

KANTAR PUBLIC

Empowering Places? Measuring the impact of community businesses at neighbourhood level

Technical appendix

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Joel Williams, Darshini Thaker, Alice Fitzpatrick and Adam Ozer

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1. Survey design

Power to Change commissioned Kantar Public to run hyperlocal versions of the Department for Culture, Media and Sport's (DCMS) Community Life Survey (CLS) survey in five specific locations.¹ Each of these locations covered the operational area of one catalyst organisation seeking to increase opportunities to reduce poverty and inequality through community businesses:

- Wigan and Leigh Community Charity, in Abram Ward, Wigan
- B-Inspired in Braunstone, Leicester
- Centre4 in Nunsthorpe and Bradley Park, Grimsby
- Grimsby Real Ideas Organisation (RIO), in Stonehouse and Devonport, Plymouth
- The Wharton Trust in Dyke House, Hartlepool.

This technical report accompanies the full 2023 report.

For the purpose of the CLS survey, each organisation's operational area was defined with reference to the Office for National Statistics (ONS) 2011 Census Output Area (OA) geography and was formed of a contiguous combination of whole OAs (the smallest unit in the ONS hierarchy). The boundaries were agreed with each organisation in 2018 and replicated in 2020 and 2022.

The number of OAs in an operational area varied from 19 (Wharton Trust, in Hartlepool) to 50 (RIO, in Plymouth) and covered populations (as of 2021) ranging from 5,204 (Wharton Trust) to 16,179 (B-Inspired). Table A.1 shows the number of 2011 OAs and the 2021 Census population for each operational area.

Table A.1: Size of each operational area

Operational area	Number of 2011 OAs	2021 Census population
Wigan and Leigh Community Charity, in Abram Ward	42	12,464
B-Inspired in Braunstone, Leicester	45	16,179
Centre4 in Bradley Park, Grimsby	39	11,559
RIO, in Stonehouse and Devonport, Plymouth	50	13,297
The Wharton Trust in Dyke House, Hartlepool	19	5,204

¹ The sixth empowering places catalyst organisation, Made in Manningham in Bradford, was not included in the 2022 evaluation. This decision was made as it was not possible to create a comparison sample from the national Community Life Survey and the budget was not available to create a bespoke comparison sample.

2. Sampling of addresses

Within each operational area, Kantar Public drew a systematic random sample of addresses from the Royal Mail Postcode Address File, aiming for 300 completed questionnaires and maximum geographical dispersion. The number of addresses sampled in each operational area was calculated based on an estimate of response probability, derived from 2018 and 2020 survey data plus the 2020-22 CLS.

Table A.2: Address samples in each operational area

Operational area	Total sample of addresses
Wigan and Leigh Community Charity, in Abram Ward	1,037
B-Inspired in Braunstone, Leicester	1,059
Centre4 in Bradley Park, Grimsby	1,068
RIO, in Stonehouse and Devonport, Plymouth	1,050
The Wharton Trust in Dyke House, Hartlepool	1,055

2.1 Sampling within addresses

At each address, all adults aged 16+ were invited to complete the questionnaire, either online or on paper. For practical reasons, only three logins were included in the letter but more could be requested. A small minority of the sampled addresses will have contained more than one household (probably <3% although this share will have varied in an unknown fashion between operational areas). Multi-household addresses like this cannot be reliably identified in advance. Consequently, the 'sampled' household at each of these addresses was the household of whoever picked up the letter. This is unlikely to have caused meaningful sample bias.

2.2 Identification of comparison samples

Kantar Public identified comparison samples for each operational area from respondents in the CLS 2021-22 survey. In each case, the comparison sample is the subset of CLS 2021-22 respondents who live in the 10% of English neighbourhoods that are most similar to the operational area.

Kantar Public used 2011 Census lower-level Super Output Areas (LSOAs) as a proxy for neighbourhoods. There are 32,844 LSOAs in England and each contains an average of six OAs. They are smaller than the operational areas, which ranged in size from 19 to 50 OAs, and somewhat more homogeneous. However, the use of LSOAs as proxy neighbourhoods – rather than larger aggregations – ensures that the 10% most similar neighbourhoods to each operational

area are genuinely similar in absolute and not just relative terms. A similarity score was computed for each LSOA in England with reference to each operational area.

The profile of each LSOA was represented by a set of six 2011 Census-derived ‘principal component’ scores, each reflecting a different aspect of that LSOA. One of these principal components is strongly correlated with the neighbourhood’s index of multiple deprivation, one is correlated with the proportion of accommodation units that are flats, one with the presence of students, one with the share of the population aged 65+, and two are correlated with different aspects of the ethnic mix.²

These ‘principal component’ scores were also computed for each operational area as a (2011) population-weighted combination of the relevant LSOA scores. Kantar Public then calculated – for each LSOA in England – a Euclidean distance score relative to each operational area. The lower this score is, the more similar that LSOA is to the particular operational area.

$$\text{Euclidean distance score} = \sqrt{[(PC1_x - PC1_t)^2 + (PC2_x - PC2_t)^2 + (PC3_x - PC3_t)^2 + (PC4_x - PC4_t)^2 + (PC5_x - PC5_t)^2 + (PC6_x - PC6_t)^2]}$$

... where PC1_x is the principal component score 1 for LSOA x and PC1_t is the principal component score 1 for operational area t (etc.).

From this, a rank order of similarity was constructed, and the 10% most similar LSOAs for each operational area were identified and acted as the comparison sample.

Table A.3 shows the size of each comparison sample (number of respondents) within the 2021-22 CLS. Due to the latter’s disproportionate sample design, the size of each comparison sample varies somewhat between operational areas.

Table A.3: Comparison samples within the 2021-22 Community Life Survey sample

Operational area	Respondents in comparison sample
Wigan and Leigh Community Charity, in Abram Ward, Wigan	821
B-Inspired in Braunstone, Leicester	994
Centre4 in Bradley Park, Grimsby	893
RIO, in Stonehouse and Devonport, Plymouth	1,156
The Wharton Trust in Dyke House, Hartlepool	896

² A statistical technique called PCA was used to form uncorrelated linear combinations (‘principal components’) of 42 LSOA-level 2011 Census proportions (e.g., % of 16-24s with degree-level qualifications). The first principal component accounts for as much variance as possible across the 42 input variables. Successive components explain the – progressively smaller – residual variance and are all (by design) uncorrelated with each other. These principal components were then ‘rotated’ using the *varimax* algorithm which seeks to minimise the number of input variables that have high correlations with each of the first *f* factors (*f* is user-specified but should explain a high percentage of the total variance; *f* = 6 in this case, explaining 77% of the total variance). The *varimax* rotation method simplifies interpretation compared to other rotation methods and compared to the initial (un-rotated) principal components.

3. Fieldwork

The CLS contact design changed in 2021-22 from the approach used in previous years, varying the number of letters (3-4, each two weeks apart) as well as the protocol for deciding which sampled addresses would receive two paper questionnaires in letter 3. The contact design for *this* survey was matched to that of the 2021-22 CLS in similar areas.

In total, 88% of the sampled addresses in the operational areas were designated to have paper questionnaires included in letter 3, with this share varying from 70% (Abram Ward in Wigan) to 99% (RIO in Plymouth). Similarly, 88% received up to four letters, with this share varying from 69% (Abram Ward in Wigan) to 99% (RIO in Plymouth).

Table A.4: Contact designs in each operational area

Operational area	4 phases, two paper questionnaires in phase 3	3 phases, two paper questionnaires in phase 3	4 phases, no paper questionnaires in any phase	3 phases, no paper questionnaires in any phase	Total
Wigan and Leigh Community Charity, in Abram Ward, Wigan	643	86	69	239	1,037
B-Inspired in Braunstone, Leicester	932	18	17	92	1,059
Centre4 in Bradley Park, Grimsby	884	29	32	123	1,068
RIO, in Stonehouse and Devonport, Plymouth	1,037	3	1	9	1,050
The Wharton Trust in Dyke House, Hartlepool	993	13	7	42	1,055

The number of completed questionnaires (online and paper, after editing) is shown in Table A.5. The respondent sample sizes in every area significantly exceeded the target of 300, suggesting that the sampling assumptions were over-conservative.

Table A.5: Number of completed questionnaires

Operational area	Online completions (% of completions)	Paper completions (% of completions)	Total completions
Wigan and Leigh Community Charity, in Abram Ward, Wigan	272 (76%)	85 (24%)	357
B-Inspired in Braunstone, Leicester	254 (64%)	140 (36%)	386
Centre4 in Bradley Park, Grimsby	281 (73%)	105 (27%)	404
RIO, in Stonehouse and Devonport, Plymouth	246 (61%)	158 (39%)	391
The Wharton Trust in Dyke House, Hartlepool	264 (68%)	127 (32%)	357

4. Weighting

For analysis purposes, the respondents within each of the comparison samples identified within the national 2021-22 Community Life Survey retain their calibration weights as computed for that survey.

Respondents to the Power to Change survey have been weighted in an aligned fashion. To do this, Kantar Public used a regression model to estimate the calibration weights that would have been applied to each case if it had been part of the national (CLS) sample. Each sample was then rake-weighted to match the 2021 Census data where common variables were identified and suitable Census data had been released (age band (16-24, 25-34, 35-44, 45-54, 55-64, 75+), broad ethnic group (white, not white), and working status (working, not working)). This second step was new for the 2022 survey but appropriate, given the contemporaneity of the Census data.

Naturally, there are differences between the operational area samples and their comparison group samples with respect to their demographic profiles (see Table A.6). However, they are similar enough for it to be reasonable to expect a similar trajectory-over-time for Community Life Survey variables if the operational area and its comparison areas were subject to broadly the same set of interventions and social pressures. This is the precondition for carrying out the difference-in-difference analysis.

Table A.6 also includes the effective sample size for each area and its comparison group. Note that the effective sample size only accounts for weighting the data and, even then, only in a general sense (the effect of weights will differ between questionnaire variables). Sample clustering (by household) also has an impact on the effective sample size and, again, this differs between questionnaire variables.

In this report, Kantar Public has used specialist statistical software (the Complex Samples module within SPSS) to estimate sampling errors that account properly for the survey design and the weighting of the data.

Table A.6: Weighted demographic distributions for operational areas and their comparison samples

		Abram Ward		B-Inspired		Centre 4		RIO		Wharton Trust	
		Area	Comparison	Area	Comparison	Area	Comparison	Area	Comparison	Area	Comparison
Actual N		357	821	394	994	386	893	404	1,156	391	896
Effective n (due to weighting)		268	669	330	763	318	706	309	898	356	708
Age	16-24	14%	15%	17%	14%	15%	14%	15%	15%	13%	14%
	25-34	19%	16%	17%	14%	18%	15%	21%	19%	17%	15%
	35-44	18%	16%	20%	21%	15%	17%	16%	17%	14%	16%
	45-54	17%	16%	17%	16%	16%	15%	15%	14%	16%	16%
	55-64	14%	16%	15%	14%	16%	16%	15%	14%	18%	16%
	65-74	11%	12%	8%	12%	12%	13%	10%	10%	13%	13%
	75+	8%	8%	6%	9%	8%	11%	8%	9%	9%	9%
Sex	Male	49%	47%	47%	47%	43%	47%	50%	49%	46%	47%
	Female	51%	53%	53%	53%	57%	53%	50%	51%	54%	53%
One		19%	19%	17%	19%	22%	22%	31%	27%	24%	21%

Number of adults in h'hold	Two	43%	53%	38%	49%	41%	48%	46%	52%	50%	49%
	Three	38%	28%	45%	32%	36%	30%	23%	22%	26%	29%
Live with u16s	No u16 in HH	70%	65%	60%	63%	71%	68%	78%	72%	68%	69%
	U16 in HH	30%	35%	40%	37%	29%	32%	22%	28%	32%	31%
Housing tenure	Owned	32%	28%	11%	22%	19%	23%	18%	23%	23%	22%
	Mortgaged	30%	35%	31%	31%	22%	30%	13%	30%	21%	31%
	Other (mainly rented)	38%	37%	58%	47%	58%	47%	68%	48%	57%	46%
Educati on	Degree educated	19%	23%	18%	22%	11%	19%	24%	28%	13%	19%
	Not degree educated	81%	77%	82%	78%	89%	81%	76%	72%	87%	81%
Ethnic group	White	95%	93%	75%	86%	97%	90%	91%	89%	96%	92%
	Indian	0%	1%	9%	2%	1%	1%	0%	2%	0%	1%
	Pakistani/Bangladeshi	0%	1%	3%	2%	0%	2%	1%	1%	3%	2%

	Black	3%	2%	8%	5%	1%	3%	2%	4%	0%	2%
	Other	2%	4%	6%	4%	0%	4%	6%	4%	1%	3%
Working status	Working	56%	58%	51%	56%	46%	54%	50%	60%	44%	55%
	Not working	44%	42%	49%	44%	54%	46%	50%	40%	56%	45%