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Green Markets Mapping Report:

measuring green consumer demand across England and Wales

Final Report
September 2021

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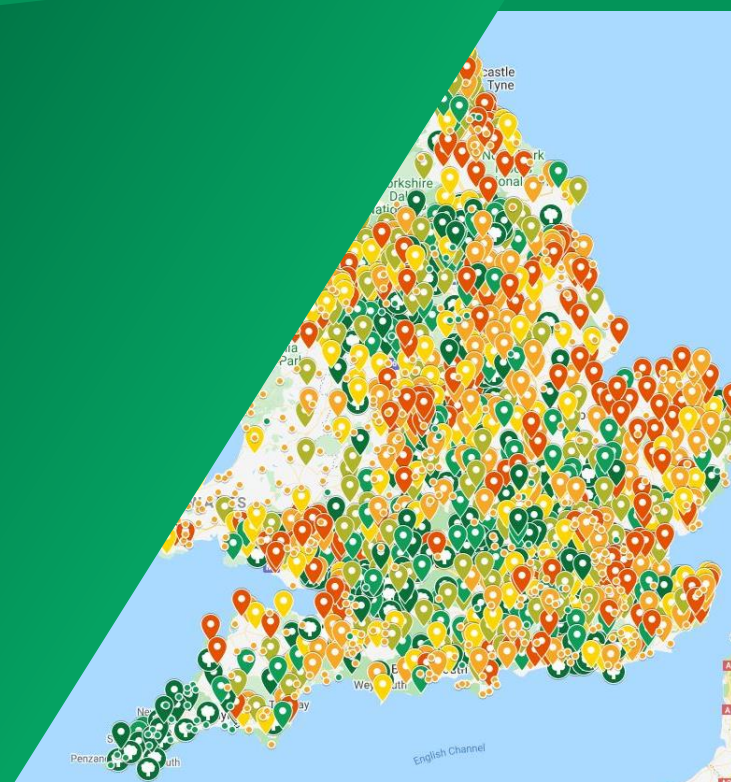

Green Markets Mapping Report:
Measuring Green Consumer Demand Across England and Wales

September 2021: Final Report

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Greening Markets Research Group
SEARCH Centre
Liverpool Hope University

Contents

1. ABOUT US

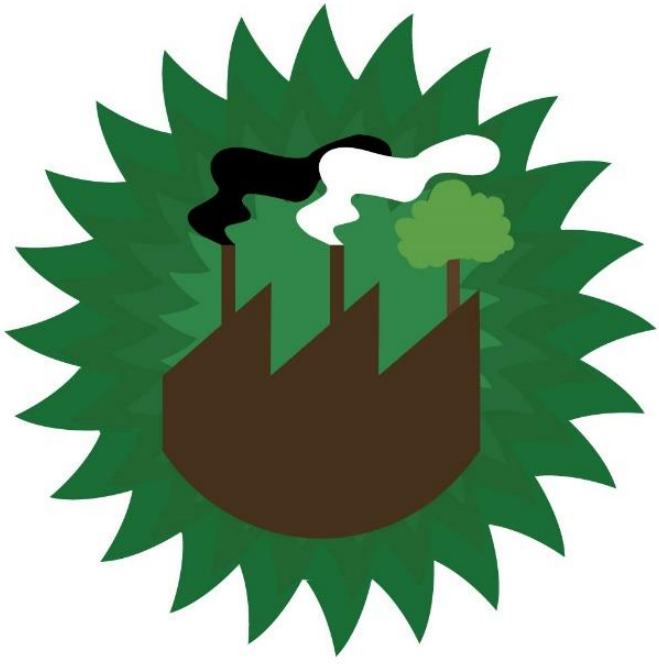
The Greening Markets Research Group is based within the SEARCH Centre at Liverpool Hope University and is dedicated to furthering the understanding of how and why markets and organizations change to become more environmentally conscious. The group's research examines a host of individual, organizational, and societal variables to better understand how and why consumers become more environmentally conscious. The research group also works to assist like-minded organizations and is eager to share its findings with those who would find them useful.

This report, all results, and an interactive map of the findings are all available at the Greening Markets Research Group website: **greeningmarkets.org**

If this report, its findings, or the map of green area ratings are helpful to yourself or your organization, please let the authors know by filling out a short survey at

https://forms.gle/8AarxdQqyQZ9Rjc79

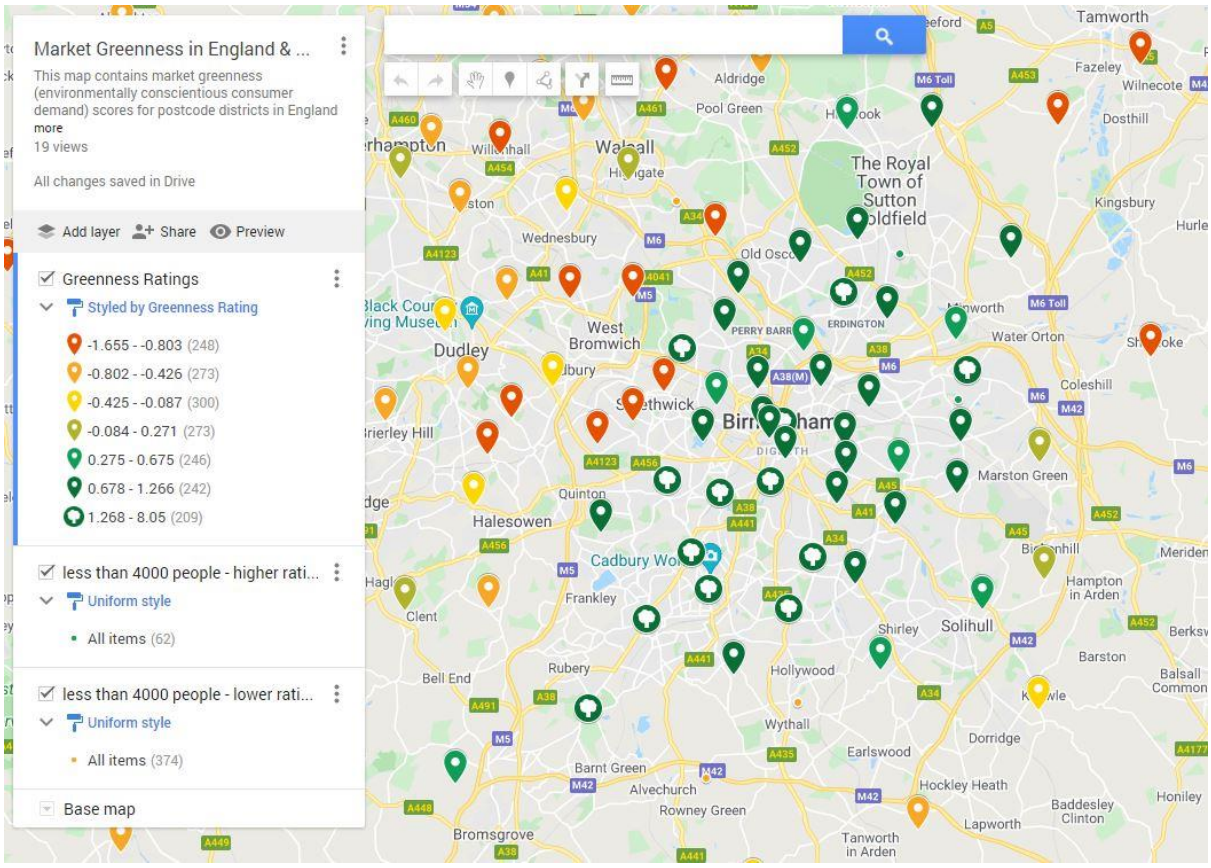
or feel free to contact the authors through the greeningmarkets.org website. The authors are eager to know what future research might help your organization. If you found these results helpful and would like to see updated green consumer reports in the future, please consider donating to support this important research by visiting greeningmarkets.org.



2. GREEN CONSUMER DEMAND ACROSS ENGLAND AND WALES

This report measures green (environmentally conscious) consumer demand across England and Wales. The analysis used to produce these findings utilizes 21 different variables to estimate green consumer demand across 2227 English and Welsh postcode districts. The full results for every postcode district can be found in an excel file by visiting our website greeningmarkets.org or by clicking here. But the greenness ratings are most easily accessed through our interactive map that can also be found on our website or by clicking on the map below or by cutting and pasting the following web address into your internet browser:

https://www.google.com/maps/d/u/1/edit?mid=1WeU4TVRqabDgLJ1i2BLBvSbpOWM2wCc4&usp=sharing

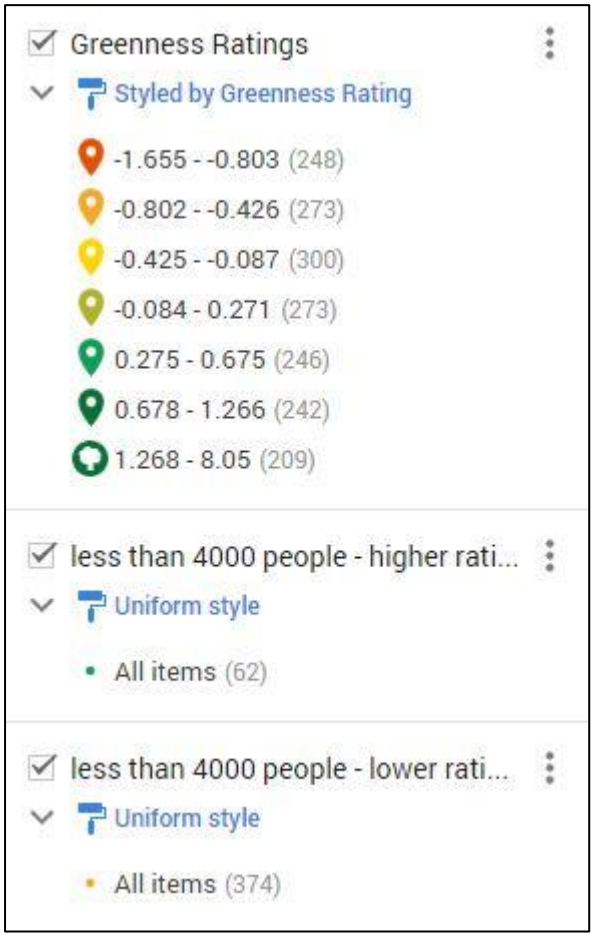


The map of green market results has been designed using Google Maps for ease of use. You can zoom in and out of areas to see the greenness of the postcode districts quickly and simply. In this manner, you can easily find districts you are most interested in.

2.1 HOW TO READ THE MAP

The map contains a greenness rating for English and Welsh postcode districts. Each district rating is colour coded to indicate its overall level of green consumer demand. There are seven different categories from red (meaning very low levels of green demand) to a green tree icon (indicating the greenest 10% of postcode districts).

The Categories Key from the Green Markets Map



Readers should notice that the postcode districts are also split into lower population categories. Postcode districts with less than 4000 people were grouped into simplified categories of either above average greenness (indicated by a green dot on the map) or below average greenness (an orange dot). This is done because our rating of market greenness is a measure of the absolute size of the green market in each area and is not a measure of the greenness of the average consumer in that area. This means that more population will generally help the greenness ratings as those areas with larger populations will tend to have larger green markets as well. And lower population areas, while the people may be environmentally conscientious, may not have the population to support a thriving green economy.

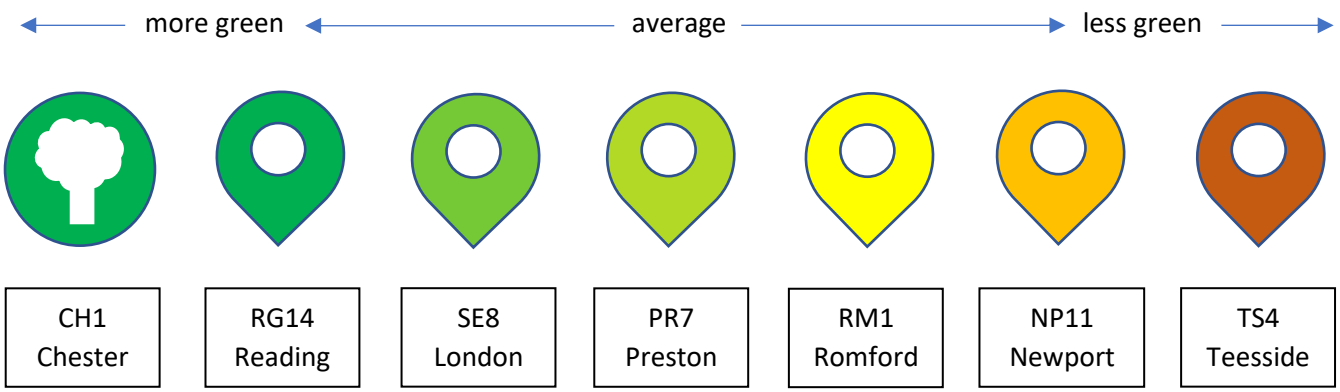
We chose to measure the absolute size of the green markets rather than the greenness of the average consumer in the area for two primary reasons. First, we wanted our greenness ratings to be most helpful to businesses. Knowing the size of a green market in an area is more likely to be helpful to a company's strategic decision making than knowing that there are green consumers in the area without knowing how many of those consumers exist. Secondly, most of our data are counts of green indicators in the area, such as the number of people holding higher degrees in the postcode district. As such, the data is more suited to measuring the size of the green economy rather than the greenness of the average consumer. Finally, we could create two maps and present both an absolute value and a per capita measure but doing so would have complicated the results and a simplified rating is easier to use.

The methods used to obtain these greenness ratings are described in more detail in a later section of this report. The numbers themselves have an average of zero, meaning that positive numbers mean the district is more green than the average and negative numbers mean the district is less green than the average. The numbers range from a low of -1.913 to a high of 8.05. These numbers can be seen on the map next to each colour coded map marker. If the numbers do not appear, then zoom closer in toward the districts you are looking for or simply click on the individual map marker.

The numbers should be interpreted as relative indicators, meaning the ratings are understood in relation to each other. Some areas are more green or less green than other areas. By our measure, the greenest postcode district is BN1 in Brighton. The least green district is LL77 in Wales (for those districts with 4000 people or more). WA12 in Warrington is an example of an area right at the greenness average. But for any city, some postcode districts will be more green and others will be less so. As

stated earlier, more populous areas tend to be greener than less populous areas. Areas with more educated populations also tend to be greener than areas with less educated populations. A full list of the variables we used to estimate greenness is included in the later section on research methodology.

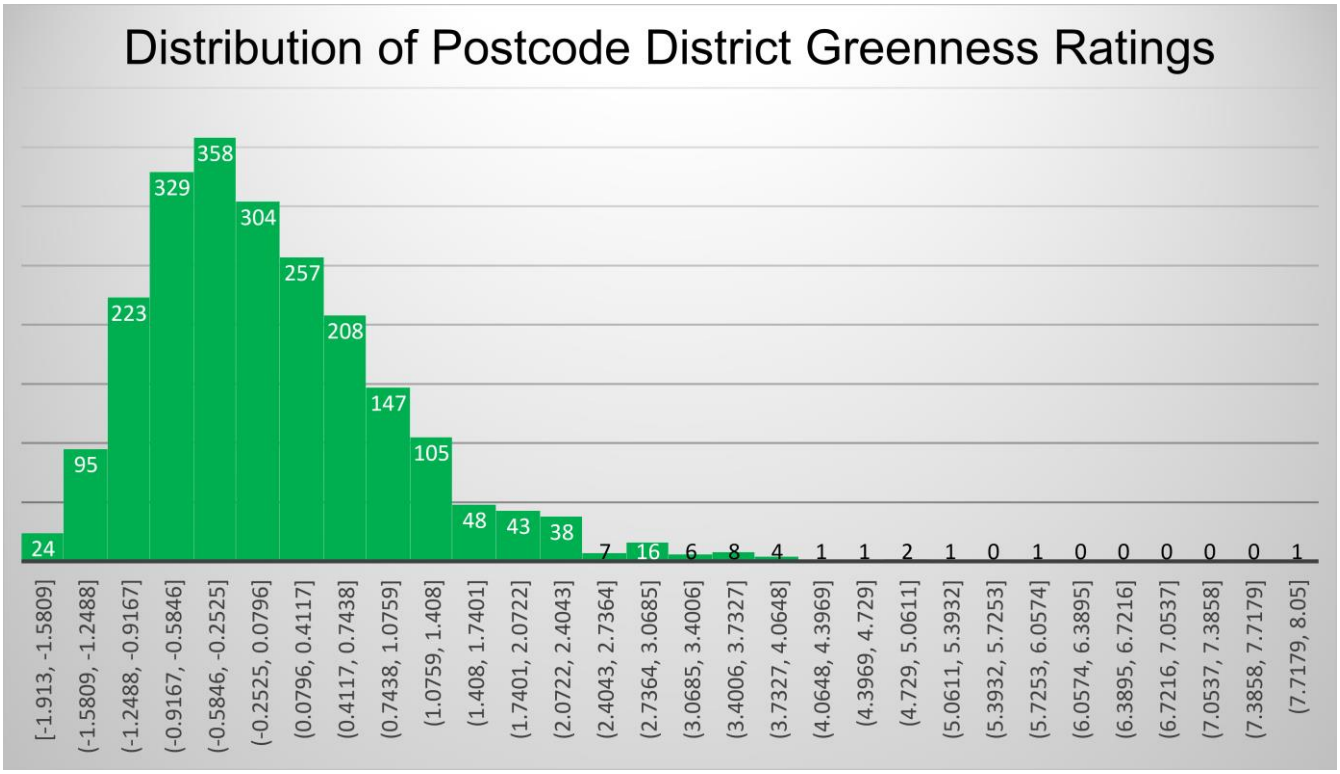
The image below shows the range of the seven colour categories used in the map (for those postcode districts with more than 4000 residents) and includes an indicative example that falls in the middle of each category's range.



Postcode district examples for each category.

Full results for every postcode district can be found in the interactive map at as well as in an excel file on greeningmarkets.org (or just click here).

Readers should also note that a small number of very green districts skews the average upward. Most districts fall below the average greenness score of zero while a smaller number of very green districts pulls the average up. 45 districts have a score higher than 2.5, which is a rating further from the zero average than the lowest district score of -1.91. Brighton's BN1 district (a score of 8.05) is much further from the zero average than the lowest rated district scores. The graph on the next page presents a visual representation of this skewed distribution.



While the greenness rating for each postcode is a sophisticated measure of the green consumer demand in that area, the rating is a single snapshot in time and does not mean that the area cannot change. Overall, the entire UK is becoming greener over time, especially as consumers become more aware of the climate crisis.

2.2 HOW DOES THIS DATA HELP ME?

We intend our map of area ratings to be useful to businesses in their strategic decision-making when they consider taking environmentally conscious actions. These could be actions such as stocking Fairtrade products, target-marketing for green consumers, expanding a green business to new localities, or keeping up with competitors in their current area.

At this point in time, selling businesses on the idea of going green should not be difficult. From massive savings through sustainability practices (Harvard Business Review, Barclays), to increased employee retention and engagement (HP), to sustainability driving innovation (Harvard Business Review), to greener and greener

consumers (IBM, PwC); the studies referenced here are a drop in the bucket and the evidence has continued to pile up over time.

But even with all the benefits of going green, businesses still need to take strategic decisions in a competitive environment. The Green Markets Map allows businesses to make more informed decisions around the potential consumer receptiveness to their green business activities.

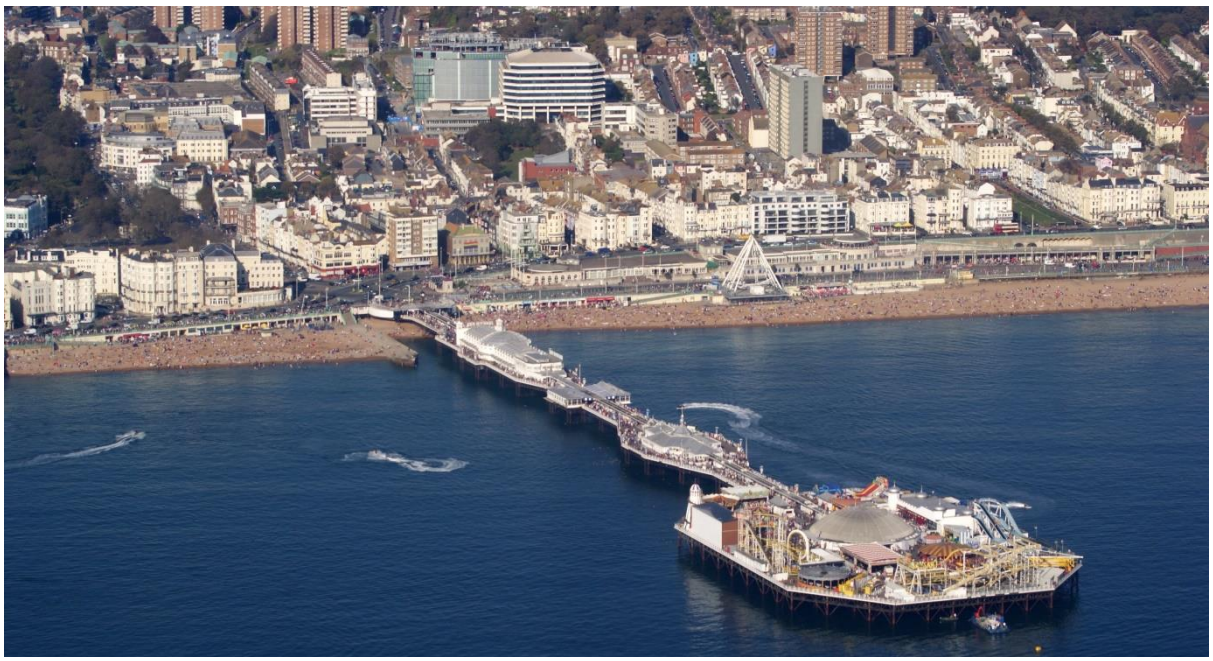
2.3 LEADING THE WAY

The table below lists the top 5 greenest markets in England and Wales.

Postcode District	Greenness Rating	Location	Population
BN1	8.05	Brighton	84,775
BS1	5.84	Bristol	11,991
W1	5.113	London	253,732
BN2	4.886	Brighton	35,799
NW1	4.803	London	74,821

Brighton contains two of the top five green consumer demand ratings. Brighton and Hove, as a green market, is well ahead of most other British cities. This is not surprising as there are several clear indicators of Brighton and Hove's position. The Brighton Pavilion constituency has elected the UK's only Green Party MP, Caroline Lucas, at four consecutive general elections. The city had a Green Party majority run its city council from 2010 to 2015 and currently co-leads the council in a coalition with Labour. The city's focus on the environment can be clearly seen in its sustainability plan. A full description of the green business environment in Brighton is beyond the scope of this report but click here to read a detailed description of the what makes Brighton a leader in creating a green business environment. A major element of that environment is made of the University of Brighton's Green Growth platform, which has helped businesses innovate, create new jobs, and find millions in funding for enhancing their green credentials.

The Brighton seafront.



The growth of green businesses across the UK demonstrates that companies don't need the impressive support of the Brighton market to thrive. But Brighton demonstrates that the local environment is a major element of a business's ability to go green. Businesses need to be aware of their consumer environment as some locations will be more hospitable to environmentally sustainable activities than others. Before investing heavily in more sustainable products and processes, businesses should investigate whether their consumer base will reward green investment. This is why organizations should use our green consumer demand ratings: to make more effective green decisions. We hope other cities take the same actions as Brighton and Hove and help develop the right market environments for green businesses to thrive. But until they do, businesses will need to remain strategic in their green investments. We hope this report, and the interactive map, help in that regard.

3. RESEARCH METHODOLOGY

To effectively measure the green consumer demand of each postcode district across England and Wales, we gathered data on 21 different measures (variables) of greenness across 2227 postcode areas, resulting in a dataset of 46872 data points. Data was gathered between May 2020 and August 2021. The 21 variables are individually listed and described in the table on the next page. Each variable is a measure of 'green' or environmentally or socially conscious behaviour (or more general measures that strongly correlate with such behaviours) within one of four green market categories.

Those categories reflect: green economic demand, such as energy consumption per capita in the postcode area; green economic supply, such as the number of organic restaurants in the area; green political demand, such as the number of local environmental groups in the area; and green political supply, such as the local council passing a climate emergency action resolution.

The appropriateness of these measures has been established through previous research on green business and the environmental consciousness of consumers. See Bradley and Ziniel (2017) and Ziniel and Bradley (2018) for reviews of this research and as well as the methodological development of the methods used for this report.

Table of Variables.

LATENT VARIABLES	MEASURABLE VARIABLES	DESCRIPTION
Green Economic Supply	Green Directory	The number of Green Directory businesses in the area.
	Green Achiever	The number of Green Achiever businesses in the area.
	Ethical Junction	The number of Ethical Junction businesses in the area.
	Organic Food Providers	The number of Organic farms, restaurants, markets, etc.
	Happy Cow vegan restaurants	The number of Happy Cow vegan restaurants.
Green Economic Demand	Energy Consumption Per Capita	Per capita energy consumption - combined gas and electricity.
	Socio-Economic Status	ONS National Survey Socio-Economic Status measure.
	Travel	Average distance travelled to work in kilometres.
	Higher Degree	Number of people with higher education degrees.
Green Political Supply	Local Authority resolution	Local Authority action resolution passed on Climate Emergency.
	Council Percentage	Percentage of the council that is third party.
Green Political Demand	Transition Town Projects	Number of active transition town projects.
	Fairtrade Town	If the area has attained Fairtrade Town/Council status.
	Transition Town local groups	The number of Transition Town local groups in the area.
	Extinction Rebellion local groups	The number of Extinction Rebellion local groups in the area.
	Weekly Enviro Strike number	The number of weekly, regular School Enviro Strikes in the area.
	Covid 19 Mutual Aid Groups	The number of Covid-19 mutual aid groups.
	Covid 19 Mutual Aid Groups (early)	The number of early adopter Covid-19 mutual aid groups.
	Greenpeace local groups	The number of Greenpeace local groups in the area.
	Friends of the Earth local groups	The number of Friends of the Earth local groups in the area.
	Royal Society for the Protection of Birds	The number of RSPB local groups in the area.

3.1 WHY POSTCODE DISTRICTS?

We use postcode districts as a simple geographic measure that is easy to comprehend. Using postcode districts makes the data more precisely measurable and allows readers to easily understand the geographic regions we analyse. This also allows for a clear visual presentation of the data which we have produced in our interactive Map of Green Consumer Demand.

3.2 QUANTIFYING 'GREENNESS'

To achieve our measures of greenness, this report utilizes an exploratory factor analysis method to transform our 21 different indicators into 4 distinct measures of market greenness. Factor analysis is a statistical method that reveals underlying correlations between several indicator variables. The quantitative process reveals unmeasurable concepts (latent variables) from several measurable concepts (the variables and data we describe in the table on the previous page).

We use factor analysis to take our 21 indicators of market greenness and reveal the latent variables of green economic demand, green economic supply, green political demand, and green political supply as theorized in our previous research (Ziniel and Bradley 2018). The indicators produced factors that roughly correlated with these four conceptual components of a market's greenness (although the model fit diagnostics suggested the best fit was with five factors where the economic supply variable was essentially split in two).

The results for these five latent variables were then averaged to produce our measure of market greenness for each postcode district. The subsequent green consumer demand ratings can be best seen in our interactive map but may also be downloaded in excel format here.

4. PLANS FOR THE FUTURE

In addition to continuing our analysis and mapping of market greenness, the Greening Markets Research Group hopes to expand the scope of its research in the future. Including Scotland in the analysis of local British markets is essential. We also hope to refine our measures, automate some processes, and improve the visualization of the map. Ultimately, we would like to expand our research to international markets as well.

4.1 HOW YOU CAN HELP

The speed and scope with which we can expand and improve our research, and provide you with new and updated information, is significantly determined by the funding we receive. If you have found our greenness ratings helpful, please consider supporting our research by visiting our website greeningmarkets.org or you can donate directly by clicking here. Even if you cannot help fund our research, we would still like to hear from you. Please let us know how this information helped your organization by filling out a short survey by clicking here. We would also like to hear about what sort of research might help your business in the future.

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