DCMS-sponsored museum visit trends

An analysis of factors impacting on visits to DCMS-sponsored museums

Technical Report

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DCMS-sponsored museum visit trends: Technical Report

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1 Population Survey [POP]

1.1 Sample source

Respondents for the online population survey were sourced from a commercial third-party panel provider (https://www.panelbase.net/).

1.2 Screening criteria

Screening criteria were applied to the population survey including:

Geography

The population survey covered all nine regions in England.

Propensity to visit London in future

Only respondents who indicated they'd 'definitely' or 'probably' visit London in future either for a day trip or overnight stay were included in the survey.

Propensity to visit museums and galleries in future

In addition to being open to visiting London in future, 'screened in' respondents were also required to indicate they'd definitely' or 'probably' visit museums or art galleries (at any location) in the future.

1.3 Incidence rate

56% of respondents surveyed met the screening criteria.

1.4 Sample size

A target sample size of n=1,500 completed surveys was set for the population survey. The final sample achieved was n=1,723 completed surveys. With an incidence rate of 56%, a total sample of n=3,079 were consulted for the study.

1.5 Questionnaire

The population survey consisted of the following sections:

Quota demographics – details of respondent age, gender, region, ethnicity and educational attainment.

London as a destination – details of visit history, frequency and propensity for future visits to London (day trips and/or overnight stays)

Museum and art gallery engagement – details of visit history and propensity for future visits at museums and art galleries (generally)

Cultural engagement – visit history and frequency across a range of artforms covering those listed in the DCMS Taking Part survey questionnaire.

Heritage engagement – visit history and frequency across eight heritage categories listed in the DCMS Taking Part survey questionnaire.

Leisure time engagement - visit history, frequency and preferences across a range of paid and free leisure time activities including sporting events, escape rooms, theme parks etc

Cultural and leisure engagement in London – types of attractions visited and activities undertaken on visits to London

Barriers to visiting London – factors which have resulted in respondents making fewer visits to London than previously

Accommodation in London – whether respondents stayed in Airbnb accommodation whilst visiting London

Localism – preferences for engaging with cultural and leisure activities close to home

DCMS sponsored museum engagement – awareness, visit history, frequency, changes in visiting behaviour (visiting more or less than previously) and propensity for future visits across named DCMS sponsored museums in London and regionally

Barriers to visiting DCMS sponsored museums in London – factors which have resulted in respondents making fewer visits to DCMS sponsored museums in London than previously

Free entry – awareness of free entry at DCMS sponsored museums

Paid exhibitions - visit history, and propensity for future visits at paid exhibitions in London

Marketing sources – above and below the line marketing channels used to find out what's on

Demographics (additional) – vocational connection to museums, galleries, performing arts, heritage or creative industries; employment status and socio-economic classification (NS-SEC)

1.6 Dates of fieldwork

Fieldwork for the population survey took place between Wednesday 19 June 2019 and Tuesday 2 July 2019.

1.7 Languages of fieldwork

The population survey was conducted in English only.

1.8 Incentives

Respondents for the population survey were sourced from a commercial third-party panel provider (https://www.panelbase.net/). Respondents received cash incentives via Panelbase, commensurate with the stated length of the survey.

1.9 Survey length

The median completion time for the population survey was 17 minutes and 9 seconds, and the mean was 17 minutes and 15 seconds. This is based on full (in sample) surveys and does not include screened out cases, nor partial responses.

1.10 Data quality

As a self-completion method, a number of post fieldwork validation checks were conducted on the final sample of n=1,837 completed surveys. Respondents were 'quarantined' on the basis of:

1 Time taken to complete the survey – 'speeders' (those completing the survey in a very short time) were identified based on an analysis of the mean and median completion times

2 Poor quality verbatim responses – repeated responses or responses consisting of random series of characters

3 Logic checks - inconsistent responses between related sets of questions

4 Straight-lining – respondents with the same response codes e.g. Strongly agree in grid questions

This approach led us to remove a total of 114 respondents from the population survey, representing 6% of the overall sample. This percentage is low enough for us to be confident of the data's veracity.

1.11 Socio-economic classification

Respondents in the online panel population survey were coded to NS-SEC (National Statistics Socio-economic Classification) using the five-class self-coded method.

The five-class version of the self-coded NS-SEC has the following classes:

Class	Label
1	Managerial, administrative and professional occupations
2	Intermediate occupations
3	Small employers and own account workers
4	Lower supervisory and technical occupations
5	Semi-routine and routine occupations

The questions asked on the self-coded NS_SEC are included below.

Question 1: Employee or self-employed

'Do (did) you work as an employee or are (were) you self-employed?'

Employee ❑

Self-employed with employees ❑

Self-employed/freelance without employees ❑

(Go to Question 4)

Question 2: Number of employees

For employees: 'How many people work (worked) for your employer at the place where you work (worked)?'

For self-employed: 'How many people do (did) you employ?' (Go to Question 3 when you have completed this question)

1 to 24 ❑

25 or more ❑

Question 3: Supervisory status

'Do (did) you supervise any other employees?' (A supervisor or foreman is responsible for overseeing the work of other employees on a day-to-day basis)

Yes ❑

No ❑

Question 4: Occupation

Ask respondents to tick one box to show which best describes the sort of work they do. If they are not working now, ask them to tick a box to show what they did in their last job.

❑ Modern professional occupations such as:

teacher – nurse – physiotherapist – social worker – welfare officer – artist – musician – police officer (sergeant or above) – software designer

❑ Clerical and intermediate occupations such as:

secretary – personal assistant – clerical worker – office clerk – call centre agent – nursing auxiliary – nursery nurse

❑ Senior managers or administrators (usually responsible for planning, organising and co-ordinating work, and for finance) such as:

finance manager – chief executive

❑ Technical and craft occupations such as:

motor mechanic – fitter – inspector – plumber – printer – tool maker –electrician – gardener – train driver

❑ Semi-routine manual and service occupations such as:

postal worker – machine operative – security guard – caretaker – farm worker – catering assistant – receptionist – sales assistant

- Routine manual and service occupations such as:

HGV driver – van driver – cleaner – porter – packer – sewing machinist

– messenger – labourer – waiter/waitress – bar staff

- Middle or junior managers such as:

office manager – retail manager – bank manager – restaurant manager – warehouse manager – publican

- Traditional professional occupations such as:

accountant– solicitor – medical practitioner – scientist – civil/mechanical engineer

1.12 Quotas

The population survey was weighted to match the adult population data for England from the Office for National Statistics 2011 Census across four variables:

- Gender (Male, Female)
- Age (16-34, 35-49, 50-64, 65+)
- Region (East of England, East Midlands, London, North East, North West, South East, South West, West Midlands, Yorkshire and the Humber)
- Educational attainment (see table below)

Educational attainment quotas were set according to the classifications used in the 2011 Census:

	Qualification
1	No qualifications;
2	Level 1: 1-4 O Levels/CSE/GCSEs (any grades), Entry Level, Foundation Diploma, NVQ Level 1, Foundation GNVQ, Basic/Essential Skills;
3	Level 2: 5+ O Level (Passes)/CSEs (Grade 1)/GCSEs (Grades A*-C), School Certificate, 1 A Level/ 2-3 AS Levels/VCEs, Intermediate/Higher Diploma, Welsh Baccalaureate Intermediate Diploma, NVQ level 2, Intermediate GNVQ, City and Guilds Craft, BTEC First/General Diploma, RSA Diploma;
4	Apprenticeship;
5	Level 3: 2+ A Levels/VCEs, 4+ AS Levels, Higher School Certificate, Progression/Advanced Diploma, Welsh Baccalaureate Advanced Diploma,

	Qualification
	NVQ Level 3; Advanced GNVQ, City and Guilds Advanced Craft, ONC, OND, BTEC National, RSA Advanced Diploma;
6	Level 4 and above: Degree (for example BA, BSc), Higher Degree (for example MA, PhD, PGCE), NVQ Level 4-5, HNC, HND, RSA Higher Diploma, BTEC Higher level, Foundation degree (NI), Professional qualifications (for example teaching, nursing, accountancy);
7	Other qualifications: Vocational/Work-related Qualifications, Foreign Qualifications (not stated/level unknown).

Quotas were applied to interlocking data across 144 codes as shown below.

Quota Category	Quota
East of England Male 16 to 34 None / Other / Low / Med / Appr	38
East of England Male 16 to 34 High	11
East of England Male 35 to 49 None / Other / Low / Med / Appr	30
East of England Male 35 to 49 High	14
East of England Male 50 to 64 None / Other / Low / Med / Appr	27
East of England Male 50 to 64 High	11
East of England Male 65 and over None / Other / Low / Med / Appr	26
East of England Male 65 and over High	7
East of England Female 16 to 34 None / Other / Low / Med / Appr	35
East of England Female 16 to 34 High	13
East of England Female 35 to 49 None / Other / Low / Med / Appr	31
East of England Female 35 to 49 High	15
East of England Female 50 to 64 None / Other / Low / Med / Appr	30
East of England Female 50 to 64 High	10
East of England Female 65 and over None / Other / Low / Med / Appr	35
East of England Female 65 and over High	6
East Midlands Male 16 to 34 None / Other / Low / Med / Appr	25
East Midlands Male 16 to 34 High	7
East Midlands Male 35 to 49 None / Other / Low / Med / Appr	19
East Midlands Male 35 to 49 High	8
East Midlands Male 50 to 64 None / Other / Low / Med / Appr	18
East Midlands Male 50 to 64 High	6
East Midlands Male 65 and over None / Other / Low / Med / Appr	16
East Midlands Male 65 and over High	4
East Midlands Female 16 to 34 None / Other / Low / Med / Appr	23
East Midlands Female 16 to 34 High	8
East Midlands Female 35 to 49 None / Other / Low / Med / Appr	19

East Midlands Female 35 to 49 High	9
East Midlands Female 50 to 64 None / Other / Low / Med / Appr	19
East Midlands Female 50 to 64 High	6
East Midlands Female 65 and over None / Other / Low / Med / Appr	21
East Midlands Female 65 and over High	3
London Male 16 to 34 None / Other / Low / Med / Appr	45
London Male 16 to 34 High	32
London Male 35 to 49 None / Other / Low / Med / Appr	31
London Male 35 to 49 High	23
London Male 50 to 64 None / Other / Low / Med / Appr	22
London Male 50 to 64 High	12
London Male 65 and over None / Other / Low / Med / Appr	18
London Male 65 and over High	6
London Female 16 to 34 None / Other / Low / Med / Appr	44
London Female 16 to 34 High	34
London Female 35 to 49 None / Other / Low / Med / Appr	31
London Female 35 to 49 High	22
London Female 50 to 64 None / Other / Low / Med / Appr	24
London Female 50 to 64 High	11
London Female 65 and over None / Other / Low / Med / Appr	25
London Female 65 and over High	5
North East Male 16 to 34 None / Other / Low / Med / Appr	16
North East Male 16 to 34 High	4
North East Male 35 to 49 None / Other / Low / Med / Appr	12
North East Male 35 to 49 High	5
North East Male 50 to 64 None / Other / Low / Med / Appr	12
North East Male 50 to 64 High	4
North East Male 65 and over None / Other / Low / Med / Appr	11
North East Male 65 and over High	2
North East Female 16 to 34 None / Other / Low / Med / Appr	16
North East Female 16 to 34 High	5
North East Female 35 to 49 None / Other / Low / Med / Appr	13
North East Female 35 to 49 High	5
North East Female 50 to 64 None / Other / Low / Med / Appr	13
North East Female 50 to 64 High	4
North East Female 65 and over None / Other / Low / Med / Appr	14
North East Female 65 and over High	2
North West Male 16 to 34 None / Other / Low / Med / Appr	39
North West Male 16 to 34 High	11
North West Male 35 to 49 None / Other / Low / Med / Appr	29
North West Male 35 to 49 High	12
North West Male 50 to 64 None / Other / Low / Med / Appr	27
North West Male 50 to 64 High	10

North West Male 65 and over None / Other / Low / Med / Appr	24
North West Male 65 and over High	6
North West Female 16 to 34 None / Other / Low / Med / Appr	37
North West Female 16 to 34 High	13
North West Female 35 to 49 None / Other / Low / Med / Appr	29
North West Female 35 to 49 High	13
North West Female 50 to 64 None / Other / Low / Med / Appr	28
North West Female 50 to 64 High	9
North West Female 65 and over None / Other / Low / Med / Appr	32
North West Female 65 and over High	5
South East Male 16 to 34 None / Other / Low / Med / Appr	54
South East Male 16 to 34 High	18
South East Male 35 to 49 None / Other / Low / Med / Appr	41
South East Male 35 to 49 High	25
South East Male 50 to 64 None / Other / Low / Med / Appr	37
South East Male 50 to 64 High	19
South East Male 65 and over None / Other / Low / Med / Appr	34
South East Male 65 and over High	12
South East Female 16 to 34 None / Other / Low / Med / Appr	51
South East Female 16 to 34 High	21
South East Female 35 to 49 None / Other / Low / Med / Appr	42
South East Female 35 to 49 High	25
South East Female 50 to 64 None / Other / Low / Med / Appr	40
South East Female 50 to 64 High	17
South East Female 65 and over None / Other / Low / Med / Appr	49
South East Female 65 and over High	10
South West Male 16 to 34 None / Other / Low / Med / Appr	27
South West Male 16 to 34 High	8
South West Male 35 to 49 None / Other / Low / Med / Appr	21
South West Male 35 to 49 High	10
South West Male 50 to 64 None / Other / Low / Med / Appr	20
South West Male 50 to 64 High	9
South West Male 65 and over None / Other / Low / Med / Appr	20
South West Male 65 and over High	7
South West Female 16 to 34 None / Other / Low / Med / Appr	25
South West Female 16 to 34 High	9
South West Female 35 to 49 None / Other / Low / Med / Appr	21
South West Female 35 to 49 High	11
South West Female 50 to 64 None / Other / Low / Med / Appr	22
South West Female 50 to 64 High	9
South West Female 65 and over None / Other / Low / Med / Appr	27
South West Female 65 and over High	6
West Midlands Male 16 to 34 None / Other / Low / Med / Appr	31

West Midlands Male 16 to 34 High	8
West Midlands Male 35 to 49 None / Other / Low / Med / Appr	23
West Midlands Male 35 to 49 High	9
West Midlands Male 50 to 64 None / Other / Low / Med / Appr	21
West Midlands Male 50 to 64 High	7
West Midlands Male 65 and over None / Other / Low / Med / Appr	19
West Midlands Male 65 and over High	4
West Midlands Female 16 to 34 None / Other / Low / Med / Appr	28
West Midlands Female 16 to 34 High	10
West Midlands Female 35 to 49 None / Other / Low / Med / Appr	23
West Midlands Female 35 to 49 High	10
West Midlands Female 50 to 64 None / Other / Low / Med / Appr	22
West Midlands Female 50 to 64 High	7
West Midlands Female 65 and over None / Other / Low / Med / Appr	26
West Midlands Female 65 and over High	4
Yorkshire and The Humber Male 16 to 34 None / Other / Low / Med / Appr	31
Yorkshire and The Humber Male 16 to 34 High	8
Yorkshire and The Humber Male 35 to 49 None / Other / Low / Med / Appr	23
Yorkshire and The Humber Male 35 to 49 High	9
Yorkshire and The Humber Male 50 to 64 None / Other / Low / Med / Appr	21
Yorkshire and The Humber Male 50 to 64 High	7
Yorkshire and The Humber Male 65 and over None / Other / Low / Med / Appr	19
Yorkshire and The Humber Male 65 and over High	4
Yorkshire and The Humber Female 16 to 34 None / Other / Low / Med / Appr	29
Yorkshire and The Humber Female 16 to 34 High	10
Yorkshire and The Humber Female 35 to 49 None / Other / Low / Med / Appr	23
Yorkshire and The Humber Female 35 to 49 High	10
Yorkshire and The Humber Female 50 to 64 None / Other / Low / Med / Appr	22
Yorkshire and The Humber Female 50 to 64 High	7
Yorkshire and The Humber Female 65 and over None / Other / Low / Med / Appr	25
Yorkshire and The Humber Female 65 and over High	4

Incidence rates

Initial quotas for each region were set based on estimated incidence rates i.e. the proportion of the panel population who would qualify to take part in the survey based on the screening criteria.

Incidence rate by region

Region	Incidence Rate
East of England	63%
East Midlands	58%
London	77%

Region	Incidence Rate
North East	51%
North West	59%
South East	64%
South West	58%
West Midlands	60%
Yorkshire and the Humber	57%

As fieldwork progressed, quotas were updated based on the *actual* incidence rate recorded in each region.

1.13 Weighting

The final weights applied to the cleaned population survey sample are shown in the table below.

Weight Category	Weight
East of England Male 16 to 34 None / Other / Low / Med / Appr	1.59295
East of England Male 16 to 34 High	0.60075
East of England Male 35 to 49 None / Other / Low / Med / Appr	0.83950
East of England Male 35 to 49 High	0.94130
East of England Male 50 to 64 None / Other / Low / Med / Appr	1.14047
East of England Male 50 to 64 High	0.82985
East of England Male 65 and over None / Other / Low / Med / Appr	1.52663
East of England Male 65 and over High	0.67279
East of England Female 16 to 34 None / Other / Low / Med / Appr	0.74189
East of England Female 16 to 34 High	0.63607
East of England Female 35 to 49 None / Other / Low / Med / Appr	0.95017
East of England Female 35 to 49 High	1.07368
East of England Female 50 to 64 None / Other / Low / Med / Appr	1.34015
East of England Female 50 to 64 High	0.73749
East of England Female 65 and over None / Other / Low / Med / Appr	1.27491
East of England Female 65 and over High	1.65598
East Midlands Male 16 to 34 None / Other / Low / Med / Appr	1.05241
East Midlands Male 16 to 34 High	0.71671
East Midlands Male 35 to 49 None / Other / Low / Med / Appr	1.17718
East Midlands Male 35 to 49 High	0.74221
East Midlands Male 50 to 64 None / Other / Low / Med / Appr	1.64579
East Midlands Male 50 to 64 High	0.71219
East Midlands Male 65 and over None / Other / Low / Med / Appr	1.48898
East Midlands Male 65 and over High	0.66678
East Midlands Female 16 to 34 None / Other / Low / Med / Appr	0.85561

East Midlands Female 16 to 34 High	0.60595
East Midlands Female 35 to 49 None / Other / Low / Med / Appr	0.88884
East Midlands Female 35 to 49 High	0.58452
East Midlands Female 50 to 64 None / Other / Low / Med / Appr	1.03779
East Midlands Female 50 to 64 High	1.06285
East Midlands Female 65 and over None / Other / Low / Med / Appr	1.66710
East Midlands Female 65 and over High	1.66335
London Male 16 to 34 None / Other / Low / Med / Appr	3.00272
London Male 16 to 34 High	1.15119
London Male 35 to 49 None / Other / Low / Med / Appr	1.03683
London Male 35 to 49 High	0.82475
London Male 50 to 64 None / Other / Low / Med / Appr	0.83184
London Male 50 to 64 High	1.03259
London Male 65 and over None / Other / Low / Med / Appr	1.14384
London Male 65 and over High	0.99638
London Female 16 to 34 None / Other / Low / Med / Appr	0.91782
London Female 16 to 34 High	0.77589
London Female 35 to 49 None / Other / Low / Med / Appr	1.01623
London Female 35 to 49 High	0.84036
London Female 50 to 64 None / Other / Low / Med / Appr	0.86425
London Female 50 to 64 High	0.78424
London Female 65 and over None / Other / Low / Med / Appr	1.10092
London Female 65 and over High	0.91744
North East Male 16 to 34 None / Other / Low / Med / Appr	1.16507
North East Male 16 to 34 High	0.46352
North East Male 35 to 49 None / Other / Low / Med / Appr	1.32544
North East Male 35 to 49 High	0.65501
North East Male 50 to 64 None / Other / Low / Med / Appr	0.66185
North East Male 50 to 64 High	1.65190
North East Male 65 and over None / Other / Low / Med / Appr	1.51969
North East Male 65 and over High	0.92219
North East Female 16 to 34 None / Other / Low / Med / Appr	0.94888
North East Female 16 to 34 High	0.53488
North East Female 35 to 49 None / Other / Low / Med / Appr	1.80480
North East Female 35 to 49 High	0.71530
North East Female 50 to 64 None / Other / Low / Med / Appr	0.93555
North East Female 50 to 64 High	0.78110
North East Female 65 and over None / Other / Low / Med / Appr	2.28712
North East Female 65 and over High	1.18453
North West Male 16 to 34 None / Other / Low / Med / Appr	1.00267
North West Male 16 to 34 High	0.68411
North West Male 35 to 49 None / Other / Low / Med / Appr	1.22855
North West Male 35 to 49 High	0.74659

North West Male 50 to 64 None / Other / Low / Med / Appr	0.87807
North West Male 50 to 64 High	0.47967
North West Male 65 and over None / Other / Low / Med / Appr	1.43954
North West Male 65 and over High	1.51792
North West Female 16 to 34 None / Other / Low / Med / Appr	0.94636
North West Female 16 to 34 High	0.79375
North West Female 35 to 49 None / Other / Low / Med / Appr	0.99947
North West Female 35 to 49 High	0.66152
North West Female 50 to 64 None / Other / Low / Med / Appr	1.40742
North West Female 50 to 64 High	0.98676
North West Female 65 and over None / Other / Low / Med / Appr	1.75089
North West Female 65 and over High	0.89716
South East Male 16 to 34 None / Other / Low / Med / Appr	2.33708
South East Male 16 to 34 High	0.85897
South East Male 35 to 49 None / Other / Low / Med / Appr	0.88037
South East Male 35 to 49 High	0.68801
South East Male 50 to 64 None / Other / Low / Med / Appr	1.16669
South East Male 50 to 64 High	0.83719
South East Male 65 and over None / Other / Low / Med / Appr	1.48316
South East Male 65 and over High	0.92390
South East Female 16 to 34 None / Other / Low / Med / Appr	0.90250
South East Female 16 to 34 High	0.63801
South East Female 35 to 49 None / Other / Low / Med / Appr	0.81946
South East Female 35 to 49 High	0.72845
South East Female 50 to 64 None / Other / Low / Med / Appr	1.22046
South East Female 50 to 64 High	0.79257
South East Female 65 and over None / Other / Low / Med / Appr	1.39895
South East Female 65 and over High	0.75604
South West Male 16 to 34 None / Other / Low / Med / Appr	0.96353
South West Male 16 to 34 High	0.63466
South West Male 35 to 49 None / Other / Low / Med / Appr	1.44755
South West Male 35 to 49 High	0.65591
South West Male 50 to 64 None / Other / Low / Med / Appr	1.12991
South West Male 50 to 64 High	0.65106
South West Male 65 and over None / Other / Low / Med / Appr	1.89312
South West Male 65 and over High	0.91795
South West Female 16 to 34 None / Other / Low / Med / Appr	0.82965
South West Female 16 to 34 High	0.57386
South West Female 35 to 49 None / Other / Low / Med / Appr	1.45579
South West Female 35 to 49 High	0.52452
South West Female 50 to 64 None / Other / Low / Med / Appr	1.53052
South West Female 50 to 64 High	0.62090
South West Female 65 and over None / Other / Low / Med / Appr	1.93480

South West Female 65 and over High	0.80499
West Midlands Male 16 to 34 None / Other / Low / Med / Appr	2.28165
West Midlands Male 16 to 34 High	0.53939
West Midlands Male 35 to 49 None / Other / Low / Med / Appr	1.00993
West Midlands Male 35 to 49 High	0.60121
West Midlands Male 50 to 64 None / Other / Low / Med / Appr	1.20013
West Midlands Male 50 to 64 High	0.92953
West Midlands Male 65 and over None / Other / Low / Med / Appr	0.77325
West Midlands Male 65 and over High	1.11273
West Midlands Female 16 to 34 None / Other / Low / Med / Appr	1.14608
West Midlands Female 16 to 34 High	0.72376
West Midlands Female 35 to 49 None / Other / Low / Med / Appr	0.85502
West Midlands Female 35 to 49 High	0.56844
West Midlands Female 50 to 64 None / Other / Low / Med / Appr	1.13021
West Midlands Female 50 to 64 High	0.48833
West Midlands Female 65 and over None / Other / Low / Med / Appr	1.90804
West Midlands Female 65 and over High	1.85921
Yorkshire and The Humber Male 16 to 34 None / Other / Low / Med / Appr	0.94748
Yorkshire and The Humber Male 16 to 34 High	1.13526
Yorkshire and The Humber Male 35 to 49 None / Other / Low / Med / Appr	1.06179
Yorkshire and The Humber Male 35 to 49 High	0.49537
Yorkshire and The Humber Male 50 to 64 None / Other / Low / Med / Appr	0.89141
Yorkshire and The Humber Male 50 to 64 High	0.79836
Yorkshire and The Humber Male 65 and over None / Other / Low / Med / Appr	1.45498
Yorkshire and The Humber Male 65 and over High	0.73745
Yorkshire and The Humber Female 16 to 34 None / Other / Low / Med / Appr	0.89187
Yorkshire and The Humber Female 16 to 34 High	0.58988
Yorkshire and The Humber Female 35 to 49 None / Other / Low / Med / Appr	0.96460
Yorkshire and The Humber Female 35 to 49 High	0.65906
Yorkshire and The Humber Female 50 to 64 None / Other / Low / Med / Appr	1.99753
Yorkshire and The Humber Female 50 to 64 High	1.26969
Yorkshire and The Humber Female 65 and over None / Other / Low / Med / Appr	1.71186
Yorkshire and The Humber Female 65 and over High	2.06761

2 London overseas tourist survey [INT QUANT]

2.1 Sample source

The overseas tourist survey was conducted as an interviewer led face-to-face survey at eight sampling points across London.

Potential respondents were approached at random (every nth individual) as they walked past interviewers on-street at each sampling point.

Interview locations for London overseas tourist survey

	Location
1	Greenwich
2	St James/Buckingham Palace
3	Trafalgar Square
4	South Kensington
5	Leicester Square
6	Westminster
7	Covent Garden
8	Southbank

2.2 Screen-in criteria

In order to qualify for the survey, respondents had to be living outside the United Kingdom and visiting London either for a holiday or to visit friends or relatives.

2.3 Incidence rate

94% of respondents surveyed met the screening criteria.

2.4 Sample size

A target sample size of n=500 completed surveys was set for the overseas tourist survey. The final sample achieved was n=511 completed surveys.

2.5 Questionnaire

The London overseas tourist survey consisted of the following sections:

Nature and purpose of trip – if respondents were staying overnight in London or on a day trip whilst staying elsewhere in the UK; purpose of trip e.g. holiday or visiting friends and relative; number of nights spent in UK; type of accommodation used

London as a destination – details of visit history, frequency and likelihood to visit elsewhere in the UK on same trip

Itinerary – extent of advance planning and spontaneity in visiting attractions in London

Marketing sources – channels used in planning what to do in London whilst in home country and once in London

Attractors and behaviours – exploring activities which overseas tourists anticipated they'd undertake before visiting and actual activities undertaken whilst in London

DCMS sponsored museum engagement – awareness, (planned) visits on current trip and awareness of free entry, propensity to visit if admissions fees applied at named DCMS sponsored museums in London

Copies of both questionnaires can be found in Appendix A.

2.6 Dates of fieldwork

Fieldwork for the London overseas tourist survey took place between Monday 24 June 2019 and Wednesday 10 July 2019. The fieldwork was undertaken by QRS Market Research Limited using 10 fieldworkers who completed 25 x 6-hour shifts in order to achieve the sample.

2.7 Languages of fieldwork

The London overseas tourist survey was conducted in English only.

2.8 Incentives

No incentives were provided to respondents in the face-to-face interviewer led London overseas tourist survey.

2.9 Survey length

The median completion time for the on-street survey was 7 minutes and 34 seconds, and the mean was 8 minutes and 11 seconds. This is based on full (in sample) surveys and does not include screened out cases (there were no partial responses on the face-to-face survey).

2.10 Data Quality

With the face-to-face interview-led surveys we are confident that data was collected from the right individuals. Screening question were included at the start of the survey to ensure respondents were:

1 Aged 16 or over

2 Resident outside the UK

3 Visiting London and staying overnight or on a day trip and staying elsewhere in the UK

2.11 Weighting

Data from respondents in the on-street tourism survey was weighted based on the 2018 annual data from the International Passenger Survey (IPS) across three interlocking variables:

- Country of origin
- Length of stay (1-3, 4-7, 8-14 and 15+ nights)
- Purpose of visit (Holiday/visiting friends and relatives, Other (business, study, miscellaneous)

3 Econometrics

3.1 Method

The econometric analysis used the visit figures provided to MHM by individual London museum venues. The data was structurally most similar to that of panel or longitudinal data. Therefore, panel data econometric methods were applied to the data and included many independent external factors that could affect visits over the nine-year period that the data spanned. As not all venues have the full nine years of visits data, this resulted in an unbalanced panel.

This in common in these types of panel data sets, for example with this data, some venues were not open for certain periods which gives us some gaps in the visit figures where other venues do not have gaps. The unbalanced nature of a data set can inflate the error term in our panel regressions, however it is assumed that the missing data is missing randomly and therefore does not change the error term. Many external factors were sourced for this analysis which included:

- Monthly Average Max Temperature recorded at Heathrow, London
- Monthly total Precipitation (mm) recorded at Heathrow, London
- Total Hours of Sunshine recorded at Heathrow, London
- Pound Sterling Index
- Quarterly Net Migration to the UK
- Quarterly International Tourist Visits to London
- Number of Nights Spent by International Tourists in London (Quarterly)
- Spend by International Tourists in London (Quarterly)
- UK Inflation Rate (%)
- Consumer Confidence Index (UK, China, USA, EU19)
- Average Monthly Petrol Price (£)
- Average Monthly Diesel Price (£)

- Gross Value Added (All Goods)
- UK Unemployment Rate (%)
- Train Fare Index (All Operators - All Tickets)
- Train Fare Index (London - All Tickets)
- Footfall of Tube Stations Near to London National Museums

From this data several other factors were derived from the data itself. This includes a measure for the impact of the Brexit vote in the summer of 2016. This is a binary variable that is equal to 1 at all months after the vote occurred. A 'hotmonth' was defined as a binary variable equal to 1 if the average max temperature for a month exceeded 20 degrees Celsius. Several cuts of the visits data were made to separate UK, Overseas, London, and Rest of UK visits by applying the percentages from our research data to the visit figures.

It should also be noted that these were quarterly survey percentages applied to monthly visit figures. Regressions were run on all cuts. Furthermore, a natural log transformation was made on the visit figures. This transformation normalises the data to fit a more standard distribution and allows us to interpret the regression coefficients in an easier to understand way. For example, instead of saying an x increase in temperature could lead to a x increase in visits, we can say an x increase in temperature could lead to a x percentage increase in visits. This is much more powerful since it is an estimate that is meaningful to any venue rather than just large or just small venues.

The Linear Model

The first model tested was the simple OLS model. The mathematical form of the model would be:

$$y = X\beta + \varepsilon,$$

where $\boldsymbol{y}$ is an n×1 vector of our dependent variable, visits to London National Museums, $\boldsymbol{X}$ is an n×p matrix containing our full list of regressors, and $\boldsymbol{\varepsilon}$ is a vector of our error term.

Below, in Table A, were first linear regression results. Standard errors were omitted for compactness. The first thing note is that, other than net migration being significant at the 10% level for the first regression, no other coefficients in any model is significant. However,

all models, save for the London visits model, are significant jointly by at least the 5% level denoted by the F statistic.

Table A

Linear Models

	Dependent variable:				
	Log of Visits	Log of UK Visits	Log of Overseas Visits	Log of London Visits	Log of Rest of UK Visits
>20C Month (=1)	0.1857	0.3829	0.7791	0.6054	0.3045
Max Temperature	0.0155	-0.0085	0.0145	-0.0060	-0.0092
Precipitation (mm)	0.0007	0.0007	0.0015	0.0006	0.0006
Hours of sunshine	0.0006	0.0014	0.0018	0.0016	0.0011
Pound Sterling Index	-0.0016	-0.0096	0.0045	-0.0121	-0.0058
Quarterly Net Migration (thousands)	0.0029	0.0003	0.0029	0.0001	0.0007
Quarterly Tourist Visits (thousands)	0.0001	0.0002	-0.00003	0.0001	0.0002
# of Nights Spent in London	-0.00001	-0.00001	0.000000	-0.00002	-0.00001
Total Spend in London	0.00004	0.0001	0.0001	0.0003	-0.00003
Inflation Rate (%)	-0.0461	-0.0612	-0.1205	-0.1098	-0.0692
Consumer Confidence Index (UK)	0.0541	0.1204	-0.0076	0.0814	0.1239
Post-Brexit Vote (=1)	0.0350	0.1066	0.3591	0.1971	0.1366
Consumer Confidence Index (China)	0.0269	-0.0248	-0.0427	-0.0336	-0.0316
Consumer Confidence Index (USA)	-0.0641	-0.0113	-0.0395	-0.0519	0.0184
Consumer Confidence Index (EU 19 Countries)	-0.0394	0.0729	0.0185	0.0132	0.0976
Petrol Price (£)	0.0010	0.0183	0.0162	0.0061	0.0303
Diesel Price (£)	-0.0046	-0.0215	-0.0107	-0.0137	-0.0290
Gross Product Value Added (millions of £)	0.0205	-0.0641	0.0247	-0.0845	-0.0636
UK Unemployment Rate (%)	0.1023	0.0141	0.1738	-0.0645	0.1075
Train Fare Index (All Operators - All Tickets)	0.0334	-0.2219	0.0647	-0.5641	-0.2428
Train Fare Index (London - All Tickets)	-0.0122	0.2457	-0.0548	0.5844	0.2687
Log of the Interaction of Footfall of All Close Tube Stations (millions)	-0.0226	-0.1222	-0.0526	-0.0740	-0.1569
Max Temperature during Hotmonth	-0.0129	-0.0198	-0.0393	-0.0307	-0.0152

Constant	8.8560	9.5191	14.0275	24.4526	4.3434
Observations	1,992	1,431	1,431	1,431	1,431
R^2	0.0651	0.0469	0.0275	0.0196	0.0400
Adjusted R^2	0.0542	0.0314	0.0116	0.0036	0.0243
Residual Std. Error	1.2333 (df = 1968)	1.0457 (df = 1407)	1.6666 (df = 1407)	1.5752 (df = 1407)	1.1072 (df = 1407)
F Statistic	5.9622*** (df = 23; 1968)	3.0130*** (df = 23; 1407)	1.7278** (df = 23; 1407)	1.2224 (df = 23; 1407)	2.5487*** (df = 23; 1407)
Note:					*p<0.1; **p<0.05; ***p<0.01

These kinds of results might be expected if the nature of the data is indeed longitudinal. The only other point of note here is that the adjusted R-squared values are quite low with the highest only explaining 5% of the variance in visits. The rest of the variance is still lost in the error term.

Panel Linear Model

All panel regressions were run in R using the 'plm' package for panel linear models. The generalised form of the model is,

$$Y_{it} = a + \beta X_{it} + u_{it},$$

where visits, the regressors, and the error term vary by time (t) and venue (i). The first thing that needed to be established is whether the Fixed Effects model that utilises the 'within' estimator only is needed, or if the Random Effects model that utilises the 'within' and 'between' estimators, is more appropriate. This can be tested by running both models and using the Hausman test to see which is the more appropriate model. Using the 'phtest' function, R returned this output:

Hausman Test

data: logvisits ~ factor(Month) + (hotmonth * maxtemp_C) + maxtemp_C + ...

chisq = 0.31697, df = 29, p-value = 1

alternative hypothesis: one model is inconsistent

The p-value is 100% which means we fail to reject the null hypothesis and conclude that there is no correlation between the unique errors and the regressors. This means that the more appropriate model is the Random Effects model.

The next test is to make sure that the panel linear model is the more appropriate model versus a simple OLS model. For this we run a panel model using the 'pooling' method and then run the 'plmtest' function in R, which returned the output,

Lagrange Multiplier Test - (Breusch-Pagan) for unbalanced panels

data: logvisits ~ factor(Month) + (hotmonth * maxtemp_C) + maxtemp_C + ...

chisq = 77679, df = 1, p-value < 2.2e-16

alternative hypothesis: significant effects

For this test, the alternative hypothesis is that there are significant panel effects. Since the p-value is below 0.05 then we reject the null hypothesis and conclude that Random Effects is the more appropriate model.

With the confidence that Random Effects is the correct model to utilise, full model regressions can be run. Table B below shows the results of the full Random Effects model with robust standard errors. Again, the standards errors have been omitted. Interpreting these coefficients is tricky. Given that the model is log-level, each coefficient represents that if regressor changes by one unit, ceteris paribus, for a given month and venue, visits will change by the percentage value of the coefficient multiplied by 100. For example, in the first model, precipitation is significant at the 10% level, and for a given venue in a given month, all else equal, you can expect that a 1mm increase in precipitation will increase visits by 0.02%.

Table B

Random Effects Models

	Dependent variable:				
	Log Visits	Log UK Visits	Log OS Visits	Log of London Visits	Log of Rest of UK Visits
	(1)	(2)	(3)	(4)	(5)
>20C Month (=1)	0.422*	0.776***	0.925***	0.906***	0.595**
Max Temperature	0.004	-0.005	0.004	-0.001	-0.012
Precipitation (mm)	0.0002*	0.0003	0.001***	0.0005**	0.0001
Hours of sunshine	-0.0005*	-0.0002	0.0003	0.0001	-0.001
Pound Sterling Index	0.001	-0.007**	-0.004	-0.006**	-0.007*
Quarterly Net Migration (thousands)	0.003***	0.002*	0.003***	0.002	0.002
Quarterly Tourist Visits (thousands)	-0.0002	0.0002	-0.0002	0.0004	-0.0001

# of Nights Spent in London	0.0001**	-0.00000	0.00004	-0.00004	0.0001
Total Spend in London	0.0001**	0.0001	0.0004***	0.0001	0.0001
Inflation Rate (%)	-0.042**	0.026	0.016	0.021	0.027
Consumer Confidence Index (UK)	0.051***	0.086*	0.115***	0.045	0.150**
Post-Brexit Vote (=1)	0.248***	0.096	0.315***	0.078	0.158
Consumer Confidence Index (China)	0.014	0.006	-0.010	0.008	0.005
Consumer Confidence Index (USA)	0.051***	0.071**	0.019	0.034	0.113**
Consumer Confidence Index (EU 19 Countries)	-0.131***	-0.059	-0.180***	-0.058	-0.114
Petrol Price (£)	-0.005	0.004	0.005	0.001	0.007
Diesel Price (£)	0.007	-0.005	-0.005	-0.003	-0.008
Gross Product Value Added (millions of £)	-0.002	-0.047**	-0.012	-0.044	-0.039
UK Unemployment Rate (%)	0.167***	0.146**	0.120**	0.080	0.235**
Train Fare Index (All Operators - All Tickets)	-0.089*	0.012	0.090	0.163	-0.169
Train Fare Index (London - All Tickets)	0.092**	-0.001	-0.096	-0.155	0.178
Log of the Interaction of Footfall of All Close Tube Stations (millions)	-0.052	-0.025	0.066	0.019	-0.066
Max Temperature during Hotmonth	-0.022**	-0.036***	-0.046***	-0.042***	-0.027**
Constant	14.516***	4.286	10.786**	7.612	1.142
Observations	1,661	1,263	1,263	1,263	1,263
R^2	0.280	0.242	0.362	0.221	0.205
Adjusted R^2	0.265	0.221	0.344	0.200	0.183
F Statistic	630.942***	383.270***	694.179***	341.081***	311.857***
Note:					*p<0.1; **p<0.05; ***p<0.01

3.2 Commentary

It's immediately noticeable that many more coefficients are significant at various percent levels compared to the OLS models. All models are also highly significant and have much higher adjusted R-squared values. An interesting result is that the model with the highest R-squared value (35%) is the model with overseas visits as the dependent variable. This would indicate that this set of regressors is able to explain more of the variance in overseas visits than it can with all visits or even UK visits.

Focusing on the first model that contains all visits, Max Temperature, international tourist visits, Pound Sterling Index, CCI (China), fuel prices, and tube station footfall are not significant. Going from top to bottom, first the 'hotmonth' coefficient is significant at the 10% level and is very large in effect. This particular regressor may be picking up

the general trend that visits tend to be higher in the summer months. Precipitation has a positive coefficient and has the same significance level. Weather like rain tends to drive people inside and what better a place than a free museum to get out of the rain, so this result conforms with expectations. However, the effect is quite small. The same goes for number of sun hours where we would expect a negative effect, but again the effect is very small. Max Temperature during a 'hotmonth' picks up on a trend that has been seen in London National museums, where increases in temperature while it's already hot tends to drive visits away.

Nights spent in London and monetary spend are both positively correlated with visits so these coefficients match expectations. Inflation was significant at the 5% level in the first model, yet not significant at all in any other model.

US consumer confidence is positive and significant, however the coefficient was not significant in the overseas visits model. European consumer confidence is significant and negative. It's important to consider here that any Brexit effect on Europeans should be controlled for by the Brexit binary variable and regressors like the pound sterling index and the CCI of the UK.

For the train fares, a negative coefficient on the 'All Operators' regressor indicates that rising prices for tickets to London deters visits to London National Museums, while a positive coefficient on the 'London' regressor is likely a spurious correlation.

4 Qualitative Research

There were two qualitative research elements in the project:

4.1 Vox pops

Target group: International tourists visiting London.

Sampling points: Trafalgar Square, South Kensington, Leicester Square, Greenwich, Covent Garden, Westminster and Southbank.

Approach: Potential respondents were approached randomly in the areas listed above. Respondents were first asked “which country do you live in?”. If the response was “yes” they were invited to continue with the interview.

Language: English only

Interview length: 5 minutes

Sample size: 70 interviews

Date of fieldwork: June - July 2019

4.2 Focus Groups

Target groups: (1) London regular museum and paid exhibition attenders; (2) London family museum attenders; (3) London lapsed museum attenders; (4) Liverpool museum attenders; (5) Birmingham museum attenders

Recruitment: Participants were recruited through a third-party specialist recruitment agency, using a questionnaire to determine eligibility and which target group they would fit into. Participants were given a £50 incentive on the day.

Format: 90-minute discussion with each target group individually (five groups in total)

Sample size: six participants per group (30 in total)

Date of fieldwork: July 2019

5 Appendix

A: Online population survey questionnaire script

B: London overseas tourist survey questionnaire script

C: London overseas tourist vox pop script

D: Focus group discussion guides

Group 1: Frequent Londoners

Group 2 Lapsed Londoners

Group 3: London Families

Group 4: Liverpool – Museum/gallery attenders and London visitors

Group 5: Birmingham – Museum/gallery attenders and London visitors