstrap sample means are compared between groups to create a distribution of these differences. The resulting distribution is further used to generate a probability for the difference being above or below 0. The idea of this test is to see if the distribution crosses 0, how much by and if the mass of the distribution is above or below 0. This p-value is then compared to our significance value $\alpha = 0.05$.

4 Overall Experience Processing

To simplify visualisation and chi-squared testing, the overall experience answers are grouped as follows:

- 'Excellent' and 'Good' grouped as Positive
- 'Neutral' as Neutral
- 'Poor' and 'Terrible' grouped as Negative

4.1 Dimension Selection Testing

Evaluations are only counted as 'evaluating' a domain if they used a dimension from a domain in at least 3 evaluations – where the repeated use demonstrates a more targeted assessment. Domains are limited to those in the Dimensions Framework¹ and 'Placemaking'.

In a separate test of these domains, individual dimensions are only counted as being 'evaluated' by an organisation if it is used in more than 3 evaluations.

Since domains and dimensions are not mutually exclusive (as an organisation will be using more than one domain at once) each domain/dimension was tested independently with a chi squared test, comparing the count of organisations within each deprivation group using the single domain/dimension and the absence of using a single domain/dimension.

4.2 Dimension Result Testing

Responses to dimensions questions provide numerical data with values ranging from 0 to 1.

4.2.1 Balancing

Responses to different dimensions are first balanced; that is, no single organisation may have more responses than any other. For example, if there are 20 unique organisations that made up 1000 responses of one dimension. No single organisation can exceed 50, if so, then 50 are randomly chosen from that organisation. If an organisation has lower than 50 responses, then they are randomly up sampled to 50. Organisations contributing less than 15 responses are included but not resampled.

4.2.2 Testing

Firstly, a Kruskal-Wallis H Test is undertaken to indicate a difference between deprivation levels and scores. Next, quantification of these differences is required.

Dimension responses are bootstrapped to compare the difference between the groups most to least deprived, most to moderately deprived, and moderate to least deprived.

¹ Read more and access the Dimensions Framework here - <https://impactandinsight.co.uk/resource/dimensions-framework/>

5 DATA ANALYSIS

5.1 Distribution of survey respondent locations by deprivation level

To better understand how deprivation influences engagement, it is important to examine the distribution of survey respondents by the deprivation level where they live.

This will allow us to see if, in general, people completing Impact & Insight Toolkit surveys are from more or less deprived areas. If there is a significant imbalance in the result, further analysis of the data could be invalid.

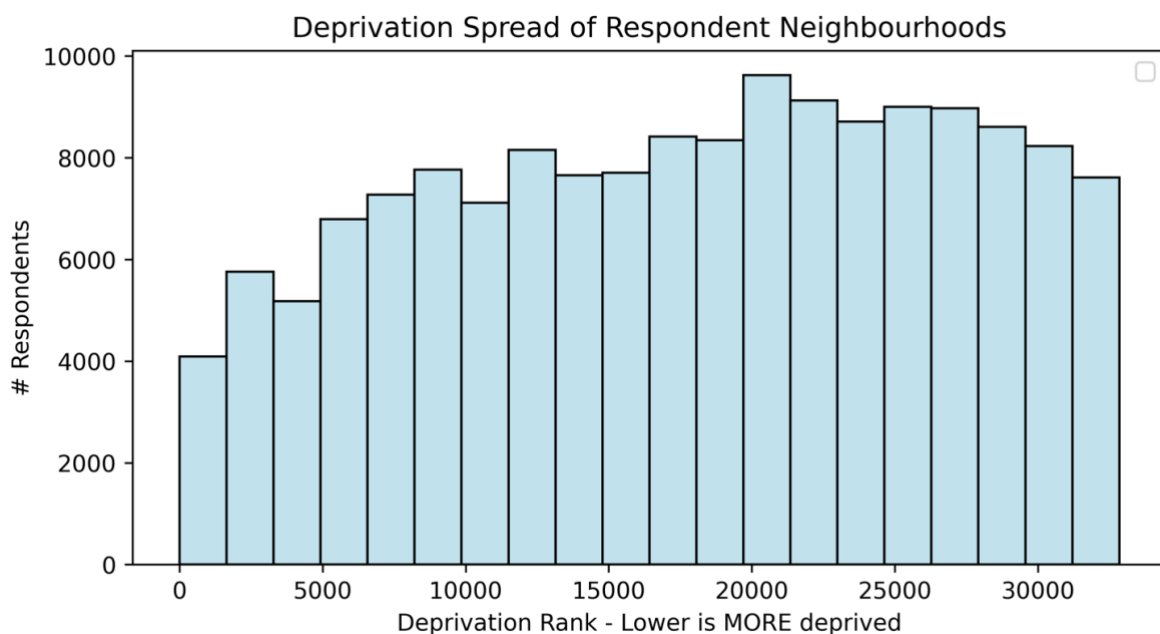


Figure 1 Histogram with the count of respondents from neighbourhoods of different deprivation ranks.

A total of 157,172 public survey respondents provided a valid postcode. The number of survey responses collected are sufficient across all levels of deprivation to allow for meaningful comparisons.

We can see that fewer respondents generally came from more deprived neighbourhoods compared to less deprived ones. This indicates that individuals from more deprived areas were slightly less likely to attend events hosted by Impact & Insight Toolkit organisations, or were less likely to complete surveys. The former would highlight a potential need to focus on engaging audiences from these areas.

Whilst there is an imbalance in the dataset, it is acceptable for the purposes of our analysis.

5.2 Distribution of organisation locations by deprivation level

As with the previous section looking at the distribution of survey responses, we are looking at a distribution to see if the data is imbalanced and, if so, to what extent. However, this time we are looking at the distribution of organisations by the deprivation level of the area they are based.

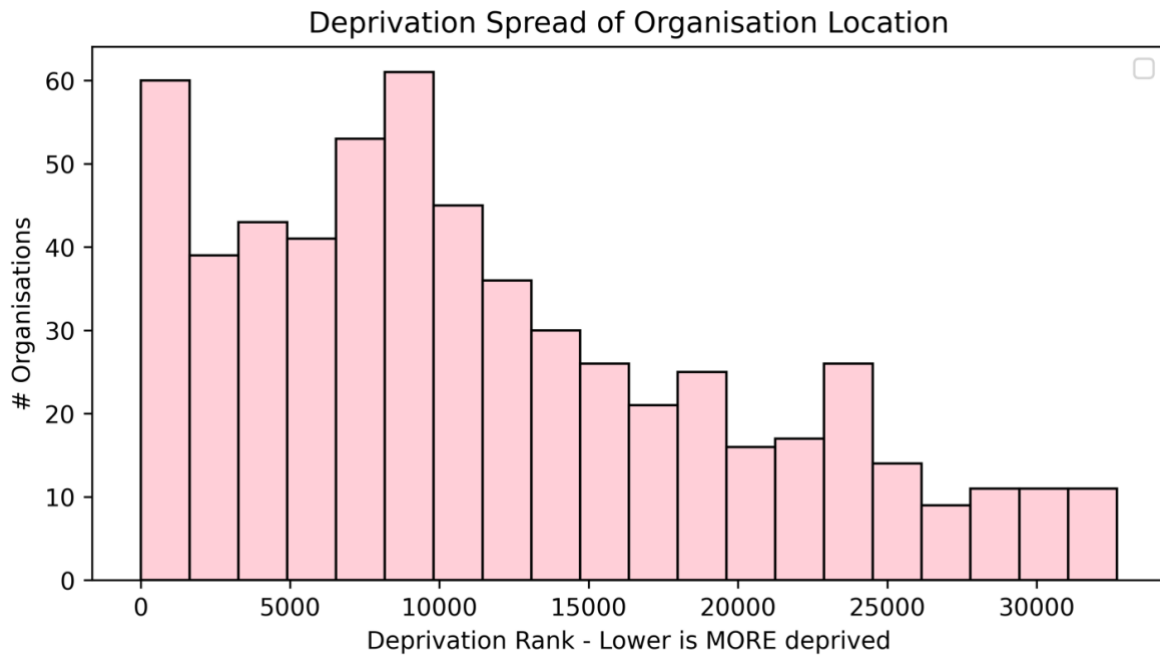


Figure 2 Histogram with the count of organisations located in areas of different deprivation ranks. Touring organisations excluded.

There were 530 non-touring organisations that had created 1 or more evaluations since 1st April 2023. 506 had a postcode with deprivation data from the ONS. Generally, there were fewer organisations located in less deprived areas than those in more deprived areas. This is in direct contrast to respondents, where more are from less deprived areas than from more deprived areas.

Since there is no significant imbalance and there are organisations across many deprivation levels, our analysis can continue.

5.3 Do organisations in more deprived areas tend to attract people who live in more deprived areas?

We aim to examine if the deprivation of organisation location relates to the deprivation of respondent neighbourhoods. It is reasonable to assume that organisations primarily attract audiences from nearby areas, and, as a result, we might expect organisations in more deprived areas to have a greater proportion of survey respondents from more deprived areas.

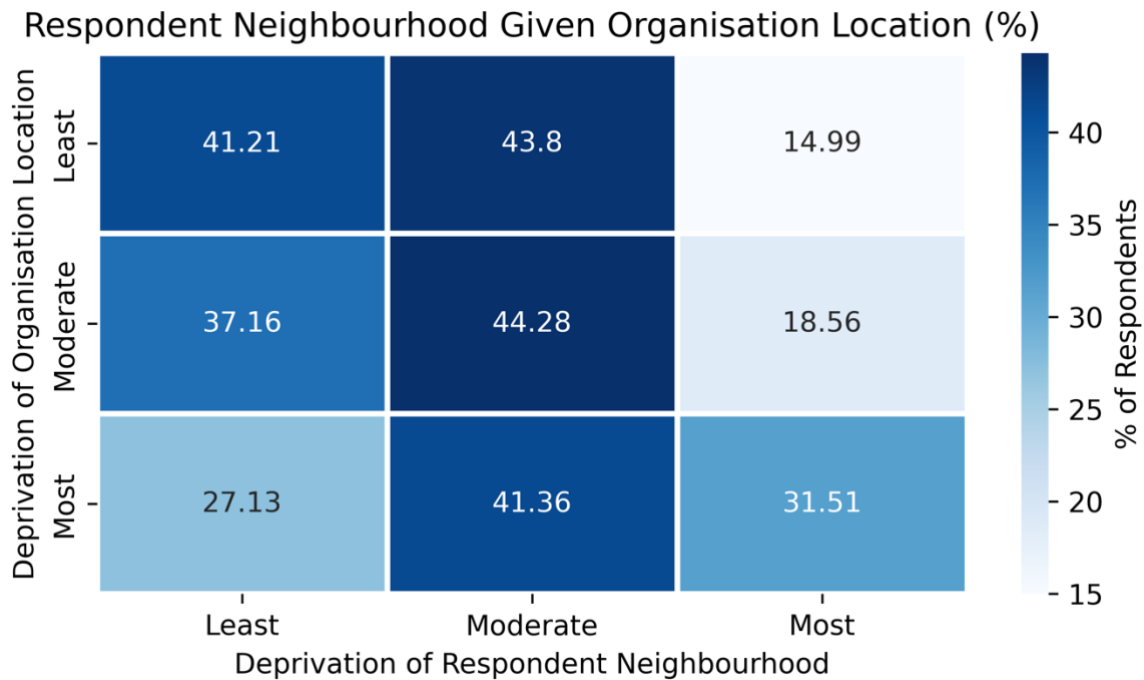


Figure 3 Heatmap showing the percentage of respondents from neighbourhoods at different deprivation levels that attended a non-touring organisation located in an area of particular deprivation level. Categories are grouped for ease of viewing (3.2 Deprivation Measures). Data based on 157,172 respondents from 384 organisations.

The heatmap reveals a clear pattern: organisations located in the most deprived areas tend to attract respondents who are from the most deprived neighbourhoods, while drawing fewer respondents from the least deprived neighbourhoods. Furthermore, organisations in the least deprived areas attract a lower proportion of respondents from the most deprived neighbourhoods and a higher proportion from the least deprived.

Interestingly, regardless of the deprivation level of organisation location, all organisations tend to attract a similar proportion of respondents from moderately deprived neighbourhoods.

These trends were confirmed to be statistically significant using the chi-squared test ($\alpha = 0.05$ $p = 0.000$).

5.4 Does the overall experience of people differ based upon the deprivation of the area where they live?

Here we explore whether respondents from more deprived neighbourhoods tend to have a better or worse overall experience when they experience cultural works.

The standardised 'overall experience' question used to ascertain this information is as follows:

Question - How would you rate your experience overall?

Answer options – Excellent, Good, Neutral, Poor, Terrible

One hypothesis is that respondents from more deprived areas have different expectations to those from less deprived areas, and the difference in expectations could influence their experience.

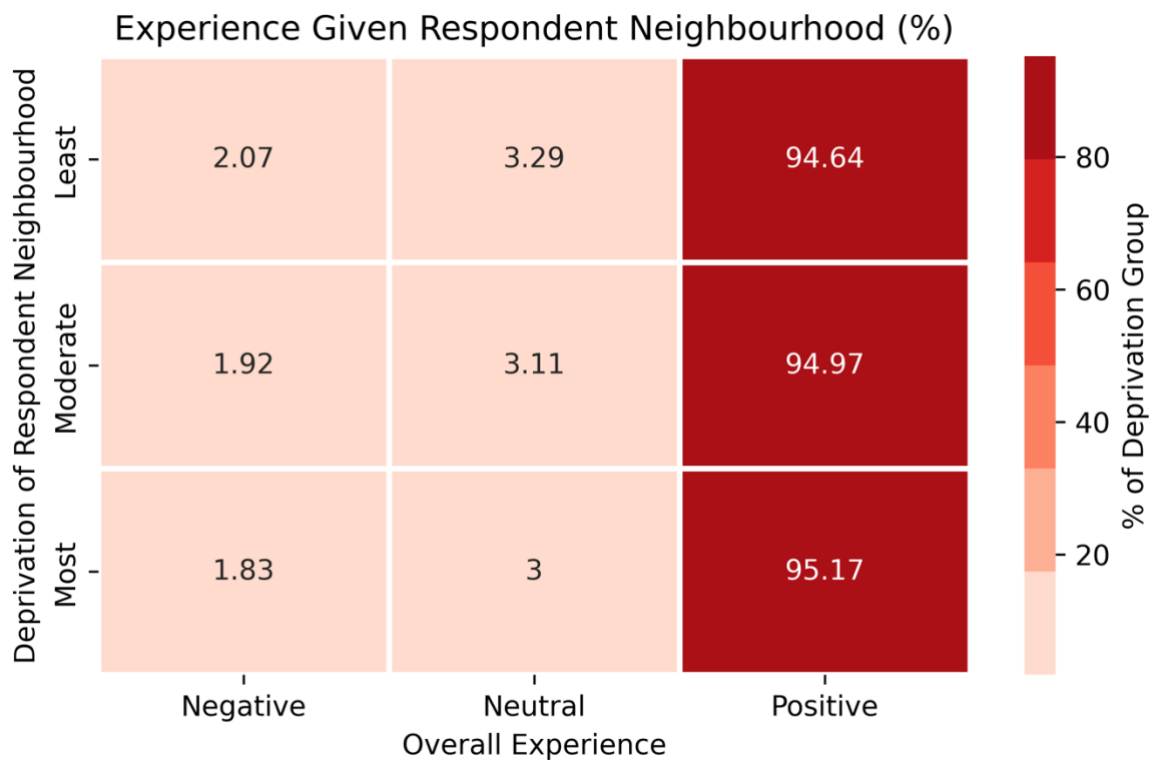


Figure 4 Heatmap showing the percentage of respondents from neighbourhoods of each deprivation level that gave a positive, neutral or negative response to the 'Overall Experience' question: How would you rate your experience overall? Categories are grouped for ease of viewing (4 Overall Experience Processing). Total respondent count: 69,059.

The heatmap reveals that most respondents reported a positive experience, regardless of the deprivation level of their neighbourhood.

Compared with other levels of deprivation, respondents from the most deprived neighbourhoods were slightly more likely to have a higher positive experience and less likely to have a negative experience. This difference is not significant when processed through a Chi-squared statistical test ($\alpha=0.05$ $p=0.19$).

5.5 Do organisations in more deprived areas tend to choose different outcome metrics (dimensions) to those in less deprived areas?

Here we explore whether organisations in more deprived locations choose to evaluate different dimensions to those in less deprived areas.

We might expect that dimensions relating to economic aspects are important for organisations in more deprived areas.

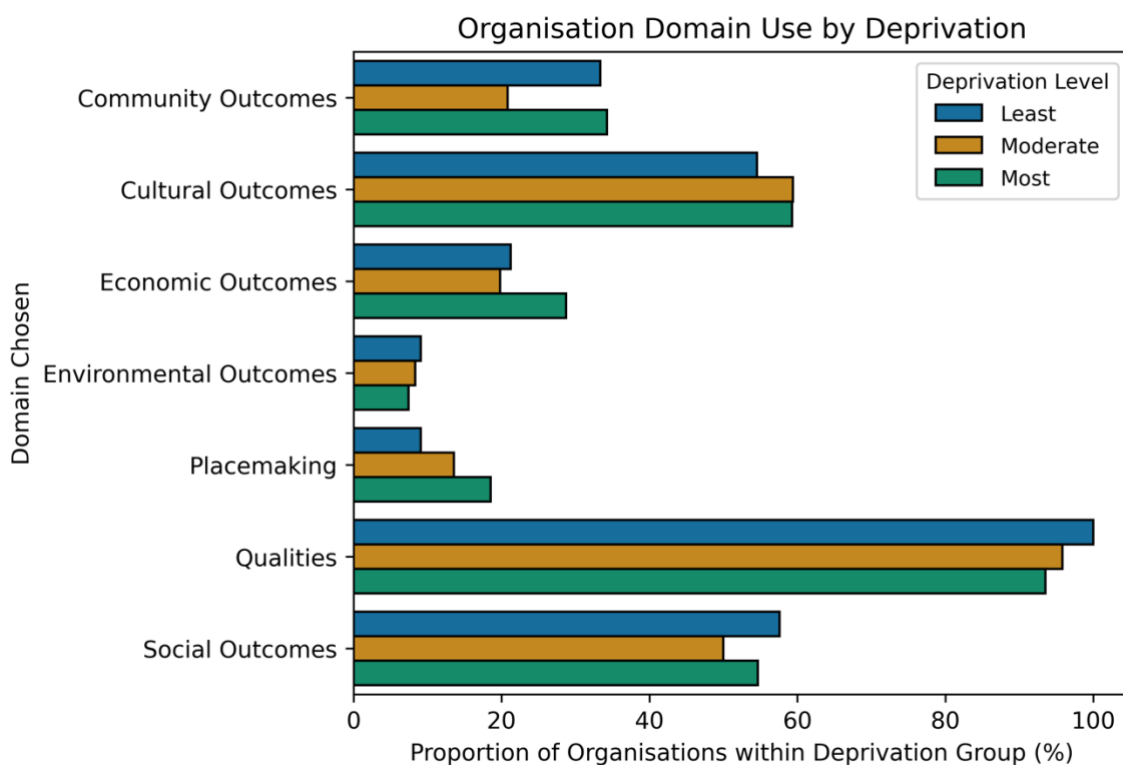


Figure 5 Bar chart showing the percentage of non-touring organisations located in different areas of deprivation, which used any dimension of a specific domain in more than 2 evaluations. Total qualifying organisations: 237.

Figure 5 suggests that organisations in more deprived areas are more likely to use dimensions from the 'Cultural Outcomes' domain. Similarly, 'Placemaking' and 'Economic Outcomes' appears to be more frequently utilised by organisations located in more deprived areas. However, given the low number of organisations in each category, these observations cannot be considered statistically significant (See 8.3 Organisation Dimension Choice).

Likewise, we tested the use of individual dimensions. Of the 95 dimensions that are part of the Dimensions Framework and placemaking dimensions, only 2 showed statistically significant differences between organisation location deprivation levels (Figure 6). The fact that 93 dimensions did not have a statistically significant difference further confirms that there is no overall difference in dimension selection based on domains.

The dimensions which did have significant differences were 'Curiosity' (dimension statement: 'It sparked my curiosity and made me want to find out more') and 'Local Impact' (dimension statement: 'It's important that it's happening here'). A higher proportion of organisations in moderately deprived areas used 'Curiosity' than those in the most or the least deprived areas. Yet, 'Local Impact' was used in a higher proportion of organisations from the most deprived areas than those from moderately or the least deprived areas. This suggests that organisations in the most deprived areas consider the local impact of their events more than those in less deprived areas.

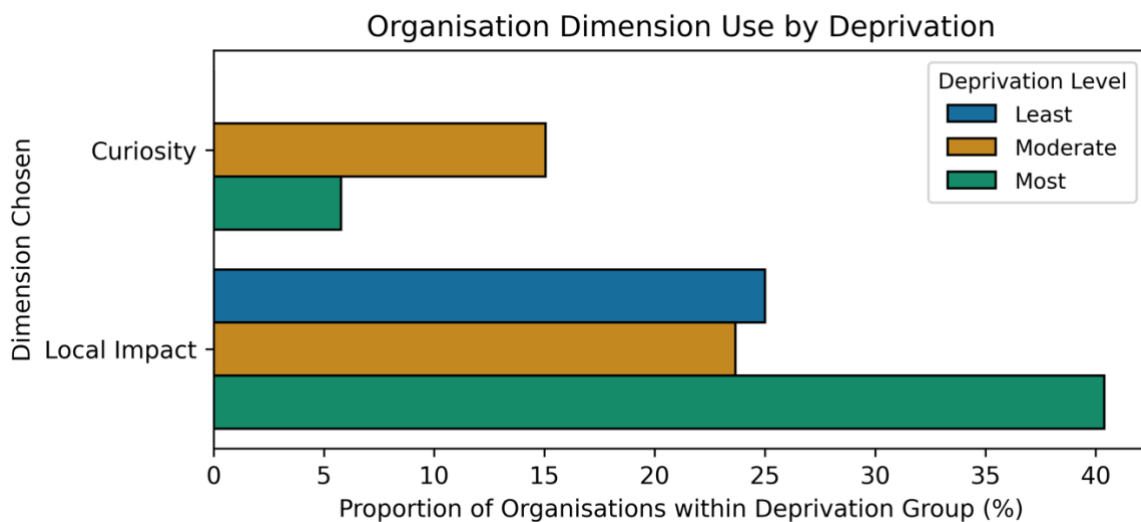


Figure 6 Bar chart showing the proportion of organisations within each deprivation group that used the dimension in at least 3 evaluations. Only dimensions with significant differences are shown.

5.6 Do respondents from more/less deprived areas respond differently to relevant dimensions?

We might expect that the perception of respondents from different neighbourhoods in relation to certain dimensions will be different. For example, respondents from more deprived neighbourhoods may not normally have access to certain experiences a respondent from a less deprived neighbourhood might ('Access' dimension: 'It gave me the opportunity to access activities I would otherwise not have access to').

We chose dimensions that we thought were relevant to show social differences between deprivation levels. Each of these dimensions had at least 3000 responses since April 2023.

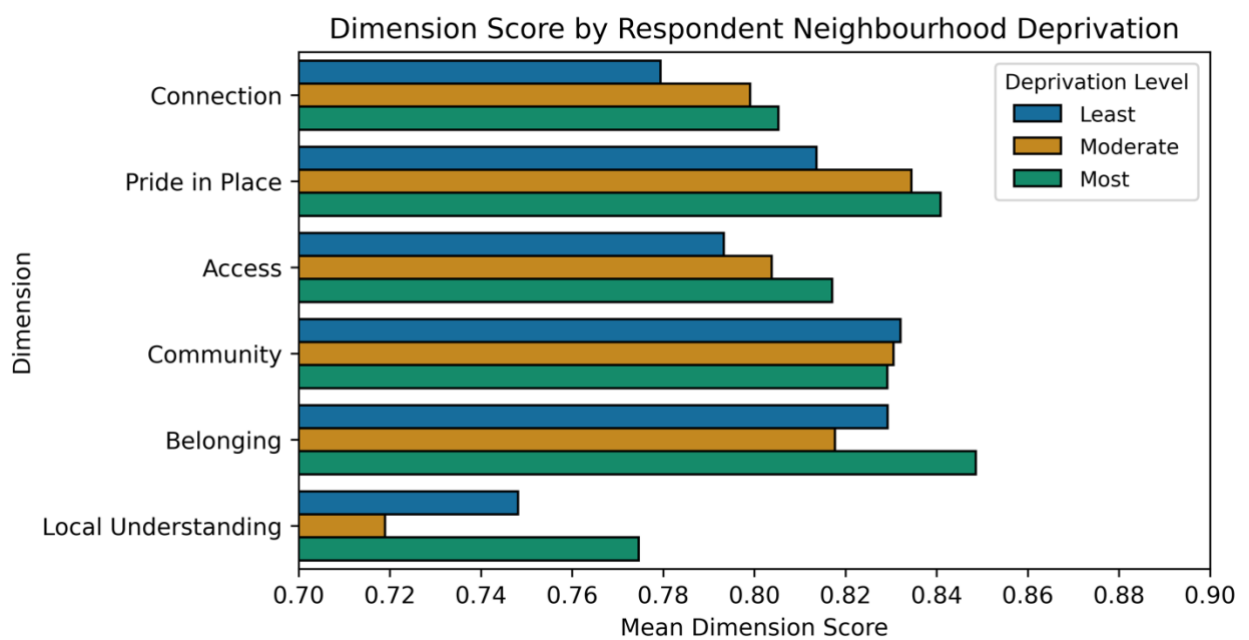


Figure 7 Bar chart showing the mean dimension scores between deprivation groups.

'Connection' and 'Pride in Place' exhibited statistically significant higher scores in the respondents from the most and moderately deprived neighbourhoods compared to those from the least deprived neighbourhoods. The difference between respondents to 'Connection' from the most deprived neighbourhoods when compared to those from moderately deprived was not statistically significant.

There were no significant differences emerging from 'Community', 'Access', or 'Belonging', but responses to 'Local Understanding' suggest that both respondents from the most deprived and least deprived neighbourhoods gave higher scores than those from moderately deprived neighbourhoods.

Further details can be found in the subsequent subsections.

5.6.1 Connection

'It helped me to feel connected to people in the community'

Respondents from the most deprived and moderately deprived neighbourhoods were likely to score 'Connection' 0.05 higher than respondents from the least deprived neighbourhoods. Differences between the most deprived to moderately deprived were not statistically significant.

This suggests that respondents from the least deprived neighbourhoods felt less connected to the community following their experience of a specific arts or cultural work than those from the most deprived neighbourhoods.

5.6.2 Pride in Place

'It made me feel proud of my local area'

We found it was statistically significant that:

- Respondents from the most deprived neighbourhoods were likely to score 'Pride in Place' 0.05 higher than the respondents from the least deprived neighbourhoods.
- Respondents from the moderately deprived neighbourhoods were likely to score 'Pride in Place' 0.02 higher than the respondents from the least deprived neighbourhoods.
- Respondents from the most deprived neighbourhoods were likely to score 'Pride in Place' 0.02 higher than the respondents from moderately deprived neighbourhoods.

This suggests that respondents from the least deprived neighbourhoods felt less proud of their local area following their experience of a specific arts or cultural work compared to those from moderately or the most deprived neighbourhoods.

5.6.3 Access

'It gave me the opportunity to access activities I would otherwise not have access to'

We found that there were no statistically significant differences in results between any level of deprivation and 'Access' dimension result.

5.6.4 Community

'I feel a sense of community here'

We found that there were no statistically significant differences in results between any level of deprivation and 'Community' dimension result.

5.6.5 Belonging

'It helped me feel part of the community'

We found that there were no statistically significant differences in results between any level of deprivation and 'Belonging' dimension result.

5.6.6 Local Understanding

'It helped me to better understand the place and people where I live'

We found that there was no statistically significant difference in results between respondents from the most deprived and least deprived neighbourhoods. However, it was statistically significant that:

- Respondents from the most deprived neighbourhoods were likely to score 'Local Understanding' 0.04 higher than respondents from moderately deprived neighbourhoods.
- Respondents from moderately deprived neighbourhoods were likely to score 'Local Understanding' 0.04 lower than respondents from the least deprived neighbourhoods.

This suggests no clear trend, rather respondents from moderately deprived neighbourhoods did not feel the event helped them to better understand the place and people where they live as much as respondents from the most and least deprived neighbourhoods.

6 CONCLUSION

There is a clear interaction between the deprivation of organisation location, the deprivation of respondent neighbourhood and various observations. Organisations in the most deprived and least deprived areas play a critical role in engaging their local communities. Respondents from all areas of deprivation have positive experiences overall, suggesting that events and engagements are positively impacting all communities. Likewise, key dimensions such as 'Connection' and 'Pride in Place' result in higher scores with respondents from the most deprived neighbourhoods, reflecting the value of arts and cultural events in these communities.

Earlier sections established that there were fewer respondents from less deprived neighbourhoods. Later, exploring audience attraction showed that organisations attracted respondents from similarly deprived areas.

Based on individual organisational circumstances, it may be beneficial to consider the following actions:

- Actively promote events and surveys in areas with differing deprivation to the organisation location to address the lower participation rates.
- Provide small incentives (e.g., vouchers, free tickets, or discounts) for survey participation to encourage responses from underrepresented groups of deprivation.

Finally, as demonstrated by the valuable insights derived from deprivation analysis, including a postcode question in surveys is invaluable, enabling a deeper understanding of respondent demographics and supporting further research into the importance of arts and cultural experiences.

7 BIBLIOGRAPHY

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8 APPENDIX

8.1 Organisation Location vs Respondent Neighbourhood

Here are the raw counts of respondents from neighbourhoods of different deprivation levels that attended events of organisations in locations of different deprivation levels. This is analysed in section 5.3 titled 'Do organisations in more deprived areas tend to attract people who live in more deprived areas?'

Respondent Neighbourhood Deprivation	Least	Moderate	Most
Organisation Location Deprivation			
Least	8139	8650	2960
Moderate	24249	28900	12114
Most	18758	28597	21789

8.2 Overall Experience given Respondent Neighbourhood

Here are the raw counts of respondents from neighbourhoods of different deprivation levels and their negative, neutral or positive responses to the 'Overall Experience' question: 'How would you rate your experience overall?' This is analysed in the section titled '5.4 Does the overall experience of people differ based upon the deprivation of the area where they live?'

Respondent Overall Experience	Negative	Neutral	Positive
Neighbourhood Deprivation			
Least	485	770	22153
Moderate	581	942	28761
Most	281	461	14626

8.3 Organisation Dimension Choice

Here are the raw counts of organisations from areas of different deprivation levels and dimensions evaluated per domains. This is analysed in the section titled '5.5 Do organisations in more deprived areas tend to choose different outcome metrics (dimensions) to those in less deprived areas?' Note that the total organisations from locations from different areas of deprivation is not the total of the column, since organisations can choose more than one dimension.

Organisation Area Deprivation	Least	Moderate	Most	p (Chi-squared)
Community Outcomes	11	20	37	0.0871
Cultural Outcomes	18	57	64	0.8752

Economic Outcomes	7	19	31	0.3044
Environmental Outcomes	3	8	8	0.9422
Placemaking	3	13	20	0.3527
Qualities	33	92	101	0.2892
Social Outcomes	19	48	59	0.6917
Total Organisations	33	96	108	

8.4 Dimension Results Statistical Details

Results via bootstrapping difference of sample means in the section titled '5.6 Do respondents from more/less deprived areas respond differently to relevant dimensions?'

Dimension	Comparison	Difference	Lower CI	Upper CI	<0 p	>0 p
Connection	Most - Least	0.0478	0.02	0.0766	0.0008	0.9992
Connection	Moderate - Least	0.0449	0.0206	0.0713	0	1
Connection	Most - Moderate	0.0029	-0.0198	0.0255	0.4026	0.5974
Pride in Place	Most - Least	0.0455	0.0238	0.0677	0	1
Pride in Place	Moderate - Least	0.0246	0.004	0.0456	0.0108	0.9892
Pride in Place	Most - Moderate	0.0209	0.0028	0.0387	0.0104	0.9896
Access	Most - Least	0.0137	-0.008	0.0352	0.101	0.899
Access	Moderate - Least	0.0064	-0.0131	0.0267	0.2702	0.7298
Access	Most - Moderate	0.0073	-0.0118	0.0258	0.2236	0.7764
Community	Most - Least	-0.0028	-0.0278	0.0223	0.5916	0.4084
Community	Moderate - Least	-0.006	-0.0291	0.0177	0.6778	0.3222
Community	Most - Moderate	0.0032	-0.0181	0.024	0.3786	0.6214
Belonging	Most - Least	0.0114	-0.0183	0.0426	0.2202	0.7798
Belonging	Moderate - Least	-0.0031	-0.0291	0.0242	0.5898	0.4102
Belonging	Most - Moderate	0.0144	-0.013	0.0417	0.1458	0.8542
Local Understanding	Most - Least	-0.0041	-0.039	0.0324	0.587	0.413
Local Understanding	Moderate - Least	-0.0409	-0.0704	-0.0114	0.9964	0.0036
Local Understanding	Most - Moderate	0.0368	0.0028	0.0712	0.0182	0.9818