

Greening British businesses: SMEs and the new wave of the environmental social movement.

Curtis Ziniel & Tony Bradley

Liverpool Hope University, U.K.

Abstract:

This research examines relationships between a new wave of radical green activism and increasing numbers of greening businesses in Britain. We examine the spread of the movement, through evidence on the formation of businesses that are implementing more environmentally sustainable practices. Our empirical data is drawn from both the supply side of the economy and the consumption sphere demand side. This is combined with UK Office for National Statistics (ONS) data, at the local authority level. Our analysis tests key individual level determinants (i.e. education, energy conscientiousness, localism) and area level determinants (such as party politics and population density). Our findings indicate the factors most important in determining the growth of the ethical marketplace. Additionally, we draw conclusions about relationships between environmental social movements and SME business sectors. Our results have implications for research on ethical business development and consumerism, as well as literature on social movements and political geography.

"Unfortunately -- and I deplore this -- the United States of America left the climate agreement..."

German Chancellor Angela Merkel closing the 2017 G20 summit (Carissimo, 2017).

This headline soundbite indicates just how far the social movement for environmental consciousness and action has come. Far from being at the margins of political debate, concerns regarding climate change, environmental destruction, species extinction and, indeed, anxiety about the very air we breathe, inter alia, are front and centre of political debate.¹ Also significant is what this says about the place of environmental action and safeguarding within the popular debates of “representative democracies.” Politicians take notice of their publics, who have the power to vote them in or out. Those publics also have power in the economic sphere as well as the political. Consequently, we explore the influence of those fighting for dramatic, radical and fundamental change in respect of the relationship between economic development, post-industrialism and environmental protection.

The focus for this paper is to examine whether the geographically local presence of activists from more radical parts of the green movement – what may be termed ‘radical green activism’ (RGA) – is correlated with the presence of businesses with green aspirations in these same localities. Do green radicalism and green business aspirations share the same social movement space? This research investigates whether the more radical end of the green movement is locally congruent with mainstream small to medium sized enterprises (SMEs) that are seeking approval as ‘greening businesses’². In other words, we wish to understand whether the wider environmental social movement impacts business, to greater or lesser effect, according to the concentration of green activity within a locality.

Our hypothesis is: in those localities where a green agenda is most radically developed - evidenced by the presence of more RGA-type groups - this will be reflected in a *latent* depth of green consciousness, in which local businesses seek to *manifestly* demonstrate their green credentials. Put another way, if the greening of a locality has reached the point where RGA is evident, does that show a deeper green consciousness in mainstream business?

As a recent European Commission report (2012) comments, SMEs are more socially conservative, in respect of environmental issues, and, certainly, less able to respond to calls to green action than larger, corporate-scale businesses. A similar conclusion was reached in a survey of SME ‘green stars’, in Australia (Wiesner et.al., 2010). Even so, the EU’s survey indicates that almost one-third (33%) of SMEs are engaged in resource efficiencies because ‘environment is one of their top priorities’.

The question, then, is what factors influence this one-third, compared to the two-thirds majority of SMEs? Does RGA activity indicate a gravitational pull - affecting the wider local economy and, the SME business sector – to move it from latent to manifest greener models of production and distribution? Alternatively, if no such correlation can be shown, we will need to seek a more nuanced view of the way in which the green movement is impacting society, especially in its more conservative arenas, as represented by the SME business community.

Further, recent studies have examined how state-driven activities have affected the ethical behaviours of SMEs to greater or lesser effect (for example Bradley and Ziniel, 2017; Hamann, et. al, 2017; Yin, 2017). Focusing more on the grassroots, we wish to see if radical green activism correlates with a shift in mainstream business toward ‘going green’. If that is the case, we can begin to map the adoption curve for latent to manifest green social movement shifts in civil society, across the UK space.

It will help us to identify those localities in which adoption is least likely, those where there is a movement from latency to manifest action, and those which display a clear manifestation of green business action. Beyond such changes in national-regional social movements it will be important, in future research, to consider what additional policy efforts may be required - within the context of the UK’s regional devolution agenda - if those populations are to share in helping to meet the requirement for carbon reduction and other

green outcomes, that the UK has signed-up to in Rio+20, Paris 2016 and at the recent G20, G7 and COP24 meetings.

But, first it is important to, briefly, remind ourselves, at a high-level, about the spread of the environmental social movement, which has brought us to a place where some of the main headlines from the G20 and G7 Summits - focusing world powers on the economic sphere - relate to the global environment, alongside issues of tariffs and free trade.

Waves of the environmental movement

Over the past twenty years there have been many reviews of how the environmental movement has transitioned through various stages to its current pre-eminence in global economics and politics (McCormick, 1995, Kassman, 1997, Garner, 2000, Pringle, 2000, Rootes, 2004, Hawken, 2007, Leonard & Kedzior, 2014, Dauvergne, 2016, inter alia). Indeed, in an earlier era ecology and politics were, famously, connected, by the political scientist Anthony Downs' (1972), to his five stages of 'the issue-attention cycle'. That original paper was remarkably prescient but, subsequently, it has been shown to have had a major flaw in that the fourth and fifth stages demonstrated a noteworthy resurgence of interest in environmentalism, as a result of concerns about anthropogenic climate change.

Downs had expected media interest in the environment to wane around the turn of the millennium. In fact, the opposite was the case, as environmentalism shifted from an elite concern to one of the most significant social issues affecting the planet and spawning fresh waves of a global-scale social movement. As such, a modified version of Downs' stages may be roughly identified, as follows:

Stage 1 (post-2WW): **Pre-problem stage** (experts debate ecology, pollution and economics beyond the gaze of an unknowing public).

Stage 2 (1960s-mid-70s): **Alarmed-discovery stage** (media attention begins to suggest that there is a global threat because of an environmental crisis with e.g. publications such as Rachel Carson's *Silent Spring*; Paul Ehrlich's *The Population Bomb*; the Club of Rome's (Earth 3 simulation) *The Limits to Growth*; and Fritz Schumacher's *Small is Beautiful*, inter alia).

Stage 3 (mid-'70s-early 1990s): **Stage of Realisation** (global conferences begin to systematically map the extent of the crisis) e.g. UN Conference on the Human Environment (1972), the foundation of the UN Environment Programme, the first International Union for Conservation of Nature (IUCN) report (1980), Chancellor Willi Brandt's North-South report (1980), the "Our Common Future" Brundtland Conference on Sustainable Development (1987).

Stage 4 (1990s-mid-2000s): **NOT Stage of Declining Public Interest**. Various movements contradicting Downs' expectations of a diminution of interest in ecology. Global political attention shifts towards 'the war on terror', migration crisis and 'crisis of Capitalism' - especially affecting youth demographics in the West. But, each of these reinforce the environmental movement, in e.g. reports such as Al Gore's (2006) "An Inconvenient Truth" and the UK's Stern Review (2006) of the impact of CO2 emissions on future economic growth.

Stage 5 **New rather than 'post'-problem phase** (post Global Economic Crisis, 2008-09). Why was there a new phase, instead of Downs' predicted post-problem phase? Firstly, it was because 'green' had become identified as far more than a single issue, beginning in the earlier phase of the first years of the new millennium. The environmental crisis had outgrown its original clothes, as a one-campaign political concern, to become more of a short-hand for many, if not most, of the severe disruptions and negative consequences of advanced Capitalism. Equally, sustainability was also beginning to be conceived of as the renewal-

agent for advanced capitalism (Hawken, Lovins & Lovins, 2000, Scott Cato, 2009, Mathews, 2011, inter alia). As Adam Rome quotes Paul Hawken, in the opening chapter of the recent book, *Green Capitalism – business and the environment in the twentieth century* (Berghof & Rome, 2017), the conventional premise had become that: “business is the problem and it must be part of the solution” (Hawken, 1993/ 2010).

As such, there is a second reason why the green movement hadn’t faded from the political issue-attention cycle, which is that the post-problem phase had turned into “an opportunity phase”, for business (cf Esty & Winston, 2009, Worthington, 2013, Williams, 2015). Indeed, some very far-sighted commentators had begun to examine the phenomenon of how business was ‘greening’ as long ago as the early 1990s (Davis, 1991, Burrows, 1993, Hawken, 1993), with GreenBiz, the world’s first green business NGO and forum, founded in 1991. For example, the proliferation of Green Business Awards, blogs and advocacy groups all point in the same direction: the most recent stage of the environmental movement has seen a shift from a consumption sphere-based civil society movement, to one that embraces capital, businesses and the production sphere. In the fifth wave business has embraced the environmental agenda to the extent that it has become part of the dominant paradigm, at least in the sphere of global corporations.

The greening of business is official

By the mid-stage of the latest wave, the UK Confederation of British Industry (CBI, 2012) produced a report claiming that British business could boost the economy by £20BN per annum by adopting the green policies they proposed. It was full of bullish pronouncements:

Implementing the recommendations set out ...as a package could enable green business to outperform government expectations, significantly boosting UK

growth. Creating the right conditions to drive low-carbon markets and stimulate investment, and adopting a more strategic approach to maximise the economic value of the low carbon transition, could enable UK green business to grow more quickly than the government's figures project. (ibid p30).

John Cridland, the Confederation's Director at the time, claimed that there was no distinction between "going green and going for growth". In the intervening years the mood music has become even more conducive to the pursuit of a green business agenda. Following Trump's announcement to begin withdrawing the US from the Paris Climate Protocol, corporate America hit back, recognising the pressure from consumers and board members to commit to a greener business future. As Bloomberg (Flavelle, 2017) reported:

"This [greener economy] work is embedded in our business," Wal-Mart spokesman Kevin Gardner said in an email. It's "good for the business, our shareholders and customers; if ultimately we are able to positively impact the environment in the process, that's a win too". Wal-Mart was one of 81 companies that promised to reduce emissions in the run up to the 2016 Paris global climate negotiations. The company upped its targets last November [2016], saying it would get half its power from renewable sources by 2025.

Whilst Wal-Mart or Nestle may not be favoured businesses, in the eyes of many environmental campaigners, green activists lined-up to praise the stance of so many of the world's leading corporate giants, who opposed President Trump's isolation. The mood of big business was summarised in a statement from the "B Team" (2017), of which Richard Branson is co-founder and co-chair, published as soon as the Trump White House's "considered decision" was made public:

In taking this action, President Trump has gone against the thinking of mainstream business in America. More than 1,000 companies have, over the course of the past year, made clear their support for the move to a low carbon economy. He stands opposed to companies which comprise the heart of American commerce: GM, General Electric, Walmart, Levi Strauss & Co.,

Coca Cola, Walt Disney Company, Tiffany & Co., Campbell Soup Company, Cargill, and Procter & Gamble. He has gone against the thinking of America's high-tech present and future: Apple, Hewlett Packard, Microsoft, Intel, Adobe, Salesforce, Tesla and Facebook. He has gone against the giants of finance: Bank of America, Citigroup, Goldman Sachs, Morgan Stanley and Berkshire Hathaway. He has gone against the thinking of America's energy sector: Shell, ExxonMobil, National Grid, PG&E, ConocoPhillips, Peabody Energy and Arch Coal. He has even gone against the thinking of his own supporters, who overwhelmingly support renewable energy – 84% of Americans who voted for Trump support the further expansion of solar power in the US, and 77% believe public land should be used to generate renewable power. Americans embrace clean energy because they know it is more affordable. It will reduce their bills and create more job opportunities.

It would be incorrect to regard each of the corporations listed in the B-Team letter as environmental champions. Many, such as Royal-Dutch Shell, not a US-owned company, are involved in extractive industries which have a less-than-perfect reputation for reducing carbon emissions. But, in itself, it is significant that they wish to put their heads above the parapet, to announce that they are seeking to add their voice to the greening of corporate business.

As such, we can see that the most recent stage has involved a deepening social movement³ – from latent to manifest environmental protection, which is beginning to garner support amongst some global corporates - transitioning from the sphere of consumption and popular protest to the spheres of production and distribution, so that 'green' is now seen as offering an important edge within the market-place. But media pronouncements of business leaders are one thing, the evidence of a shift in business behaviour is quite another.

Building on previous research

Bradley & Ziniel (2017) showed that growth in green consumption has out-performed general levels of UK consumption by 33% per annum, 1999-2014. Similarly, the size of ethical markets in Britain had grown from 13BN to more than 80BN, at an average growth

rate of 41% pa. Figures for 2015, from *Ethical Consumer* (2016), have been re-calibrated to remove green energy and ethical finance (and investment), but show a further increase of >10% in ethical consumption, 2014-15, indicating the continuation of a close to exponentially increasing curve. Much of this reflects the increasing number and scale of businesses that have formed to develop specific ethical markets.

As such, it is important to map the spread of green business against other changing political patterns in the UK. We will map the activity of a more conservative sector of business, namely, the range of those small and medium-sized enterprises that make-up the vast 'silent majority' of UK businesses. More specifically, to look at a tranche of that sector that has specifically chosen to submit to achieving 'green' status. Interestingly, one leading website for the SME sector, *Small Business Trends* (2017), produced its first sector report on "Green Business" in April 2017, indicating the current significance of environmental sustainability impacting beyond global corporates to small town 'main street'.

These firms cannot be characterised as 'ethical businesses', operating in specific ethical markets, such as Fairtrade, ethical food and drink, green energy and transport, ethical finance, green appliances, or environmental services. Rather, they are enterprises in a wide range of general business sectors. What distinguishes these firms is that they are either seeking to 'green' or to gain some market advantage by demonstrating or at least promoting their green credentials.

It is important to emphasise that we are not claiming any 'objectively proven' greening for the SMEs in our sample. The fact that they have been accepted onto the *Green Achiever* membership database is an indication of such, but it cannot be regarded as conclusive proof. This is not the important point. What is important to understand is that these SMEs are *claiming* that they are greening. In other words, they are seeking to appeal to a perceived social imperative, which gives them additional market credence in their localities

of operation. As such, the focus of this study was to establish the extent of the correlation between the presence of radical green activists in localities where a disproportionate number of SMEs were seeking to claim an increasing commitment to green operations, or the delivery of environmental products and services, as defined above.

In assessing the extent of correlation in the local distribution of RGA greens and greening SMEs, we have adopted a theoretical lens following Brian Doherty and Timothy Doyle (2006). They suggest that there are some important distinctions to be made within the green movement. Doherty & Doyle offer a helpful division, which can be applied to contrast our RGA local groups against the more conservative ‘greening business’ enterprises, which are the basis for our geographical comparison. They distinguish between ‘post-colonial’, ‘post-material’ and ‘post-industrial’ greens. The first, largely within the Global South, consider green issues to be primarily about re-gaining access to land and material resources, which had been under the control of colonial powers and corporations. These are outside our sphere of research.

But, in much of the West, the dominant green narrative has been that of adopting a ‘post-material’ stance. This has seen a largely apolitical environmental movement act to advocate new market-based solutions to green issues. This should not be equated with ‘post-materialism’, which is the adoption of a philosophical position towards environmentalism, which seeks to reduce environmental degradation by limiting gross levels of production, consumption and the use of natural resources. Post-materialism is closely tied to anti-Capitalist movements. More conservatively, the SMEs that we examine might be expected to fall squarely within the depiction of ‘post-material greens’, seeking to make marginal reductions in the use of materials in order to achieve operational efficiencies in resource, energy and water usage.

By contrast, Doherty & Doyle identify a third strand of the green movement, largely based in Northern and Western Europe, which politically connects green issues to the idea of a ‘post-industrial’ future; a movement which overlaps with ecological anarchism and, as above, with post-*materialism*. The specific constituency of green activists mapped in our current research reflect this view, albeit with a wide variation in the extent to which values reflect levels of local RGA activities. The sub-movement that they belong to advocates post-industrialism as a retreat from materialism, consumerism and a ‘back to the land’ philosophy that, specifically, lays the blame for environmental degradation at the door of industrial Capitalism.

This latter distinction is particularly interesting. Even under the conditions of the recent transformation of the corporatist West, as indicated above, it would be difficult to describe mainstream business as anything other than ‘post material’. Contemporary corporations recognise the need to decarbonise the economy, through the use of ‘cleaner and greener’ production and distribution methods. This depicts the nature of businesses that are seeking to green their sectors. By contrast, the values, if not the activities, of RGAs are characterised by the terminology of ‘post-industrialism’ and its correlated principles.

This distinction – between ‘post-material’ and ‘post-industrial’ greens - parallels that between the more mainstream ‘greening SMEs’ and radical local green groups which we have mapped. Equally, it reflects a distinction, which is conventional in much of the sociological (classically, Merton, 1957) and political science (Lukes, 2005) literature between ‘latent’ and ‘manifest’ functions. Manifest functions are observable, intended and clearly connected to institutional action. Alternatively, latent functions are not (as easily) observable, unintended and may undermine institutional action.

In this situation, the activities of SMEs, to demonstrate their green credentials, are *manifest* functions, of a post-material nature. But, what we are particularly interested in is the

possibility that in adopting a post-material, ‘greening’ stance, many SMEs are also unwittingly colluding with a *latent* ‘post-industrial’ movement that could, effectively, pose an existential threat to their own businesses. The implication of this is that if there is a clear correlation between RGA activity and increasing numbers of SMEs claiming green credentials, this could indicate that the post-industrial environmental social movement is more ubiquitous than might be recognised, even from the manifest evidence of a surge in popular political and social regard. If that is the case, the prospects for real, tangible and large-scale societal changes, resulting in massive decarbonisation, might be possible as the latent becomes increasingly manifest.

Depicting RGAs

We wouldn’t expect much debate surrounding the relative social conservatism of most small and medium-sized business enterprises, even those wishing to demonstrate their green credentials within a greening society. But, the characterisation of RGAs requires more clarification. One of the main problems is the emotive barrier to understanding radical activism that the very term evokes, especially if connected to ‘classical anarchism’.

In fact, the type of grass-roots activism analysed here – which lies on the fringes of mainstream “representative democratic” politics, and is opposed to the overarching power of the state - is a characteristic feature of many 21st century popular protest movements. From the anti-capitalist “Occupy” movements, through the adoption of alternative currencies, time-banking and local economic trading schemes, to the growth of local lifestyle communities, the ideas of radical activism are proving increasingly attractive. Indeed, some of the world’s largest and most radical economic experiments, such as *Co-operativo Mondragon*, in the Basque Country, which turned-over 12BN euros in 2016, and the *Rojava Womens’ Co-operatives*⁴, which cover economic activity in an area of Northern Syria, the size of Belgium,

are each founded on the principles of radical grassroots activism, re-worked through Christian and Muslim lenses respectively.

Within the environmental and ecological spheres radical activist philosophy, principles and practices have an auspicious pedigree. Early influences were such eminent writers as Henry David Thoreau, Leo Tolstoy and the French geographer Jacques Reclus, who each combined radical thinking with pacifism, natural philosophy and vegetarianism. More recently, the American ecological activist and philosopher, Murray Bookchin (1962, 1982, inter alia) has had an increasing influence on many strands of environmentalism, including that of the permaculture (abbrev: “permanent agriculture”) movement for sustainable living.

Bookchin is responsible for developing the practical political philosophy of “libertarian municipalism”, a strategic platform for face-to-face, assembly-based democracy, which has become the foundation of Abdullah Ocalan’s (2015) Kurdish “democratic confederalism”. But, it is the connection between Bookchin’s strand of radical activism and the permaculture movement which is of most interest here. Permaculture gurus such as Bill Mollison (1988), David Holmgren (2011) and, particularly, Rob Hopkins (2008, 2011), the founder of the Transition movement, each cite Bookchin as a particular influence. As such, the *Transition Towns* movement, the presence of which we consider as our indicator of RGA activity, can be seen as a direct out-working of Bookchin’s radical activist and anarchist environment philosophy.

Connecting to recent social movement theory

This current research is based on an analysis of secondary data sources and cannot, therefore, indicate the precise mechanisms which are influencing standard SMEs to seek to demonstrate their green credentials. Nevertheless, recent discussions (Rao, Morrill & Zald,

2000; Zald, 2000; Spicer & Bohm, 2007; Tadjewski, 2015; Spence, 2016; Hamann, et.al, 2017; Yin, 2017; Georgallis, 2017; inter alia) of the relationship between social movements and internal corporate drivers - affecting businesses to invest in practices that transcend narrow economic objectives - suggest some further connections to be made within this work. Our interest in examining the correlations between ‘post-material’ activity, amongst standard SME businesses, and ‘post-industrialism’, within movements of RGA in localities, raise questions concerning what is pushing businesses to ‘go green’. The primary hypothesis, here, is that such effects are positively correlated with the presence of RGA activity.

Even so, even if our analysis supports this hypothesis, further questions arise surrounding the precise mechanisms by which social movement radicalism - within the wider business environment - translates into internal investment in indirectly or, even, beyond instrumental, economic practices becoming embedded within business organisations. How are radicalism within the social context and change within enterprise organisations connected and what, crucially, is the causal direction of influence? Recent research on these questions raises further pointers in respect of the evidence commented upon in this paper.

Zald (2000) argues that social movements arise as the result of ideologically structured actions. That is to say, they reflect activism that is pressuring both civil society and the state to adopt practices that move society in particular normative directions, towards what social relations *should be like*. They have the capacity to act as latent functions that switch-on manifest changes in socio-economic and political activity.

Gorgallis (2017) considers such activism as influencing businesses at three cross-linked levels of the organisational field: the business environment; that of the business itself, qua organisation; and, thirdly, at the level of individuals, usually leaders and managers, within businesses. At each of these field levels the framing of social movements, the direct campaigning activities of groups and individuals within such movements, together with their

specific targeting of businesses and their operatives, can exercise influence to persuade, cajole or even coerce businesses to adopt new strategies and tactics that do not directly or immediately contribute to bolstering the bottom line.

According to Gorgallis' modification of McCarthy & Zald's (1977) classic definition, social movements are "coalitions that engage in sustained action to promote ideas and preferences for changing prominent social, cultural and business practices" (Gorgallis *op. cit.*, p. 5). On the basis of this, the greening of standard market SMEs, according to the activity of RGA in their own localities, falls squarely within this definitional outline. Contributors to social movements may seek to mobilise resources as policy levers and to act as 'recruiting sergeants' for mobilising more adherents to the cause of social change. When they are able to engage organisations, such as businesses, to assist in this way, the organisation becomes a mobilising structure for the movement.

But, equally important, if less easily identifiable, movement actors can "frame" the stage (cf Goffman, 1974), by offering an interpretive schema, which acts to condense the complexity of the world into a selective encoding of situations, experiences, objects, activities and temporal sequences, related to the movement's purposes (Snow & Benford, 1992, Benford & Snow, 2000). Such hermeneutic frameworks can enable the movement to negotiate, contest and modify organisational behaviours to align them with the social movement (Benford, 1997).

As Zald (*op. cit.*) indicates, focusing on the ideological values and belief systems of a movement enables a richer understanding of both the 'mobilising resources' and 'framing strategies' perspectives of how movements increasingly develop. Equally, these are more likely to be latent functions, so far as those who are influenced by them are concerned. In this case, local SME businesses may be entirely unaware of the presence of RGA activity in their own locations but can, nevertheless, be strongly influenced by it, to the extent of taking

manifest action in ways that are consonant with the latent social movement functions. Unwittingly undermining their own very existence through increasing the potential for immense shifts from *post-material* activity to post-industrial anti-materialism.

These are important theoretical perspectives on the strategies that social movement actors use in order pursue their ends. But, equally, and particularly pertinent for our research, Gorgallis asks: “why would social movements be linked to corporate social initiatives, or more generally to corporations?” (op. cit. p.7). Of course, it should be noted that none of the businesses in the data on which we have based our analysis can be termed ‘corporations’. Rather, they are SMEs. But, Georgallis’ question suggests an alternative and, indeed, reverse possibility to the one posited above.

Is it possible that small businesses might utilise the fact of local social movement mobilisation, framing and ideological construction strategies, to further their own ends? If that were the case, the opposite movement may be occurring, namely that post-material businesses are utilising the power of ‘post-industrialism’ to buttress neo-liberalism, in a latent way, rather than to undermine materialism. This could have the effect of inoculating society against de-carbonisation, through pointing to a greening of processes that are only superficial in their manifest effect.

If this were the case it could be argued that social movements can, themselves, be incorporated into the strategic plans of businesses, not in order to further the movement but to drive market penetration, profitability and neo-liberal values. Instead of the movement benefitting from business organisations, as mobilising structures, in reverse, SMEs may be able to co-opt social movements, such as RGAs, as ‘recruiting sergeants’ for their own instrumental ends. The direction of movement, from latent to manifest, has profound implications for the possibilities of the environmentalist de-carbonisation agenda. Before

considering this question in relation to our findings, we need to first point to the specific empirical examples of our RGA ‘post-industrial’ and SME ‘post-material’ cases.

The Transition Towns Movement

The aligning of localist environmentalism with radical activism takes on a particular significance in the light of the *Transition Towns* movement. This began in Kinsale, Ireland, in 2005, where Rob Hopkins was teaching a full-time degree in Permaculture Design. He and his students developed a town-wide, ten-year “Energy Descent Plan”, with the objective of helping Kinsale avoid the cliff-edge effect, as they saw it, of Western economies reaching “peak oil”. The following year Hopkins moved to Totnes, in Devon, as part of the Dartington Hall Institute, where Fritz Schumacher had been so influential, in the 1960s and 70s. Hopkins wrote *The Transitions Town Handbook* and launched, with his new colleagues, Totnes as the world’s first Transition Town. Since then, more than 300 localities in the UK have declared themselves as Transition Towns⁵, with almost 2000 across the globe, mainly in Europe, North America, Australia and New Zealand.

Transition Towns are based on permaculture principles. They point to the need to reverse anthropogenic climate change and avoid the perils of declining energy production - based on the extraction of hydro-carbons - by forming local groups, which are networked together, as a hive model. Transition Town groups exist to address problems of sustainable agricultural practices, food security, community health, local transport needs, the production of basic goods, such as textiles, and how to ensure sustainable waste management. The purpose of such groups is to develop robust local projects to tackle these issues, as well as to educate the wider community, within their Transition Town localities, on the need for action to transition to a more permaculture future.

(Figure 1 about here)

There is a considerable diversity in the Transition Town groups. Some amount to no more than a handful of members, creating a community garden and organising an “Apple Day” each autumn. Many of the mid-range groups have several hundred members and a diverse range of schemes, from standard organic agriculture practices, through community transport schemes to local sustainable energy projects, such as wind farms or hydro-electric generation. At the larger end of the scale there are a few city-wide Transition Towns with many thousand members, hundreds of projects and an activity which exists to communicate to ‘the hive’, without, of course, seeking to exercise any centralising control, which would be against grassroots ‘municipal confederalist’ principles.

To that extent, some Transition Town members would be alarmed by the idea that they had become ‘RGAs’, others intrigued, whilst the vast majority will have embraced some or all of the principles advocated by Murray Bookchin, Bill Mollison, David Holmgren or David Graeber (2014), the leading academic of the “Occupy” movement. Many will have knowledge of Rob Hopkins and his permaculture model. Equally, many will have little idea that this is rooted in a pacifist form of classical anarchism and that such ideas are gaining very considerable traction, not only in the West, but even within the Middle East.

“Green Achievers” and the empirical study

The point of addressing RGA activity and the Transition Towns permaculture groups was to introduce this network as a practical example of a social movement for radical environmentalism, within the UK, that could be relatively easily mapped. It represents a programme that is at the more extreme end of the spectrum, which is very directly in line with Doherty & Doyle’s (ibid) conception of a ‘post-industrial’ element of the green movement. As such, we considered the Transition Towns to be an ideal network to be

mapped against the distribution of SMEs that were seeking to demonstrate their green credentials.

At the same time we needed to be able to map the distribution of more socially conservative ‘post-material’ businesses, engaged, to some extent, in the greening of their industries, in line with the overall shift towards green business, as demonstrated above. In respect of this there are many new awards being created to celebrate the greening of business. But, one of the most enduring of these, which began, in 2007, within months of the founding of Totnes as the first Transition Town – giving us some temporal consistency between the longevity of our ‘post-industrial’ movement and the attraction of SMEs into a ‘post-material’ mode of production - was the *Green Achiever* award scheme. It was begun as a local project, E4Environment in Shropshire, which exists to offer in their own words (2018), “environmental accreditation to businesses that wish to boost their green credentials and reduce their environmental impact”.

Green Achiever has attracted more than 1500 businesses into the scheme. Although they operate a system for weeding-out false green claims and a three-level accreditation of Gold, Silver and Self-assessed (Bronze) *Green Achiever Awards*, the vast majority (97%) are self-assessed. This indicates that most businesses, virtually all of which are SMEs, are willing to undertake the most preliminary test of their green credentials but are, essentially, in the award scheme for the marketing and green promotional benefits that it offers. There is no sense of any strong ideological commitment to the green movement except in the sense of wishing to demonstrate their commitment to being part of a greener lower-carbon future.

As such, they represent the largest network of British businesses that conform to what Doherty & Doyle (op. cit.) refer to as ‘post-material’ environmentalism. Taken together, we wanted to examine the relationship between Transition Towns and Green Achiever Scheme SMEs. In doing so, we considered that the extent of correlation would test the hypothesis

presented above, to see to what extent radical green activism and green business aspirations share the same space.

Methodology

As discussed previously, to test the relationship between radical green activism and the appearance of greening businesses, we develop a statistical model that incorporates indicators for both as well as several control variables. To examine this correlation, we measure our variables within Local Authorities. Using Local Authorities as our unit of analysis allows an investigation into the correlation of the variables within a particular geographic space that also cuts along political boundaries that may also impact the presence of ethical businesses.

Our primary variable of interest is radical green activism and how this may impact upon our dependent variable, greening businesses. We measure green activism through two different variables, the presence of Transition Towns within the local authority and whether the local council has achieved the status of a Fairtrade Council. We examine Fairtrade status to contrast Transition Towns and compare the impact of each. While Transition Towns presence is consistent with grassroots RGA activity, Fairtrade status is pushed much more from the core organization and its associated businesses. Thus, it provides an interesting contrast of different styles/origins of RGA activity.

For our dependent variable, we examined the number of Green Achiever businesses within the local authority. While the number of local authorities within our analysis equals 348 (across England and Wales), these local authorities encompass 1450 Green Achiever businesses, 210 Transition Town groups, and 54 Fairtrade councils.⁶ The data for each of these variables was gathered through the websites of the particular organisations.

Our control variables encompass a number of other characteristics of the local authorities which may indicate a greener disposition among the population within the local authority. These controls include education (measured through the percentage of people with higher level degrees), energy usage (measured through the gas and electricity usage per person), localness (measured through the percentage of the workforce that drives less than 5 kilometers to work), younger businesses (measured through the percentage of businesses in the LA that are younger than 5 years old), socio-economic status (the percentage of the population in professional or managerial careers), and population density (average number of people per kilometer). While not our key variables of interest, we would expect these controls to also impact upon businesses deciding to become greener. The data for these control variables were acquired through the UK Office for National Statistics.

The statistical model we use to test these relationship is a zero-inflated Poisson regression. The zero-inflated Poisson is a generalised linear model using maximum likelihood estimation. The model follows a Poisson distribution which is appropriate for count distributions. Poisson distributions are discrete probability distributions which are appropriate for modelling count data such as the number of authors on a publication, the number of employees at a business, or the number of ethical businesses in a local authority. Zero-inflated models account for excess zeros which occur systematically in the data. The zero-inflated Poisson has a simultaneous logit function which estimates the number of zeros in the dependent variable. The logit function accounts for the impact of excess zeros in the model. As Wu (2011) states, “a standard Poisson regression would misspecify the effect of zero counts and the zero-inflated Poisson regression would take account of zero counts (p. 1154).”) For examples of zero-inflated models in Business research see Bradley and Ziniel (2017), Wu (2011), and Fritsch and Falck (2007).

This model is appropriate for our data because the number of Green Achiever businesses within each local authority is a count appropriate for the Poisson. We use the zero-inflated version of the Poisson because we have a greater than expected number of zeros in our data that is a result of a systematic data generation process. While the spread of Green Achiever membership is an appropriate indicator of the level of greening businesses within the locality, it is certainly not a perfect measure. One reason for this is because there may be a number of businesses within the local authority that may be interested in greening, may even be quite green already and interested in demonstrating their green activity, but they may simply be unaware of the existence of the Green Achiever award designation. Also, these already-green businesses may simply not be interested in seeking Green Achiever accreditation, even though they support the green movement. This is not a stochastic event, but rather a systematic process which enhances the number of zeros in our data. To account for this process in our model, we use the zero-inflated Poisson which, as previously mentioned uses a logit function to simultaneously model zeros in the dependent variable. We use the total number of businesses in the local authority to estimate this process. We expect that, with fewer businesses in the local authority, there are fewer businesses to be aware of Green Achiever and therefore more zeros in the data.

Results

In localities where a green agenda has been most radically developed – represented by RGA activity – this should be reflected in the behaviour of small and medium-sized businesses (SMEs) seeking to demonstrate their green credentials. We assume the count presence of a Transition Town grouping within a locality is indicative of the development of a local green consciousness. And subsequently, even socially conservative SMEs will seek to identify themselves with that local activity-based movement. Equally, where such local RGA

activity is not represented, local businesses will be less likely to seek green accreditation, given a lesser pull towards changing production and distribution practices. Of course, SMEs might seek to demonstrate their green credentials in local markets where there is little sign of any RGA activity. If that were so it would indicate that businesses were ‘greening’ because of their own endogenous values and behavioural preferences, rather than in response to exogenous market factors within their business environment. In such circumstances, little correlations should be shown between our variables of interest. The specific results for our zero-inflated poisson regression, using the dependent variable of Green Achiever SMEs, are shown in Table 1.

(Table 1 about here)

Transition Town Presence

We examine the extent of correlation between our dependent variable of *Green Achiever* status for 2017 SMEs in local authority areas and the presence of *Transition Town* groups, as an indicator of RGA activity, in those same areas. The count measure for Transition Town groups is the number of such groups contained within each GB local authority. In most cases, where at all present, there is a single Transition Town within a locality but in a few areas there are multiples, as shown in Table 2.

The relationship between the presence of Transition Town groups and the numbers of greening businesses is highly statistically significant, demonstrating that green activity is correlated with the greening of local business. The coefficients of a Poisson model are not easily interpretable at a glance so a more substantive interpretation of these results is provided in the Figure 2 graph of expected change in the number of Green Achiever businesses per local authority as the count Transition Town groups changes. As the number

of Transition Town groups in the local authority increases across the range of the data (0 to 7) the expected number of Green Achiever businesses increases by roughly 7 (about 4 to 10). While this appears to be a modest increase, especially across an entire local authority area, the Green Achiever businesses are only an indicator of the number of green businesses in the area. The actual number of green businesses in the local authority is difficult to estimate but undoubtedly much larger than the small count of Green Achiever businesses. But using the measure incorporated by Bradley and Ziniel (2017), we estimate the total green business increase by assuming the size of the green marketplace (roughly 13% of the UK consumption sphere economy) through data from Ethical Consumer (2014).⁷ Using this estimate, we predict that as an increase from zero to one Transition Town group results in roughly 261 more ethical businesses within the local authority. A change across the entire range of the data, from zero Transition Town groups to seven, results in a predicted increase of 2798 ethical businesses in the local authority.

(Figure 2 about here)

A simple explanation for the considerable strength of this correlation is that businesses are responding to the level of RGA activity within a locality, which indicates the significance of green issues amongst the population which forms their primary marketplace and customer base. This may be the case. This conclusion assumes that businesses are aware of local Transition Town groups, the levels of RGA activity in their locality, or, at least, have been directly influenced by a *manifest* greening society ideology within their location of operation. Whilst this might be a reasonable assumption, we do not claim to precisely identify the mechanism that drives this correlation.

At the same time, it is quite clear that there is a strong relationship between RGA activity and the greening of businesses in local areas in England and Wales. Additionally, this correlation cannot be explained by other common causes of greening activity, as our model includes other variables that account for many of the known drivers of environmental conscientiousness. RGA appears to have an independent effect. This is an important finding regarding social movements and their impact on private business and society as a whole.

(table 2 about here)

More evidence is provided by the multiple counts for Transition Towns within local authority areas, as in Table 2. This shows that 4 out of 6 local authorities, having more than four Transition Towns within their locality boundary, are within the South West economic region. The remaining two are in north-central London (Camden) and on the border between Wales and the South West English economic region (Monmouthshire), close to Bristol. Each of these areas has a very long history of radical political activity and dissent from mainstream political, social, religious and cultural norms within England and Wales, which can, in some cases, be traced back for centuries (cf Hostettler, 2012⁸). History and local context should not be ignored in our efforts to understand the relationships in play.⁹

Equally, in the case of the South West we might expect a predominance of Transition Towns given that the world's first was in Totnes, Devon - which abuts Teignbridge District local authority – where Phil Hopkins has his base. As such, we see it is the case that the initial waves of Transition Town formation were in this region. Nevertheless, when we examined the data on the length of operation of Transition Towns (since September 2006, when Totnes was inaugurated) it was found to be no more significant than the simple count presence within localities. And, equally, the data for the numbers of projects organised by

local Transition Towns showed no further correlation with the presence of greening businesses. However, it is difficult to draw firm conclusions from the lack of these associations. A Transition Town programme could be organizing an ‘Apple Day’ or it could be a wholesale effort to change the recycling and carbon generation habits of the entire local authority. Similarly, length of operation does not demonstrate the amount of activity or consistency of effort.

Our tentative conclusion from this data is that RGA has a business impact, but there are also other, wider social movement effects at play, which are either present or absent from local areas, which are influencing *both* the formation of Transition Town groups and the greening of businesses. As the green movement has broadened to coalesce with many other radical social movements, within British society, it is having an important impact on the operation of SMEs, at a local level, one key effect of which is the greening of business. Equally, it is important to point-out the other main locality-related finding of this research which is the contrary situation. Namely, where such social movements are *not* evident then business is *not* greening. In other words, there are significant spatial variations across England and Wales, in terms of the social movement activity and marketplace effects that this research is able to highlight.

Fairtrade Councils

A counterintuitive finding from our analysis is the *negative* correlation between the local council being a Fairtrade Council and greening businesses. On the surface this may seem like a surprising result. It might be expected that if there is a strong correlation between Transition Town presence and green-aspirational businesses the same would be true when a council decides to support the Fairtrade Labelling Organisation (FLO) and its products. In fact, we suspect that this negative correlation reflects very different social processes taking

place within localities. It is worth reminding that Transition Towns are formed where local groups from civil society, who share the radical activism values of the permaculture movement, seek to create their own local branch of the wider Transition Town community. They are, effectively, buying into radical green activism and what Doherty & Doyle refer to as 'post-industrialism'.

By contrast, the granting of Fairtrade town or council status is a more bureaucratic process, in which a local group may be refused the designation, if Fairtrade UK considers there is insufficient evidence of Fairtrade specific efforts in the locality. The main evidence of such efforts is the ability to provide data on the numbers of Fairtrade brands and items being sold in local shops and supermarkets. Consequently, it might be assumed that this more demanding formal requirement showed a deeper social movement at work.

Alternatively, it may be more accurate to regard the Fairtrade movement as a prime example of Doherty & Doyle's 'post-material' form of greening, wherein one type of supply chain is substituted for another. As such, the Fairtrade movement is more aligned to current patterns of trade, whilst Transition Town groups represent a greater presence of RGA focused more toward a different model of society and markets. In this respect, it is fascinating to note the strong positive correlation with Transition Town and the negative correlation with Fairtrade Town. This suggests that there may be more deep-seated social movement changes taking place in the more RGA active localities and it is these that have a greater impact on the greening of markets.

In many respects this negative correlation challenges the idea of local SMEs co-opting a green social movement in order to shore-up their bottom line. If that were the case we might expect that more businesses would have contributed to the Fairtrade ethos, either directly, by supplying fairly traded goods, or through political influence on the local Council. Rather the negative correlation indicates that it is either the gravitational pull of RGA activity

on local SMEs, where that is more prevalent, or the effect of other intermediating variables, such as higher levels of educational attainment amongst local populations, which is having the greater impact on the greening of SMEs. This is reasonably strong evidence that the latent to manifest social movement is operating in the direction of moving society towards more radical environmental change. Even so, we should be cautious about this finding until we have more direct evidence.

Percentage of the local population with higher degrees¹⁰

Previous research has shown strong correlations between the presence of green businesses and a disproportionate number of local residents having higher education degrees (Bradley and Ziniel, 2017). Our analysis shows a high statistical significance for the correlation between graduates in the local population and the presence of Green Achiever businesses. From this we can conclude that greening markets are contained within those localities with a more highly educated population. This suggests that such markets are also associated with some of the other strong divisions that are emerging within British society, reflected in both the Brexit vote and recent political polls.¹¹ The greening of markets may, then, be a further phenomenon associated with the social movement towards a less ‘authoritarian populist’ political culture in some parts of the UK, despite centrist authoritarian populists representing approximately half the population (Rampen, 2016). As such, our data reinforces the picture of a divided nation between relatively educated, liberally-minded, Left-leaning green(ish) localities and those that are older, less highly educated, more socially conservative localities, where the green social movement and, consequently, green-aspiring businesses are far less evident.

Socio-economic Status and Numbers of Young Businesses¹²

The previous finding may seem to be at odds with the strong negative correlation between socio-economic status and the presence of Green Achiever businesses. When there are more professional/ managerial grade workers in the population we see fewer greening businesses. One possible explanation for this is many graduates may have yet to find their way into the ranks of the professions and senior managerial positions. At the same time it is quite possible that the presence of a high proportion of graduates in localities where there are both fewer professionals and more greening businesses may indicate the social movement effect of a counter-culture developing.

Many of the local authority areas in which we see the strong correlation between graduates, the presence of a Transition Town and higher proportions of greening businesses, have lower proportions of professional grade workers. This could be explained by localities in which small-scale businesses and organisations predominate, which do not have the sorts of corporate structures or salary hierarchies to generate jobs that are classified as professional and managerial. This is reflected at a statistically significant level within our data. There is a reasonably strong correlation between the presence of green-aspirant businesses in the locality and the numbers of young businesses, under five years old. Again, this may be an indication of the changing nature of the UK labour market, especially for graduates who choose (or find themselves unable) to gain access to larger corporate employment companies. But, equally, it is evidence for the fact that newer businesses are seeking to green, so that in those localities that are able to generate higher proportions of new businesses these are likely to have an effect on greening the marketplace.

Length of Commuter Journeys and Energy Usage per Person

We used the length of journeys to work as a rough indicator of localness. This could, also, be seen as an indication of the degree to which workers were choosing to adopt a

greener lifestyle, by connecting work and residence within their locality. Equally, the variable of energy usage per person indicates a choice to adopt various levels of energy consumption. As such, we would expect negative correlations between these two variables and the presence of Green Achiever businesses, if green aspirations amongst SMEs were indicative of more environmentally conscious populations and greener local markets. Each variable demonstrated high levels of statistical significance, reinforcing the picture of greening businesses being disproportionately located in localities with greener markets.

Council third party percentage and Population Density

We also attempted to gauge the impact of government/state forces found in Bradley and Ziniel (2017). We examined the impact of the presence of ‘radical third party councillors’ on local councils. Contrary to Bradley and Ziniel (ibid.), we find this variable to demonstrate a negative relationship with Green Achiever count, but the finding is not statistically significant. As such, we are not able to draw firm conclusions. At the same time, the result *may* reinforce the preceding point that where radical activism has already been translated into local political representation business may have already “greened” beyond the need to demonstrate its greening credentials.

There was no statistical significance for the relationship between population density and Green Achiever businesses, so no meaningful conclusions can be drawn from this data. Whilst it might be assumed that businesses are more likely to be greening in the countryside and rural localities there is no evidence for or against that proposition.

Conclusions and Implications

This paper represents continued investigation into determinants of the greening of businesses and their implication for the broader de-carbonisation movement debate. While the research provides evidence of the impact of radical green activism on the further greening of SMEs, continuing research needs to fill in specific gaps around causal factors. But the evidence we provide of the extension of radical environmentalism from social activism into the production sphere of the market represents a substantive addition to our knowledge of the impact of the latent environmental social movement and how the movement's growth may manifestly change markets in the future.

Overall, our evidence demonstrates that the presence of RGA activity connects with businesses that are greening. The findings in this research add to our knowledge of the environmental movement specifically and social movement more generally. This picture suggests a 'transitional' state. As the local society begins to develop a gravitational pull towards a 'post-industrial' green agenda this leads to businesses adopting a more 'post-material' approach to their production and distribution sphere activities.

Our data and analysis shows statistically and substantively significant effects in England and Wales. The results may be generalizable to other OECD countries, but further research will need to demonstrate the extent to which these relationships hold true in other contexts. It would also be interesting to understand the power of social movement organizations in developing countries. We cannot, on the basis of this study, offer any conclusive evidence about the motivations for the greening of businesses in diverse alternative localities. Even so, we can be reasonably confident that there are systematic social movement processes taking place, connected to the emergence of more or less latent social movements that have an impact on the manifest behaviour of small and medium-sized enterprises. Future research should investigate the extent of this latent to manifest movement and its implications for greening society at this pivotal moment in history¹³.

Notes

¹ How did we get here? Whilst the Rio '92 Earth Summit was widely regarded as an abject failure, its 20+ follow-on conference marked a massive turnabout for the global community of nations. Similarly, the 2016 Paris Accord (from the Conference of the Parties – COP21 – of the UN Framework Convention on Climate Change) represented an enormous shift in the official attitudes of nation states in respect of human intervention causing global warming, compared to the COP-3 Kyoto Protocol of 1996. What a difference 20 years of unremitting data, statistics and scientific papers can make, despite the “anthropogenic climate change” (ACC) deniers. As we write, delegates are gathering in Katowice, Poland, for the COP24 Climate Change Conference (2-14th December, 2018), against a background of increasing concern that global temperature increases cannot be kept below 1.5 degree Celsius, above pre-industrial levels. Recent evidence indicates that such a rise will have far more severe consequences for global climate change, on eco-system destruction and vertebrate extinctions, than had been considered, hitherto.

² There is no universally accepted definition of ‘green business’. A recent Eurobarometer survey (2012, below) refers to “resource-efficiency processes and to the production of green products and services” and includes jobs that relate “to the production of goods or to the provision of services that benefit the environment or optimise the use of natural resources; or jobs whose characteristics involve use of practices and processes which are either more environmental friendly or use fewer natural resources than today” (p. 1). It is important to note that this research cites evidence in relation to SMEs that have sought to demonstrate their green credentials, rather than businesses connected to any specific sector, such as energy production, although the latter will be included.

³ Environmentalism has been identified as a social movement for several decades (e.g. Lowe & Goyder (1983), O’Riordan (1981), but its increasingly pervasive role as a primary social movement is well-expressed by Christopher Rootes “...environmental movements are conceived as broad networks of people and organizations engaged in collective action in the pursuit of environmental benefits. Environmental movements are understood to be very diverse and complex, their organizational forms ranging from the highly organized and formally institutionalized to the radically informal, the spatial scope of their activities ranging from the local to the almost global, the nature of their concerns ranging from single issue to the full panoply of global environmental concerns. Such an inclusive conception is consistent with the usage of the term amongst environmental activists themselves and enables us to consider the linkages between the several levels and forms of what activists call ‘the environmental movement’ (1999, p.2).

⁴ It should be recognised that these communities had come under intense pressure and disruption as a result of bombing campaigns, in mid-2018, by both Syria-Russia and Turkey forces, centred on the city-region of Afrin, at the heart of this territory.

⁵ This is to say that local groups have launched Transition Town networks within their localities. Ironically, given the anarchist principles under-pinning the permaculture movement and the TTs, many of these are supported by their local councils and have regular meetings in their buildings, although most seem to meet in local ale-houses!

⁶ ONS data was unavailable for Scottish councils and authorities.

⁷ Assuming the Ethical Consumer (2014) data correctly estimates the size of the UK green marketplace and that our Green Achiever data is a roughly equivalent sample of marketplace, this sets the number of actual green businesses within the local authority as 493 times the size of our sample. To predict the change in actual green business numbers we multiply our predicted number of Transition Towns in the local authority by this number. This is represented on the second Y axis of figure 2.

⁸ Two recent conferences, at the University of the West of England and University of Bristol, respectively, “War, Revolution and the Romantic Era in South West England” (Feb, 2015), and “Romanticism in the South West” (July, 2015) point towards this lengthy history of radical dissent.

⁹ One particular local case has, however, perplexed us, from these research findings. Previous research pointed to two localities where specific “ethical green businesses” were forming more substantially than in any other localities across England and Wales. These were Brighton and Bristol, albeit closely followed by north-central London, the West of England and south-west London. In previous research, it was possible to identify local political and social factors that were contributing to these developments (Bradley and Ziniel, 2017). But, the

case of Brighton stood out. Brighton Pavilion parliamentary constituency has elected the UK's only Green Party MP, Caroline Lucas, at four consecutive General Elections. Brighton has, probably, the most developed eco-system for incubating green business in the UK and it is, also, one of the most important centres for the wider operation of "rainbow coalition" movements, including gay activism, within England. But, despite this it has no TT and not a single Green Achiever business within its LA boundary. Our conclusion from this, which cannot be supported by the data, except in an argument from silence, is that Brighton has transitioned beyond the need for a TT, at least in popular local understanding. As a city it has a range of radical activist activities that are of considerable significance so far as the greening of society is concerned. Equally, business in Brighton is so strongly required to be green in its operations that it is superfluous to seek GA accreditation. Any business that is unable to demonstrate its green credentials in Brighton is unlikely to survive within that local marketplace. If this is the case - and this is partially borne-out by the data for Bristol which is, also, far less conclusive for our hypothesis than might, otherwise, be expected - the effect, that our data points to, relates to the greening of local society and business behind the leading edge of such RGA activity locally.

¹⁰ On average, 25% of the people in the Local Authorities in our data had higher education or professional degrees. Local Authorities ranged from 12% to 82% of their populations holding higher level degrees.

¹¹ Interestingly, following the EU British Membership Referendum (June 2016) and the 2017 UK General Election (June 2017) this variable was, also, seen to have been highly significant as a predictor of voting patterns. In respect of Brexit: "just 22% of graduates voted to leave the EU, compared with 72% of those without any educational qualifications" (Nat Cen, 2017 p.7). At the 2017 General Election - when Prime Minister Theresa May made a catastrophic political miscalculation, resulting in the Conservatives losing their overall majority in Parliament - the ruling party was shown to have a 'graduate problem'. "Amongst those with low educational qualifications (defined as GCSE or equivalent or below) the Conservatives beat Labour by 22%. However, amongst those with high level educational qualifications (defined as degree-level or above) Labour led by 17 percentage points." (Curtis, 2017, §3).

¹² Our Socio-economic variable follows the ONS measure, which records the number of professionals and managers in the Local Authority. On average, 27% of the people in the Local Authority had professional or managerial careers. This ranged from a low of 14% and high of 59%. Regarding the measure of young businesses, this variable indicates the percentage of businesses in the Local Authority which are five years old or younger. This variable averaged 29% and ranged from 14% to 43%.

¹³ At the COP14 Climate Change Conference in Katowice, Sir David Attenborough, the leading environmental broadcaster, said this, on December 3rd, 2018: "If we don't take action, the collapse of our civilisation and the extinction of much of the natural world is on the horizon." It is in this light that we consider the implications of this research.

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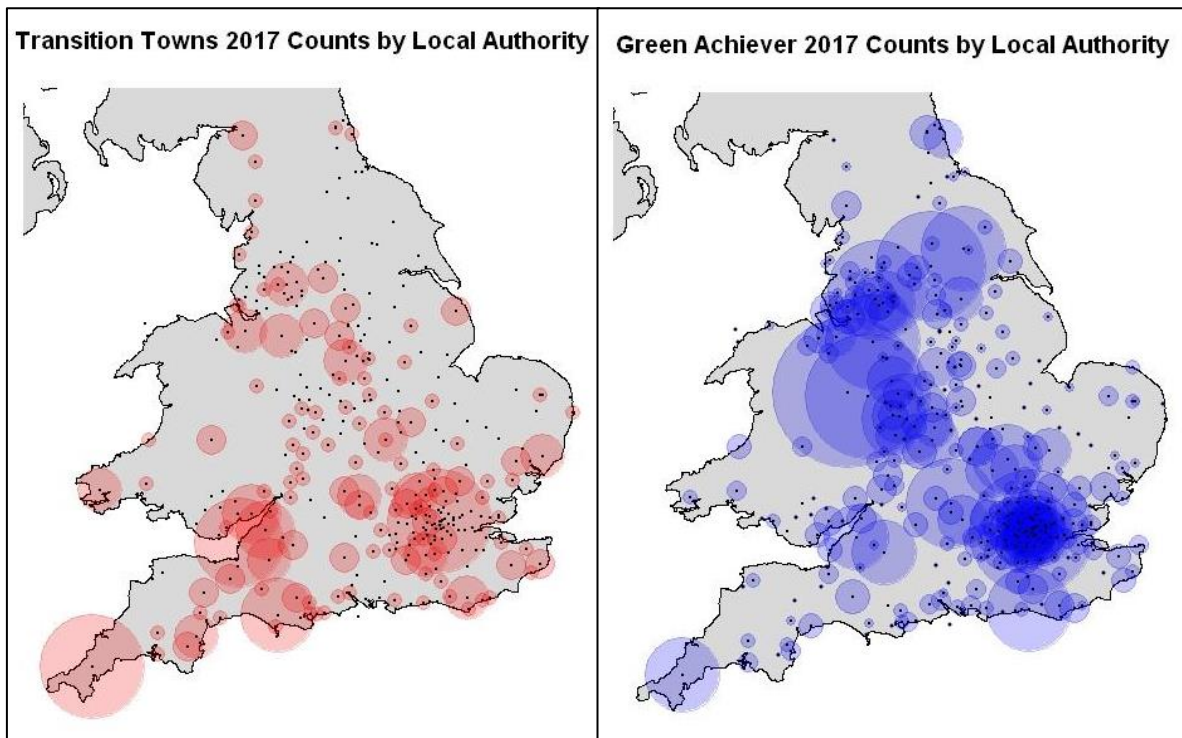
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Figure 1.



Note: Size of the coloured bubble represents the number of the named organization in the Local Authority. The black dot at the centre of the bubble is the location of the headquarters of the Local Authority.

Table 1. The Impact of Radical Green Activity on the Presence of Greening Businesses. Zero-Inflated Poisson Regression Results.

| <u>Variable</u> | <u>Coefficient</u> | <u>Stand. Err.</u> | <u>P Value</u> |
|--------------------|--------------------|--------------------|----------------|
| Transition Towns | 0.128 | 0.021 | 2.15e-09 *** |
| Fairtrade Council | -0.171 | 0.079 | 0.030 * |
| Third Party % | -0.254 | 0.160 | 0.111 |
| Education | 4.463 | 0.741 | 1.75e-09 *** |
| Energy Usage | -0.123 | 0.036 | 0.001 ** |
| Localness | -1.800 | 0.658 | 0.006 ** |
| Younger Businesses | 0.025 | 0.010 | 0.011 * |
| Soc. Econ. Status | -0.032 | 0.009 | 0.001 *** |
| Population Density | -0.001 | 0.002 | 0.561 |
| Intercept | 1.935 | 0.465 | 3.13e-05 *** |
| (Logit side) | | | |
| Total Businesses | -0.001 | 5.657e-05 | 2.00e-16 *** |
| Intercept | 1.566 | 0.322 | 1.14e-06 *** |

* P Value < 0.05

** P Value < 0.01

*** P Value < 0.001

Figure 2.

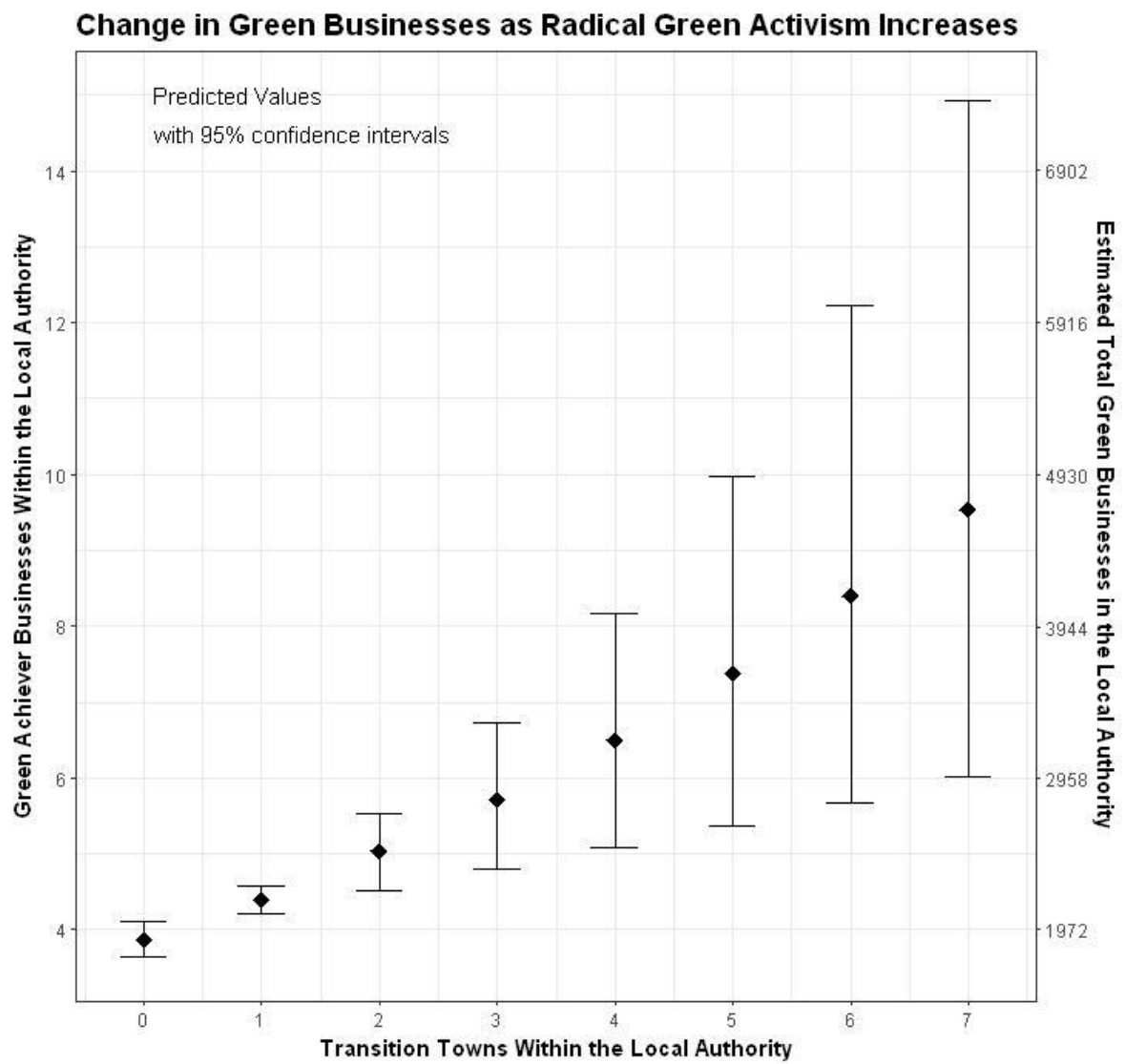


Table 2. Multiple Transition Towns (3+) within local authority areas, by economic region

| <u>Local Authority</u> | <u>Economic Region</u> | <u>2017 TT count</u> |
|-------------------------|------------------------|----------------------|
| Camden | London & SE | 7 |
| Cornwall | South West | 7 |
| North Somerset | South West | 6 |
| West Dorset | South West | 5 |
| Bristol, City of | South West | 4 |
| Monmouthshire | Wales | 4 |
| Bury | North West | 3 |
| Cheshire East | North West | 3 |
| Cheshire West & Chester | North West | 3 |
| Dacorum | London & SE | 3 |
| Derby | East Midlands | 3 |
| Mole Valley | East Midlands | 3 |
| Northampton | East Midlands | 3 |
| Oxford | London & SE | 3 |
| Pembrokeshire | Wales | 3 |
| Suffolk Coastal | East Anglia | 3 |
| Teignbridge | South West | 3 |
| Wealden | London & SE | 3 |