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**Jones, Peter ORCID logoORCID: <https://orcid.org/0000-0002-9566-9393> (2023) European supermarket retailers and climate change: reducing greenhouse gas emissions towards net-zero. *Geography*, 108 (3). pp. 157-162.
doi:10.1080/00167487.2023.2260225**

Official URL: <http://doi.org/10.1080/00167487.2023.2260225>

DOI: <http://dx.doi.org/10.1080/00167487.2023.2260225>

EPrint URI: <https://eprints.glos.ac.uk/id/eprint/13288>

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EUROPEAN SUPERMARKET RETAILERS AND CLIMATE CHANGE: REDUCING GREEN HOUSE GAS EMISSIONS TOWARDS NET-ZERO

Introduction

Geography is central to the challenges presented by climate change, yet Taylor (2023, p. 69) claimed that *'there is currently far more research on the climate change emergency by physical geographers than human geographers.'* This article takes a human geography perspective on climate change, focussed on retailing. Accelerated climate change may increasingly reshape retail geographies in a variety of ways. Retailers are vulnerable to climate change, in that it may threaten current sourcing arrangements, particularly for agricultural produce, it may lead to changes to retailers' store locations, not least the closure of out of town stores, and it may encourage customers to shop more locally. At the same time, the retail industry is an important contributor to greenhouse gas (principally carbon dioxide, but also methane and nitrous oxides), emissions. The Zero Carbon Academy (2022, webpage) suggested that *'the European retail sector contributes 40% of total EU emissions'*, and many large retailers have emphasised their commitment to reduce their greenhouse gas emissions, and more specifically, to move towards net-zero emissions. This reflects Hale et al.'s (2021, p.18) claim that *'achieving net-zero emissions has become a defining frame for climate action.'* That said, although climate change, and the transition to net-zero emissions, has become an increasingly important issue for large retailers, how retailers have looked to reduce their greenhouse gas emissions has attracted little or no attention in the geographical literature. This mirrors Walenta's (2018, p. 461) earlier claim, made when addressing the *'corporate geographies of climate governance'*, that while climate change is on the corporate agenda, the business response been understudied. This represents a gap in the literature.

While retailers' commitments to reduce their greenhouse gas emissions and move towards net zero emissions have become the main elements in their approach to climate change, this is a daunting challenge in that the vast majority of emissions classed as retail, are not in the direct control of the retailers. Here, the production of goods, particularly agricultural-based materials, customers' car-borne shopping trips, the delivery of goods bought online, and the use and disposal of products, are the largest retail generated sources of greenhouse gas emissions. The World Wildlife Fund (2023, webpage) suggested that in the UK for example, *'supply chains can contribute up to 90% of supermarket greenhouse gas emissions.'* This paper explores how some of the leading supermarket companies in Europe have addressed reductions in greenhouse gas emissions, and as such looks to contribute to helping to fill the gap in the literature identified above. The paper includes a short outline of net-zero emissions and of emissions reductions, an exploratory examination of how some of the leading supermarket retailers in Europe have addressed reductions in greenhouse gas emissions, and some concluding reflections.

Net-Zero Emissions and Emissions Reductions

Net-zero greenhouse gas emissions represent the balance between the amount of such gases produced in, and the amount removed from, the atmosphere, and net-zero is reached when the amount added is no more than the amount removed. Policies on reducing greenhouse gas emissions are rooted in the Kyoto Protocol, and the Paris Agreement. The Kyoto Protocol, which was adopted in 1997, but due to a complex ratification process, only came into force in 2005, committed industrialised countries, and economies in transition, to limit, and reduce, greenhouse gas emissions in accordance with agreed individual targets. The Paris Agreement came into force in 2016, and the vast majority of the world's countries committed themselves to limit global warming to well below 2 degrees Centigrade, and to pursue efforts to limit the rise to 1.5 degrees Centigrade, which would effectively see greenhouse gas emissions fall to net-zero by 2050.

It is important to identify different types of emissions, in that a distinction is made between Scope 1, 2, and 3 emissions. Scope 1 are emissions that occur in the company and are within its control; Scope 2 emissions occur when energy is produced and supplied from outside the company; and Scope 3 are emissions generated upstream and downstream in the supply chain. Scope 1 and Scope 2 emissions can be confidently measured, and major retailers are now required to disclose these figures in their annual reporting, but Scope 3 presents a greater challenge, as methodologies and boundaries vary, and data can be limited. Further, many companies have set, or have committed to setting, science-based targets for their transition to net-zero. In simple terms, a science-based emissions target is in line with the scale of reductions required to keep the rise in global temperatures to below 2 degrees Centigrade above pre-industrial temperatures.

European Retailers' Approaches to Emissions Reductions

While retailing within Europe is characterised by its diversity, it is dominated by large supermarkets offering a wide assortment of goods, with ownership concentrated in a relatively small number of companies. Some of these companies operate largely at the national level, while others have an international reach. In the UK, for example, the three biggest supermarket retailers, Tesco, J. Sainsbury and Asda, had a 56% share of food spending, while Rewe has a 25% share of the retail food market in Germany. The Aldi Group, which includes Aldi North and Aldi South, has stores in Austria, Belgium, France, Hungary, Italy, Ireland, Luxembourg, Poland, Portugal, Slovenia, Spain, Switzerland, and the UK, and the Schwarz Group, which trades as Lidl and Kaufland, has a 16% market share in Germany, and trades under the Lidl banner in 30 European countries.

A number of the leading European supermarket retailers posted details on the Internet of how they have addressed climate change, and more particularly emissions reductions, and information from seven of these retailers, namely the Aldi Group, the Schwarz Group, Rewe, Edeka, all headquartered in Germany, Tesco and J. Sainsbury, the two market leaders in the UK, and the French based Carrefour Group, provided the empirical information for this paper. These seven large supermarket retailers might be seen to reflect some of the best practice in European retailing, not least because retailers not acting on climate change can be seen to be exposing themselves to reputational risk. Rather

than looking to describe each retailer's approach in detail, the author looked to identify, and illustrate, a number of interlinked general themes. More specifically, four themes, namely, corporate commitment to reductions in net zero emissions: the decarbonisation of retail operations; supply chains emissions; and collaboration: were identified as characterising the supermarkets' approach to addressing net-zero emissions.

All the selected retailers looked to emphasise their corporate commitment to science-based reductions in emissions, and ultimately to net-zero emissions. The Schwarz Group, (2021, webpage), for example, claimed *'we aim to minimizing the impact of climate change and steadily reducing greenhouse gas emissions.'* That said, there are variations in the approach adopted by the selected retailers. Some of the retailers have committed to net zero emissions by a certain date (Table 1), while others have pledged interim reductions (Table 2), against earlier emissions levels, as part of their transition to net-zero, though two of the retailers reported on both net zero and interim targets

The selected retailers' corporate commitments to reductions in emissions seem to reflect their concerns about the scale and the potential impact of climate change. Carrefour (2021, webpage) recognised that human activities were the main causes of global warming, which is responsible for *'more natural disasters and rising sea and ocean levels.'* Lidl (2021, webpage) argued *'the call for action on climate change has never been louder'*, and that *'if we don't act today, we will pay a very high price tomorrow'*, while Aldi North (2020, webpage) claimed *'climate protection is one of the greatest social challenges of our time.'* Simon Roberts, Chief Executive Officer at J. Sainsbury argued *'the clock is ticking'*, and that *'we recognise that we not only have a responsibility to our colleagues and the communities we serve in the UK but to those we source from globally, to reduce the impact our business has on the environment'* (J. Sainsbury 2021, webpage).

At the operational level many of the selected retailers outlined how they were decarbonising their own operations, for example, by changing their transport and logistics activities, and increasing their use of renewable energy at store level. Aldi South (2022, webpage), for example, reported that over 90% of its stores *'used environmentally friendly refrigerants'*, and that the company was taking other measures to increase energy efficiency, including the installation of LED lighting and heat pumps. Tesco (2023, webpage) reported that 100% of the electricity used to run its stores and distribution centres *'is renewable, either from our onsite solar panels and wind turbines or through renewable electricity we source from the national grid'*, and that it was rolling out electric heavy goods vehicles in its transport fleet, and using rail freight where possible as a low emissions alternative to road transport.

All the selected retailers recognised the importance of working towards net-zero emissions in their supply chains, Edeka (2022), for example, reported on making its *'logistics and supply chains more climate-friendly, so as to significantly reduce direct and indirect greenhouse gas emissions.'* More specifically, the accent is on working to encourage suppliers to reduce their emission levels. Carrefour (2021, webpage), for example, planned to *'prevail'* on its *'100 biggest suppliers to make qualified commitments'* to reducing carbon dioxide emissions, and Rewe (2022, p. 16), reported on producing *'reduction roadmaps'* to

help suppliers of its own brand labels to reduce emissions, with the company planning to extend this approach *'for all other product groups.'* Tesco (2023, webpage) claimed *'we're supporting all suppliers to establish their own net zero emissions and to set science-based targets'*, and the company have trialled innovations with suppliers to reduce emissions from agriculture, including the use of low-carbon fertiliser and alternative animal feed such as insect meal, which reduce the amount of methane released during the production cycle.

Some of the retailers also looked to reduce the emissions associated with consumption behaviour. Carrefour, for example, has electric vehicle charging points at over 100 of its hypermarkets throughout France, and Tesco looked to reduce waste by supporting customers to prevent food waste in the home. While a number of the selected retailers looked to cut emissions associated with customers' diets, including increased stocking of plant-based food products, the recent decline in sales of such food calls this initiative into question.

Many of the selected retailers emphasised the importance of, and their commitment to, collaborative partnerships in tackling the challenge of climate change, and more particularly of achieving net-zero emissions. J. Sainsbury (2021, webpage) acknowledged if it is to meet its emission reduction targets, *'it will need to collaborate with government, industry, suppliers, and academia, to share knowledge and solutions.... 'so that we can all take meaningful and immediate action.'* Carrefour (2021, p. 10) reported joining a number of coalitions and partnerships, including the European Climate Pact which looks to *'build a greener Europe.'*

Concluding Reflections

In addressing climate change, the selected European supermarket retailers have looked to reduce their greenhouse gas emissions, and to eventually transition to net-zero emissions, but four sets of issues merit concluding reflection. Firstly, in some ways, the retailers' commitments to net-zero emissions from their own operations, are aspirational, in that they often outlined their plans for emissions reductions by specified future dates. Here, there may be potential tensions between the retailers' commitments and aspirations and the economic realities of an increasingly competitive market, which may see some supermarket retailers backtracking on their commitments in an attempt to maintain their competitive advantage within that market.

Secondly, as the vast majority of the emissions classed as retail, occur in the retailers' supply chains, so the retailers' commitments to reduce emission and to the transition to net-zero, can be seen to be expectational, in that they are not directly in the retailers' control. Rather, the retailers will effectively be relying largely on suppliers to switch, for example, to renewable power sources, and to use more sustainable materials and packaging in the production processes. However, retailers face challenges in verifying that suppliers are fulfilling retailers' expectations across complex and geographically diverse supply chains. Independent auditing has often been used to verify that suppliers are complying with retailers' expectations, but the audit process is not without its critics. LeBaron et al. (2017, p. 961), for example, argued that *'retail and brand companies shape*

the audit regime in ways that legitimate and protect their business model.' At the same time, while retailers may look to customers, to reduce their consumption levels, to buy more sustainable products, and to use more sustainable means of transport for their shopping trips, consumers may prove reluctant to dramatically reduce their consumption levels, believing such a change to be a retrograde step in a society in which consumption is seen to help to define individual identity.

Thirdly, the very concept of net-zero is seen as flawed by some critics. Friends of the Earth Scotland (2022, webpage), for example, claimed that *'the concept of net-zero is increasingly used to disguise inaction.'* Further, Friends of the Earth Scotland (2022, webpage) argued *'the problem with net-zero is that it leaves the door open to continue emitting greenhouse gases in the short term on the basis that one day they will be sequestered or captured and stored'*, and that *'this kicks real action to reduce emissions into the long grass, by which time devastating climate impacts will be locked in if it turns out the technologies don't work.'*

Finally, retailers' visions for climate change and the transition to net-zero greenhouse gas emissions, must be seen in relation to sustainability. In many ways, sustainable consumption, described as *'the most obdurate challenge for the sustainable development agenda'* (Cohen 2005, p, 25), is the antithesis of the large retailer's business models, which are based on continuing growth and aggressive marketing strategies designed to promote consumption. In looking to address such tensions, Jackson (2010, p. 18) argued *'it is entirely fanciful to suppose that deep emission and resource cuts can be achieved without confronting the structure of market economies'*, while Mansfield (2009, p.37) claimed that mainstream approaches to sustainable development fail to recognise *'the political nature of sustainability.'*

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| TABLE 1 | | |
|---|---------------|---------------|
| NET ZERO TARGETS DATES | | |
| | Scope 1 and 2 | Scope 3 |
| Tesco | 2030 | 2050 |
| J. Sainsbury | 2035 | 2050 |
| Edeka | 2032 | Not Available |
| Rewe | 2040 | Not Available |
| [Source: Compiled from Retailer's Corporate websites] | | |

| TABLE 2 | |
|---|---|
| Greenhouse Gas Interim Targets Scope 1 and 2 | |
| Schwarz Group | Reduction of 55% by 2030 compared to 2019 levels |
| Aldi (South) | Reduction of 26% by 2025 compared to 2019 levels |
| Aldi (North) | Reduction of 55% by 2030 compared to 2015 levels. |
| Rewe | Reduction to 30% below 2019 levels by 2030 |
| Carrefour | Reduction by 30% by 2030 and to 55% by 2040 compared to 2019 levels |
| Edeka | Reduction by 37% by 2025 compared to 2017 levels |
| [Source: Compiled from Retailer's Corporate websites] | |