



DEMOGRAPHIC INDICATORS OF CULTURAL CONSUMPTION

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Patterns of cultural taste and consumption are the subject of a large and complex debate. Recent work has focused on the theories of Bourdieu and Weber in explaining cultural consumption, with some favouring the former (Gayo-Cal *et al.*, 2006) and others the latter (Chan and Goldthorpe, 2005).

From a policy perspective, there is great interest in the extent to which those that attend subsidised arts venues resemble the population, with an assumption that certain groups are under-represented. As a result, the Department for Culture, Media and Sport (DCMS) set the Arts Councils of England and Wales targets to increase arts attendance among 'priority groups': disabled people, black and minority ethnic groups, and those in lower socio-economic groups.

Much of the literature on socio-economic and demographic characteristics of arts audiences is based on surveys commissioned by the Arts Councils of England and Wales and the DCMS (e.g. Bunting *et al.*, 2008). However, there are problems with the use of survey data for understanding cultural consumption.

First, the research supposes that all demographic groups have equal opportunities to attend, but we know that communities are concentrated in different areas, with different characteristics including cultural provision. Secondly, although the surveys contribute motivational data, and questions about a broad range of events, they often lack detail about the precise events and venues which are attended, and other details about attendance (frequency, amount paid). Finally, claiming (or denying) attendance at cultural events is strongly linked to the respondents identity. Some may claim to have attended certain venues which suit their perceived cultural identity, even if they have not. On the other hand, some may deny attending venues which do not accord with their self-image.

An alternative approach is to conduct geodemographic analyses of routinely collected attendance data. While

geodemographic analysis of administrative data has been adopted in studies of certain public services, such as education, this approach has rarely been adopted in the arts, despite the collection of large and high quality databases by the major performing arts venues. The geodemographic models of predicted numbers of attenders used by the Arts Councils of England and Wales to estimate audience potential in particular catchment areas, and to evaluate proposed locations for new venues, tend to be based on survey data.

Audiences London has been gathering very large customer datasets based on routine data collected when tickets are booked at performing arts venues. Our analysis of these data has focused on uncovering the best geodemographic and socio-economic predictors of arts attendance, and exploring how they vary by a number of different factors, such as event type and venue location.

Key findings from our analysis are as follows:

- The proportion of adults with higher education qualifications is the single strongest predictor of performing arts attendance.
- Residential access to venues is strongly predictive of attendance, and the proportion of adults who commute to an area with good access to the venues even more so.
- Taking the above into account, income and socio-economic factors have little influence over arts attendance.
- The proportion of higher education qualifications alone accounts for more variance in attendance rates than most geodemographic indices (except Mosaic), and a model that also includes access, commuting and demographic variables accounts for as much as 71.5% of variance.



The data

Audiences London collates box office data from 33 venues in London, covering a wide range of venue sizes, locations and artforms (mainly in Central London and the subsidised sector). The venues include almost all the regularly-funded clients of Arts Council England within London, providing a good representation of the subsidised performing arts sector in London. Large central venues such as the Southbank Centre and Royal Opera House are included, as are smaller and/or less central venues such as the Croydon Clocktower and Artsdepot and some commercial venues (but not the commercial musicals of the West End).

We focused on ticket purchases made by 'ordinary' members of the public, not sponsors, critics, staff, ticket agents, group bookings (defined as eight or more tickets), or bookings from a non-residential postcode (according to Experian's postcode directory). An algorithm was used to match records from different venues to unique addresses, and the data were limited to addresses from within the London Government Office Region, as previous analyses show that those travelling from outside the region had substantially different geodemographic profiles and behaviour. The calendar year 2005 was chosen for analysis as it is the most complete set of data.

We include a wide range of artforms but not those, such as cinema, which are poorly represented because fewer people give their details when buying tickets. For artforms with a higher proportion of data capture, research has shown that those that attend without booking tickets are similar demographically to those that made the booking, and indeed are likely to have booked on another occasion (Neill and Orme, 2006). Thus, the dataset includes a high proportion of the tickets sold to publically-supported performances of theatre, opera, dance (ballet and contemporary), children's events, classical music and popular music performed within subsidised venues. These purchase data were aggregated to 2001 Census Output Areas (OAs) resulting in a file including c930,000 transactions from c350,000 addresses, distributed across 24,128 output areas.

Variables from the 2001 Census, chosen based on existing theories about drivers for arts attendance, were appended. These were expressed as percentages of the relevant denominator, and included: ethnic group, qualifications, National Statistics Socio-Economic Classification (NS-SEC), limiting long-term illness, economic activity and age bands. In addition, the Income Score for super output areas (SOAs) was taken from the 2004 indices of deprivation.

Accessibility index

One consideration missing from most if not all previous analyses of arts attendance is the influence of geographic access to arts venues. (Where all artforms or venues are discussed below, this refers to all of those included in the analysis, rather than all that exist in London). An accessibility index was calculated based on the distance between the population centroid of each OA and the postcode of each venue. This was weighted according to the number of tickets sold (Figure 1).

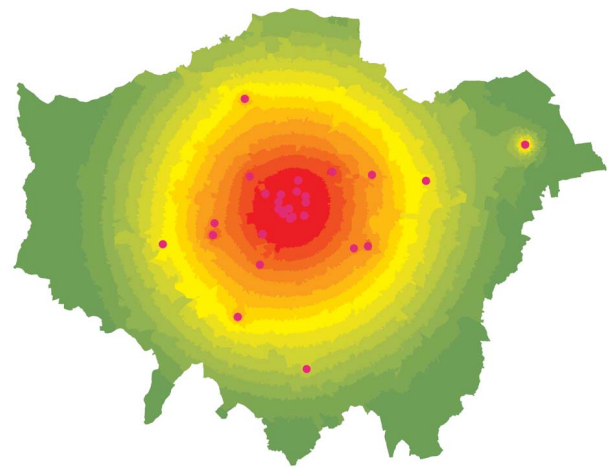


FIGURE 1. VENUE LOCATIONS AND ACCESSIBILITY INDEX, ALL ARTFORMS, LONDON

Index is shown on a hot cold palette — red areas have best access, green areas have worst.

The map for all artforms reflects not only the concentration of venues within Central/Inner London, and the location of the largest venues in the centre, but also the symmetrical distribution of the venues. The index was also calculated separately for each artform, and comparing the index for children's events (Figure 2) and the overall index (Figure 1) shows how children's events are distributed more widely, particularly amongst venues in outer London.

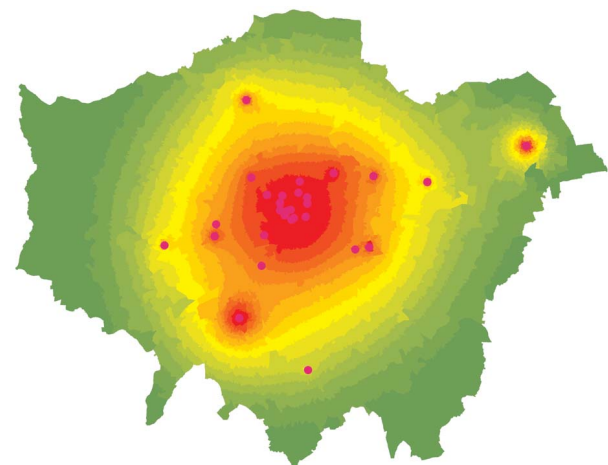


FIGURE 2. VENUE LOCATIONS AND ACCESSIBILITY INDEX, CHILDREN'S EVENTS, LONDON

Commuting index

An additional innovation was the consideration of commuting patterns. Commuting patterns vary considerably between demographic groups, and this has not been taken into account in previous analyses of arts attendance. It was hypothesised that commuting to an area with good access to arts provision would increase the likelihood of attendance at a venue (even though survey respondents usually deny this relationship).

A commuting index was calculated from the 2001 Census OA to OA (output area) flow data. The percentage of all



adults commuting from each origin OA to each destination OA was calculated, and this was multiplied by the accessibility index for the destination OA, and then summed for the origin OA. Figure 3 shows the commuting index for all artforms and venues included in the analysis, and illustrates that commuting to areas with good access to arts venues is geographically clustered.

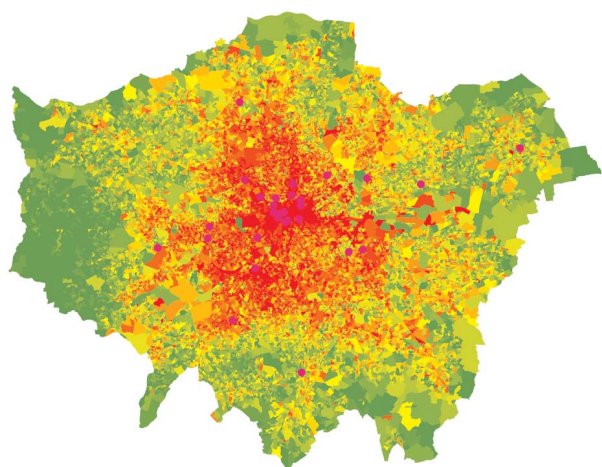


FIGURE 3. VENUE LOCATIONS AND COMMUTING INDEX, ALL ARTFORMS, LONDON

The commuting index calculation is also informative for individual venues. In Figure 4, the commuting index for the Theatre Royal Stratford East in deprived east London (highlighted in blue) shows a different commuting pattern to the overall picture given in Figure 3.

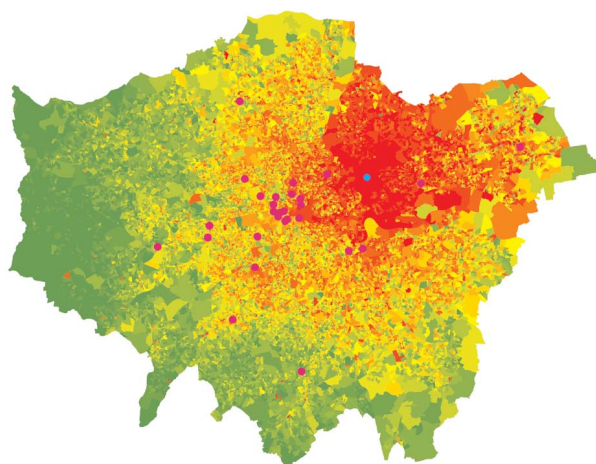


FIGURE 4. COMMUTING INDEX, THEATRE ROYAL STRATFORD EAST

Modelling arts attendance

A grouped logistic regression model, corrected for overdispersion, was used to model the number of unique addresses in an OA from which attenders had visited any venue in 2005. Model fit was estimated by dividing the model deviance in each case by the deviance from the null model.

Including explanatory variables that only relate to the Arts Councils' PSA priority groups (belonging to a black or minority ethnic group, the lower four NS-SEC classifications, and having a limiting long-term illness) explained 54.8% of the variance in arts attendance. With the independent variables restricted to this list, all of the priority groups seem highly significant. Adding income deprivation raises the amount of variance explained to 55.1% and again, this was highly significant. However, with a fuller range of population variables, including qualifications, age, economic activity and religion, the explained variance rose to 70%. Including the accessibility and commuting indices further increased this to 71.5%.

Whilst a large number of population variables are significant in predicting arts attendance, a more parsimonious model with eight variables explains as much as 66% of the variance (Table 1). All eight variables are significant at the 99.9% level, and the strength of the effect of each variable has been demonstrated by calculating odds ratios, which record the change in the rate of attendance predicted for an OA given a 10% increase in this variable, and assuming all others are held constant.

Variable	Co-efficient	St. Error	z	Odds %
% adults with degree or equivalent	3.734	0.033	113.8	145
Commuting index	3.535	0.163	21.7	142
% population in NS-SEC4	3.340	0.165	20.3	140
% adults in full-time education	2.765	0.082	33.7	132
% population with no religion	2.484	0.065	38.1	128
% population of age 16-29	-2.691	0.059	-45.4	76
Accessibility index	1.870	0.221	8.5	121
% population Jewish	1.766	0.060	29.7	119
Constant	-4.107	0.019	211.0	

TABLE 1. COEFFICIENTS FOR THE PARSIMONIOUS MODEL

The analysis shows that the proportion of adults with a degree or equivalent qualification (from the Census variable 'Qualifications Level 4-5') is by some way the best predictor of attendance. A 10% increase in the proportion of adults with a degree or equivalent is associated with a 45% increase in the rate of attendance. Indeed, a model with this variable alone explains 57.6% of the variance.

The commuting index is strongly predictive of attendance levels; the accessibility index is important but less so, especially in a parsimonious model: a model using only

these indices finds accessibility almost insignificant, whereas including more population variables increases the importance of accessibility. So the relationship between residential accessibility and attendance is suppressed if other characteristics are not considered.

Having no religion, and being Jewish, are both strongly positive. The proportion of the population aged 16-29 is negative but the proportion of adults in full-time education is positive: when age is considered alone as a predictor, this grouping is not significant, suggesting that the propensity or otherwise of this age group to attend is largely determined by educational and other considerations.

It is worth highlighting that in this model, many of the Arts Council's priority group variables became insignificant. Of the NS-SEC groups only 4 (self employed, sole traders) has a strong enough effect to belong in this parsimonious model — groups 5-8 proved not to be significant, and groups 1-3 were significant but only weakly so. Some ethnic and other religious groups were significant, but not as strong as the remaining variables in the model. Income deprivation was no longer significant.

Comparisons

Existing geodemographic classifications, some of which are currently used within arts policy and marketing contexts, were compared for their ability to predict levels of attendance. Experian's geodemographic segmentation Mosaic UK is frequently used in profiling arts attenders. A similar grouped logistic modelling approach was used with this classification to that described above. The proportion of addresses in each OA that were coded (according to their postcode) to each of the 61 Mosaic types formed the independent variables. Other methods were explored for using this classification but this proved to be the most effective, explaining 58.6% of variance.

The 'Output Area Classification' (Vickers and Rees, 2007) is an alternative, free geodemographic classification of OAs. Using the same grouped logistic regression as before, but with the Subgroup of Area Classification (of which there are 38) as a categorical variable, the model explained only 22.9% of variance.

Deprivation is increasingly becoming an area of interest for understanding variations in arts attendance, particularly as culture has become a more important measure of successful performance for local authorities. A grouped logistic regression model using the 2004 Indices of Multiple Deprivation (IMD2004), with the scores for each of the seven domains as the independent variables, and Lower Layer SOA as the unit of analysis, explained 47.4% of variance. Finally, a Townsend deprivation score (calculated from measures for unemployment, overcrowding, non car ownership and non home ownership) was modelled at OA level and explained only 2.6% of variance.

Thus, even the parsimonious model which included census variables and derived accessibility and commuting indices provides improved differentiation in relation to arts attendance compared to other existing classifications and indices. Indeed, although both Mosaic and the IMD2004 provide quite good predictions of attendance, only Mosaic performs as well as a model that simply includes the percentage of people with degree-level qualifications.

Conclusions

This analysis demonstrates the value of careful census-based analysis of predictors of arts attendance. In particular, qualifications, accessibility and commuting behaviour were especially useful determinants of attendance which have not been focused on in previous studies. Whether the importance of higher education can be explained by a cultural capital effect, or whether it relates to education providing tools with which to interpret and enjoy culture, is still a matter of debate. Hopefully, more detailed analysis of the association between population characteristics and attendance at particular artforms and venues will help us to understand better these relationships, and how they might be influenced by policy interventions.

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