

Who cares about HS2?

Our deep dive analysis of petition 563380

"Stop work on HS2 immediately and hold a new vote to repeal the legislation"

made prior to its debate in the House of Commons scheduled for the 13th of September.

The analysis

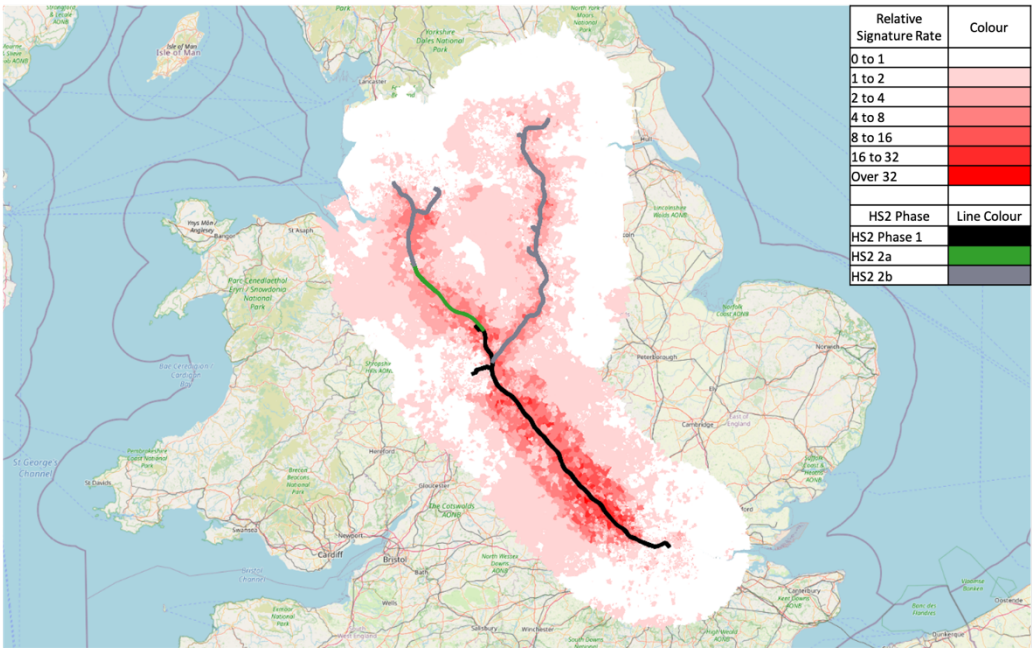
More Metrics latest batch of Geo Society variables include the results for the HS2 petition as well as over 100 other parliamentary petitions that have obtained close to or more than 100,000 signatures. The HS2 petition gained about 155,000 signatures which is evidence that many people are deeply concerned about HS2. The HS2 petition distribution at constituency level shows that signatures are concentrated in constituencies located on or near the route of HS2. The loss by the Conservatives of the "safe seat" for Chesham and Amersham to the Lib Dems is further evidence that HS2 is primarily a local issue. Hardly surprising if people subject to a compulsory purchase order are upset and want to express their dismay at a situation not of their own making. But what is also evident is that there is a background level of concern about HS2 across the UK as a whole. It is not just a local issue.

To identify local neighbourhoods that signed the HS2 petition we build statistical models that estimate how the HS2 petition signature rate varies with distance from the HS2 route as well as by a range of neighbourhood characteristics (using 2011 census variables plus more recent ONS data). This ensures that we can robustly separate out proximity effects (i.e. how close the neighbourhood is to the HS2 Route) from the combined geo-demographic effects (e.g. resident age, home ownership levels, index of deprivation decile etc). The proximity effect terms are an estimate of the shortest distance of each neighbourhood to the HS2 route, plus three flags for the Phases (1, 2a, 2b) for any neighbourhood within 50km of the line. All neighbourhoods further than 50km away from the HS2 route are treated as being non-local.

All of our analysis is derived from aggregated publicly available data. In the case of petition counts this is the total number of signatures in the 650 parliamentary constituencies. We do not have access to, or use any personal information or social media data in any of our analysis. As a result, our neighbourhood observations are based on "a balance of probabilities" and not the actual level of signatures that were generated in any particular location. The league tables we publish of most and least concerned neighbourhoods should therefore only be considered as a guide to enable local conversations to be targeted effectively.

Our main findings

The neighbourhoods with most concern about HS2 are local to the route. Our analysis suggests that this is particularly so for neighbourhoods within about 10km of HS2.



Our heat map shows this association between the distance a neighbourhood is away from the HS2 route and the proportion of its population that signed the petition. Neighbourhoods closer to the line are more likely to sign, and this pattern is seen for all phases of HS2 (1, 2a and 2b). The redder the map, the higher the relative signature rate (base = 1).

Closer inspection of the heat map shows that there are however variations in the signature rates even very close to the line. Our analysis indicates that additional drivers for this are the level of home ownership and / or resident's age. Neighbourhoods close to the line with a high proportion of older homeowners are most upset.

Relative Signature rate at Ward Level by Home Ownership

A value of 1 indicates that HS2 is of equal concern to other high-profile issues

Distance from HS2 route	Home Ownership									
	1 Lowest	2	3	4	5	6	7	8	9	10 Highest
0 to 2km	0.82	0.85	1.94	3.91	4.73	5.67	6.07	7.52	8.86	8.01
>2 to 4km	0.65	1.29	2.91	2.28	2.99	3.61	7.56	7.52	6.77	7.88
>4 to 6km	0.77	0.76	1.24	1.44	1.69	3.02	3.15	2.66	6.91	3.35
>6 to 8km	0.67	0.82	0.89	1.03	1.81	3.22	2.72	3.26	3.73	2.66
>8 to 10km	0.56	0.85	0.94	0.87	1.72	2.10	2.65	2.55	2.69	2.43
>10 to 20km	0.49	0.66	0.70	0.82	1.25	1.82	1.87	1.90	2.34	1.65
>20 to 50km	0.75	0.76	0.95	1.14	1.26	1.46	1.44	1.42	1.45	1.05
Over 50km	0.81	0.81	1.00	1.26	1.48	1.57	1.81	1.73	1.60	1.16

The highest cells in this table show values over 8 meaning that these Wards are more than 8 times likely to sign the HS2 petition compared to a basket of other high-profile petitions.

Wards close to the line with younger residents who rent are far less concerned.

Relative Signature rate at Ward Level by Average Resident Age

A value of 1 indicates that HS2 is of equal concern to other high-profile issues

Distance from HS2 route	Average Resident Age									
	1 Lowest	2	3	4	5	6	7	8	9	10 Highest
0 to 2km	1.14	1.47	1.65	2.98	4.16	5.91	8.09	9.92	9.53	13.09
>2 to 4km	0.76	1.50	3.93	2.95	3.78	5.04	6.43	7.86	6.60	9.98
>4 to 6km	0.73	1.06	1.13	1.53	2.40	2.97	2.19	5.08	6.13	3.56
>6 to 8km	0.75	1.06	1.12	1.07	1.54	3.21	3.22	3.33	4.16	5.06
>8 to 10km	0.70	0.86	0.98	1.16	2.42	2.41	1.39	2.96	4.56	1.49
>10 to 20km	0.56	0.71	0.75	1.04	1.28	1.74	1.85	2.11	2.90	2.45
>20 to 50km	0.76	0.77	0.82	0.92	1.03	1.19	1.41	1.63	1.70	1.78
Over 50km	0.77	0.62	0.71	0.80	0.94	1.08	1.37	1.68	2.03	2.33

A similar pattern is seen for deprivation levels. Wards close to the line with low deprivation levels have a high level of concern. Deprived Wards close to the line do not.

At the other end of the scale we see Wards close to the HS2 line that have high levels of deprivation or have more younger residents with signature rates below 1. This means concern in these Wards about HS2 is below that of a basket of other high-profile petitions, even though HS2 is on their doorstep.

Relative Signature rate at Ward Level by Index of Multiple Deprivation Decile

A value of 1 indicates that HS2 is of equal concern to other high-profile issues

Distance from HS2 route	Ward Index of Multiple Deprivation Decile									
	1 Highest	2	3	4	5	6	7	8	9	10 Lowest
0 to 2km	0.42	0.80	0.86	1.06	2.49	3.00	5.38	6.59	8.02	13.94
>2 to 4km	0.24	0.49	1.11	1.15	2.10	2.69	3.79	8.15	7.88	10.93
>4 to 6km	0.30	0.55	0.74	0.93	1.12	1.48	2.63	4.02	5.72	4.84
>6 to 8km	0.26	0.62	0.77	1.30	0.94	1.25	2.95	3.16	3.24	4.70
>8 to 10km	0.33	0.55	0.63	0.85	0.90	1.75	1.62	3.59	2.88	1.70
>10 to 20km	0.29	0.42	0.57	0.70	1.02	1.13	1.88	2.00	1.96	1.77
>20 to 50km	0.30	0.45	0.60	0.74	1.21	1.36	1.36	1.39	1.44	1.22
Over 50km	0.37	0.51	0.78	1.18	1.53	1.67	1.65	1.47	1.34	1.20

Away from the HS2 route, signature rates for the HS2 petition are relatively low compared to the median of a basket of recent high-profile parliamentary petitions. This indicates that HS2 is not "front of mind" for the UK as a whole compared to other issues.

As for locations close to the HS2 line, there are significant variations in the levels of concern that are worth exploring further. Our league table of Parliamentary Constituencies shows that the most concerned remote Constituencies in descending order are Totnes, Central Devon, Montgomeryshire, Ceredigion, Somerton and Frome, Skipton and Ripon, St Ives, Dwyfor Meirionnydd, and Wantage.

Being so far from the line we speculate that it is unlikely that this is due to personal impact, although some of these locations could be holiday home destinations of those with their main residence nearer the line. It is possible that concerns are relatively high in these locations because of a perceived lack of investment in their own more pressing transport issues.

HS2 supporters

There is no alternative petition for supporters to sign. Our Ward level analysis can be used to identify those neighbourhoods that may be much more supportive of HS2, but who are below the sight-line. These will include Wards close to the route with relatively low signature rates.

Availability of data

The petition data is published by Parliamentary Constituency and is also available from us.

We have published our modelling of this down to Ward level for free under the Creative Commons Attribution-Non Commercial 4.0 International Licence, available on our website or by emailing us.

Our modelling of this down to postcode-tagged is available for purchase.

Contact us

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