

Temporal Dimensions of Environmental Behaviour

A briefing note on innovative
segmentation approaches to
environmental behavioural change
across the island of Ireland

Briefing Note

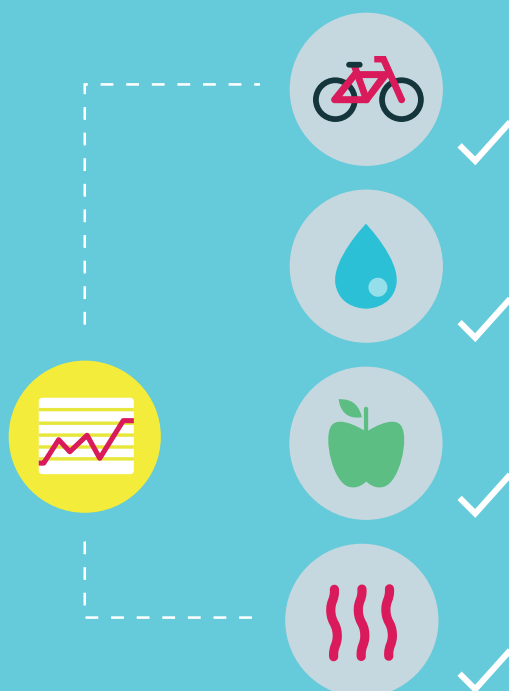
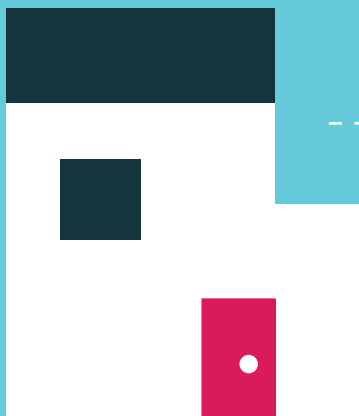
Purpose of this Briefing Note

This briefing note specifically argues for a disaggregation of pro-environmental behaviour into habitual and occasional behaviour. The former captures routine everyday activities such as regularly buying organic food or habitually conserving water. The latter describes occasional activities such as installing insulation and purchasing energy-efficient household appliances.

Drawing on a survey of 1,500 households in the Republic of Ireland and Northern Ireland, this study developed two behavioural and one attitudinal index to investigate household consumption. Respondents were grouped according to their scoring on each index. Results show that the socio-demographic and attitudinal profiles of households that report habitual pro-environmental behaviour differ significantly from those that engage in occasional actions. This clearly impacts on environmental and sustainability policy, most notably the financial incentivisation of sustainable consumption. Moreover, significant social sustainability issues arise, with rewards for once-off activities disproportionately benefiting better-off households while those who engage in routine pro-environmental behaviour tend to face higher costs.

This document is just one of several outputs from CONSENSUS researchers at the Department of Geography at the National University of Ireland, Galway. This report comprises results from work package 1 'Segmenting for Sustainability' of CONSENSUS #2 research project. For detailed and extensive results of this research, please refer to the main policy report entitled *From Ever-Greens to Never-Greens - Segmenting for Sustainability across the island of Ireland* (see Lavelle and Fahy, 2015).

1,500
Households Surveyed



State of Knowledge

Existing research on pro-environmental behaviour and those who engage in it rarely distinguishes between different types of activities. Habitual activities such as buying organic food and occasional acts such as the purchase of an energy-efficient household appliance are regularly treated as parts of the same phenomenon. This lack of attention to observable differences in the quality and frequency of activities classified as 'pro-environmental behaviour' seems all the more puzzling given that these types pose different challenges to those who seek to adopt them. Habitual, routine behaviour tends to present considerable material and motivational hurdles regarding their persistent upkeep over time, many of which arise from people's day-to-day exposure to a largely unsustainable system of production and consumption. At the same time, the true cost of habitual pro-environmental behaviour may remain hidden due to it spreading across long periods of time. In contrast, occasional or once-off pro-environmental actions tend to require much less sustained behavioural effort, though serious financial investments might be needed. As a result, the latter has been the target of government schemes in Ireland and elsewhere that tries to reconcile the desire for economic growth with environmental protection goals. Car scrappage schemes, intended to boost sales while rejuvenating the car fleet, or the introduction of government-led financial incentives for home insulation and retrofitting to reduce household energy consumption exemplify this. In contrast, much less effort has been put into promoting changes in habitual behaviour through sustained policy interventions.

Segmentation Approaches

In the field of sustainability, there is significant merit in distinguishing between different groupings of individuals in terms of their consumption behaviours and attitudes. This is vital in order to critically examine what kind of tailored policy or interventions are needed based on evidence related to each particular segment grouping. Opting for a one-size fits all approach to behaviour change, sustainable consumption policy to date has tended to ignore the employment of focused initiatives. However, segmentation approaches are advantageous to the study of consumption in a number of ways.

For example:

Segmentation provides a richer redefinition of the key target audiences.

Segmentation approaches enable policymakers to develop more effective strategies that are closely aimed at addressing certain identified groupings. For example, communication strategies, or economic initiatives or pricing incentives can be designed to meet the needs of each grouping.

Segmentation enables policymakers to focus or tailor future policy implementation according to which segment of a population they wish to influence or 'nudge'.

The use of segmentation methods also enables comparisons between different lifestyle groupings on a range of consumption issues. For example, segmentation analysis has the potential to indicate which groups are actively seeking to influence their friends and family to be more environmentally friendly or which groups are most hesitant towards increased environmental taxes and levies.

There are also potential limitations and criticisms that can be directed at segmentation approaches. Such approaches tend to view lifestyles as (relatively) unproblematic discrete sets of practices that are stable over time. Segmentation approaches also produce data that describe snapshots in time as opposed to generating longitudinal data. These approaches also tend to perceive pro-environmental behaviours as relatively unproblematic sets of practices. Such approaches view segmentation groups as context specific and do not generalise to exterior environments, such as work contexts and holiday contexts. Instead, segmentation approaches are often developed and implemented for particular practical applications.

Recognising the diversity of actors and behaviour, this research utilised segmentation analysis to explore the uptake of habitual and occasional pro-environmental behaviours'.

Methodology & High Level Findings

Research Approach

This study employed a quantitative research design to investigate attitudes and environmental behaviours. A survey instrument – the *CONSENSUS Lifestyle Survey* – was developed to capture large-scale data on attitudes and behaviours from 1,500 people residing in urban and rural areas in Northern Ireland and the Republic of Ireland: Galway, Derry/Londonderry and Dublin. This research produced the largest dataset to date on attitudes and environmental behaviours in an all-island Irish context.¹

Respondents in this study were asked to indicate which habitual behaviours (such as reducing energy use in the home, cutting down water use, avoiding products with excess packaging, buying reusable products instead of disposable ones, and repairing items rather than buying new ones) they had undertaken during the past month. Respondents were also asked if they undertake a number of occasional actions (such as installing insulation, switching to energy renewable supplier, purchasing an energy efficient product) in the five years prior to being surveyed.

This research devised a typology instrument to identify groupings of respondents according to their attitudes and behaviours towards consumption and lifestyles in an all-island Irish context. Two separate performance indices were created based on habitual behaviour items and occasional behaviour items from the survey data, in order to develop two typology tools. For the purposes of developing each typology, one behavioural scale was utilised at a time in conjunction with the ‘attitudinal scale’. Scoring along these two behavioural indices enables respondents to receive a total behavioural score on each of the two types of behaviours discussed.

Key Results

Two typologies of consumers were identified based on occasional and habitual behaviour and pro-environmental attitudes and four groupings were classified under each of the two typologies. Based on the results of exploratory factor analysis and the application of cut-off criteria to produce two groups for each of the three scales (respondents with scores below threshold versus those with scores above and at the threshold), eight different groups of consumers were constructed. The four groups in the occasional behaviour

typology (Typology 1 in Table 1) were labelled as: Dark-Greens, Browns, Light-Greens and Yellows. Regarding habitual behaviour, four different labels were used: Ever-Greens, Aspiring-Greens, Accidental-Greens and Never-Greens (Typology 2 in Table 2). As overviewed below a number of key emerging trends or patterns were observed in individuals’ responses according to varying socio-demographic variables such as age, gender, income, education.

Table 1 : Typology 1

Respondents’ expressed attitudes by occasional pro-environmental behaviours.









	Occasional behaviours +	Occasional behaviours -
Pro-environmental attitudes +	Dark Greens 	Yellows 
Pro-environmental attitudes -	Light Greens 	Browns 

Table 2 : Typology 2

Respondents’ expressed attitudes by habitual pro-environmental behaviours.

	Habitual behaviours +	Habitual behaviours -
Pro-environmental attitudes +	Ever Greens 	Aspiring Greens 
Pro-environmental attitudes -	Accidental Greens 	Never Greens 

An extensive overview of all profiling of all groupings is available in the full report (see Lavelle and Fahy, 2015). The profiling was based on socio-demographic characteristics, as well as differences across the groupings in relation to four areas of consumption studied: water, transport, food and energy consumption.

¹ For further information on methodology, please refer to Lavelle, M.J. (2014) *Towards Sustainability: Household Consumption and Lifestyles in the Republic of Ireland and Northern Ireland*. Unpublished thesis, The National University of Ireland, Galway.

Typology 1

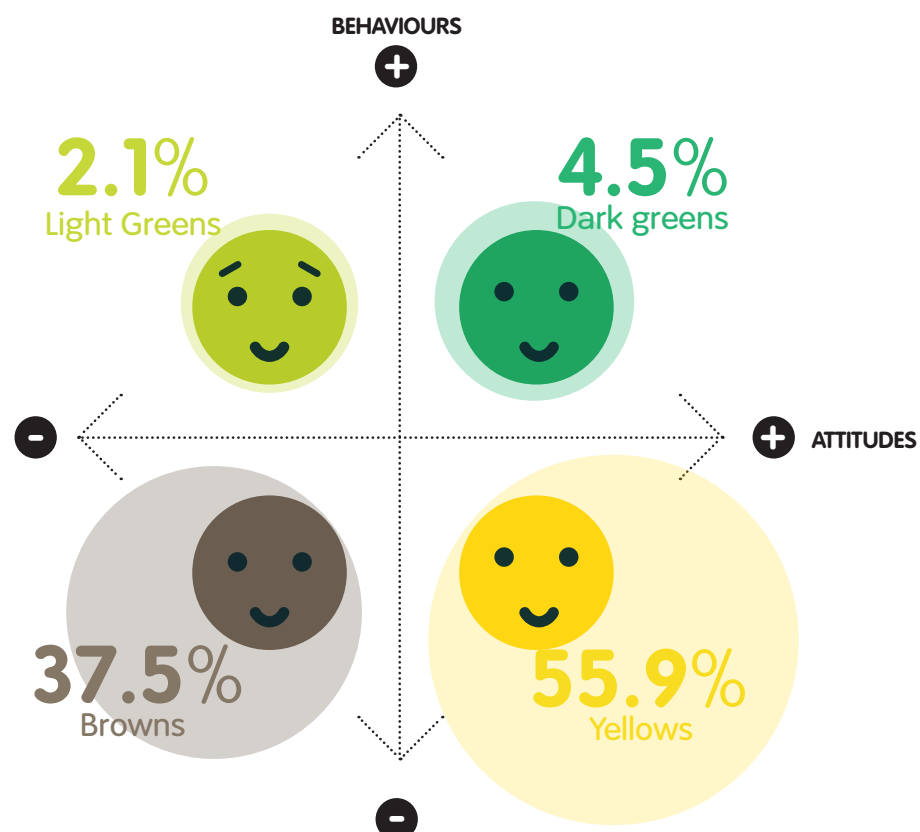
Our results illustrate the ability to construct four categories of consumers from CONSENSUS Lifestyle Survey data based on expressed attitudes and reported occasional behaviour. Based on respondents' ability to obtain scores above certain thresholds concerning their reported exhibition of green-brown occasional behaviours and their expressed green-brown attitudes, four categories of consumer were identified (see Figure 1).

To summarise, these categories are: Dark-Greens, Browns, Yellows and Light-Greens. Figure 1 shows these four groupings positioned along an attitude-occasional behaviour continuum.

Individuals in the Brown category had the lowest mean age (43 years) across the four groupings, whereas respondents in the Light-Green grouping had the highest mean age (47 years). Yellows and Light-Greens were more likely to be homeowners (83% and 78% respectively). Dark-Greens and Light-Greens reported the highest mean number of residents ($m=3.18$ Dark-Greens and $m=3.3$ Light-Greens). Individuals in the Yellow

grouping had the lowest average number of persons (3.11) per household. The Brown grouping had the lowest percentage of respondents who had attained third level education (47%). Respondents in the Dark-Green category had the greatest number of respondents with third level education (69%). A slightly greater percentage of Dark-Greens and Yellows resided in rural locations (57% and 54%). Similarly, a greater number of Browns and Light-Greens resided in urban areas (57% and 47%), as opposed to rural areas. A greater number of the Brown grouping (46%) reported a net household income of less than €37,999 after tax and deductions. A greater number of Dark-Greens (7%) and Light-Greens (5%) reported earning somewhere in the highest income cohort listed on the survey (i.e. > €114,000).

Figure 1:
Overview of four groupings positioned along an attitude-occasional behaviour continuum.



Typology 1

Examples of consumption behaviour profiles of groupings in Typology 1: Occasional Behaviour

Water and energy use

- Dark-Greens (49%) were the most likely group to agree that they had reduced their water use in the past month for environmental reasons.
 - Dark-Greens and Light-Greens (i.e. groups who displayed green behaviours) were more likely to agree that they did not have a right to use as much water and energy as they wish (75%) compared to the two groups who displayed Brown environmental behaviours (i.e. Yellows and Browns) (53%).
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Energy reducers

- Dark-Greens were the biggest energy reducers, with 57% stating that they cut back on energy use in the home in the past month for environmental reasons.
 - Browns were the smallest energy reducers, with 37% of this grouping stating that they had cut back on energy use in the home in the past month for environmental reasons.
-

Purchased an energy efficient appliance

- The vast majority of Dark-Greens (96%) reported purchasing an energy efficient appliance in the past five years.
 - Less than half of Yellows (45%) had reported purchasing an energy efficient appliance in the past five years. This was the second highest figure although drastically lower than Ever-Greens (96%).
 - Light-Greens were the least likely group (32%) to report purchasing an energy-efficient appliance in the past five years.
-

Switched to a renewable energy supplier

- Light-Greens were the most likely group (84%) to report changing to a renewable energy supplier in the past five years.
 - Yellows (18%) and Browns (15%) were the least likely groups to report switching to a renewable energy supplier during the past five years.
-

Purchasing behaviours

- A greater number of respondents in the Dark-Green group reported that they avoided purchasing goods with excessive packaging (37%).
 - Light-Greens (34%) and Dark-Greens (33%) were most likely to report repairing items rather than purchasing new ones.
 - Light-Greens (44%) were the most likely group to report shopping or paying a bill online.
 - Light-Greens (69%) were most likely to report purchasing reusable rather than disposable items.
 - Browns were least likely to report undertaking pro-environmental purchasing decisions. For example, 21% of Browns reported avoiding purchasing goods with excessive packaging; 47% of Browns reported purchasing reusable rather than disposable items; 20% of Browns reported repairing items rather than purchasing new ones; and 30% of Browns reported shopping or paying a bill online.
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Typology 2

Overview of four newly constructed typologies based on habitual behaviours.

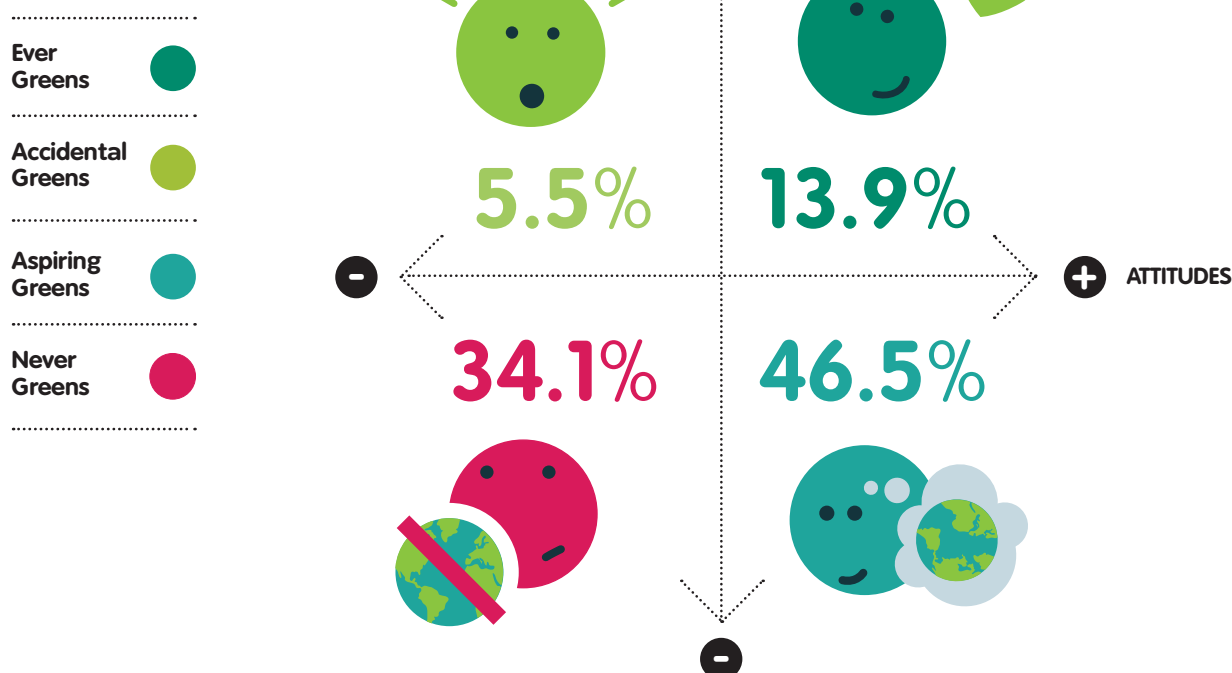
Four categories of consumers were also constructed based on expressed attitudes and reported habitual behaviour. Figure 2 shows these four categories of consumers positioned along an attitude-habitual behaviour continuum. To summarise these four categories are: Ever-Greens, Accidental-Greens, Aspiring-Greens and Never-Greens.

Never-Greens group scored the lowest mean age (43 years). Respondents in the Aspiring-Greens group reported the highest mean age (46 years). There were substantially more females in the Ever-Greens group (63%) and in the Aspiring-Greens group (62%). Ever-Greens and Accidental-Greens groups tended to have a lower mean number of residents residing in their home (mean=3.05 and mean=2.93), in comparison to the Never-Greens (mean=3.19) and Aspiring-Greens (mean=3.13). The Aspiring-Greens group had the

highest proportion of homeowners (77%). The Ever-Greens group had the largest percentage of renters (28%) and also the greatest number of individuals with third level education (65%). The Accidental-Greens group had the highest percentage of unemployed persons (13%). The Accidental-Greens and Aspiring-Greens groups had the highest percentage of retired respondents (20% and 19% respectively). A greater number of Ever-Greens and Aspiring-Greens resided in rural locations (52% and 55%). Never-Greens and Accidental-Greens respondents were slightly more likely to reside in urban areas (56% and 59%). In terms of income, Never-Greens and Accidental-Greens appeared to have the greatest percentage of respondents who reported earning less than €37,000 total household net income in the past year (45% and 47% respectively). Aspiring-Greens and Accidental-Greens groups comprised the greatest percentage of respondents who earned greater than €114,000 net household incomes per annum (4% and 4% respectively).

Figure 2:

Overview of four groupings positioned along an attitude-habitual behaviour continuum.



Typology 2

Examples of Consumption Behaviour Profiles of Typology 2: Habitual Behaviours

Transport – Commuting to work, school or college

Ever-Greens had the highest percentage of individuals who walked their commute to work, school or college (8%), the highest percentage of cyclers (11%) and lowest proportion of car users (44%) for this same commute.

Aspiring-Greens (i.e. those individuals who were classified as green in terms of attitude but brown in terms of their behaviour) reported the lowest level of walking (6%), cycling (4%) and public transport usage (5%) across the four groupings.

Aspiring-Greens reported the greatest levels of car use (either as driver or passenger) (53%) for their commute to work, school or college.

Food Consumption – Groups' consciousness of food sources and production

Awareness of food production methods was quite mixed across the four groups. Ever-Greens (83%) were the most likely group to pay attention to where and how their food is produced.

Never-Greens (54%) were the least likely group to pay attention to where and how their food is produced.

Trust in eco-labels

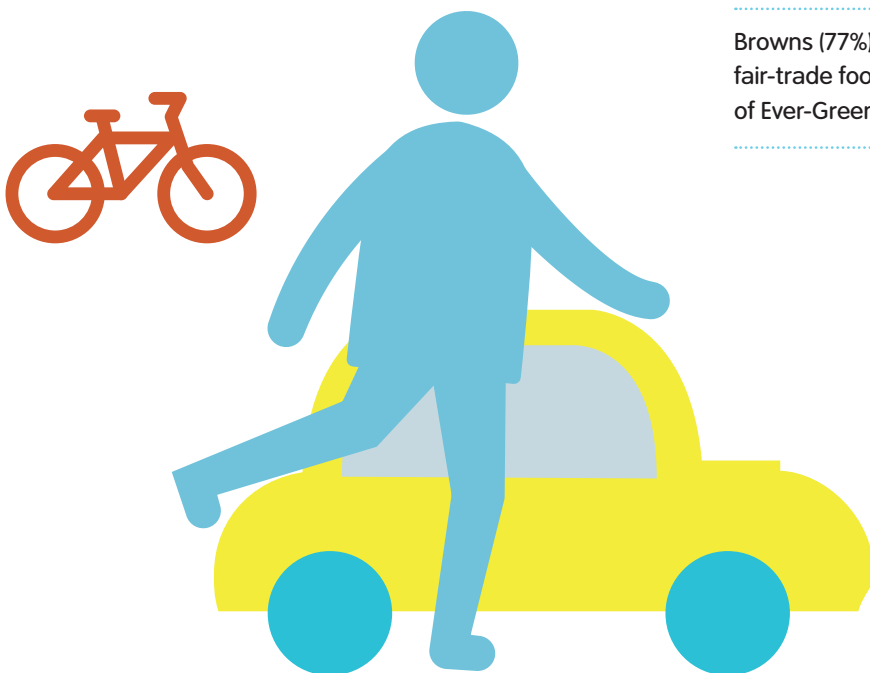
Ever-Greens (71%) and Aspiring-Greens (74%) were more likely to trust eco labels, in comparison to Never-Greens (58%) and Accidental-Greens (52%).

Belief in the need to conserve water

The majority of Ever-Greens (94%) reported that there is a need to save water, compared to 72% of respondents in the Brown group.

Organic and fair-trade food

Browns (77%) were most likely to agree that 'organic and fair-trade food is too expensive to buy', in comparison to 56% of Ever-Greens.



The True Greens

Given the differences in the composition of the 'green' acting and 'brown' acting groups across the two typologies (i.e. occasional and habitual behaviour), the results would suggest that a distinction needs to be made between habitual and occasional pro-environmental behaviour. For this reason, the authors investigated whether or not respondents who practised 'green' occasional behaviours differ greatly from those respondents who engaged in 'green' habitual behaviours.

To achieve this aim, respondents categorised as 'green' acting in terms of Typology 1 (attitudes by occasional behaviour) were compared to the 'green' acting group in Typology 2 (attitudes by habitual behaviour).

Having extensively profiled the 'green' acting respondents in Typology 1 and 2, we can conclude that relatively little overlap exists between those respondents categorised as 'green' based on their occasional behaviours (7%) and those individuals who are categorised as 'green' acting in relation to their habitual behaviours (19%). Only 35 respondents (2.3% of the total sample) who were classified as 'green' according to their occasional behaviours also engaged in 'green' habitual behaviours. We term this very small group of 'green' acting individuals as 'True-Greens'. A thorough descriptive analysis of the True-Greens found more women (n=20, 57%) than men (n=15, 43%) in the group. The majority of True-Greens attained third level education (n=24, 71%). This group comprised predominantly of homeowners (n=25 or 76%), then renters (n=6, 18%) and finally those respondents who resided in their homes rent-free (n=2, 6%). The majority of True-Greens were employed (n=14, 40%), with 20% comprising the category 'other' (n=7), 17% retired (n=6) and equal numbers of students and unemployed individuals (n=4, 11%).



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Conclusions

The findings presented in this research (and detailed further in the full report) clearly illustrate the heterogeneity and richness of pro-environmental behaviour, thereby challenging much existing research that treats different types of 'green' behaviour as part of the same phenomenon.

In an attempt to unpack 'pro-environmental behaviour' as a category, this report examined two distinct types of actions – habitual everyday behaviours and occasional actions – presenting evidence for their distinct characteristics and capturing variations between respondents who reported them. Results of this report show that in order to increase pro-environmental behaviours, a tailored policy approach to different groups of individuals may be more successful than general policy interventions for all.

This research is innovative in its segmentation approach and method as it utilised two temporal behavioural indices to construct groupings of respondents. The research dismantled the notion that pro-environmental behaviours are uniform in character. Instead, the development of two scales, the first based on habitual everyday pro-environmental behaviours and the second on occasional behaviours, permitted greater insight into respondents who undertook each type of action. As discussed in this document, segmentation approaches to pro-environmental behaviour change are not without their shortcomings.

This research has major implications for changing consumption behaviour. The act of thinking about target groups will itself make a difference to the way in which sustainability campaigns are designed and implemented. Instead of treating society as one homogenous group and trying to find the perfect model for the whole population, this approach focuses on identifying subgroups that have experienced a comparable set of events and subsequently has significant potential to further advance our understanding of pro-environmental behaviours.

The policy relevance of the findings presented in this research cannot be overestimated. There is clearly a need for all policy

actors to recognise the complex, multi-layered nature of pro-environmental behaviour. Using an innovative segmentation approach that focuses on the identification of different behaviour types and diverse groups of people, our research succeeds in demonstrating the characteristics of different groups of respondents who undertake either one of these behaviour types, or both. This opens up new avenues for the development of sustainable consumption interventions that are tailored to particular population groups and that depart from 'one-size-fits-all' approaches that have hitherto dominated sustainable consumption policy in Ireland and Europe.

Given the urgency of many current sustainability challenges and the limited effectiveness of many policy initiatives to date, our efforts to promote a more nuanced understanding of 'pro-environmental behaviour', especially in key consumption sectors such as energy, water and mobility, seem timely. Importantly, our research reveals the strong impact of socio-demographic factors on people's ability to behave more sustainably, thereby highlighting the need to take seriously the close interconnections between social justice and environmental protection. Existing sustainable consumption policy that is largely insensitive to socio-demographic differences, including differences in income, educational status and housing tenure, is likely to miss its objectives and to leave unaddressed, or potentially exacerbate, social inequalities.

We recommend that future sustainable consumption policy incorporates social-scientific evidence such as the findings presented in this paper to ensure that social and environmental sustainability goals are given equal weight. There is a clear need for multi-faceted policy approaches to promote environmental behaviours, involving an instrumental mix of policy tools at multiple levels with multiple actors; drawing on a full range of policy and communications tools. Tools can and should be combined across policy and communication spectrums. Policy approaches need to acknowledge the crucial role of human choice in terms of implementing sustainable technologies and changing unsustainable consumption patterns.

Overall, this research has produced valuable evidence and data that highlights a need and demand for greater governmental action and investment in relation to efforts to promote sustainable consumption and lifestyles.

About the Authors

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Mary Jo Lavelle is a Postdoctoral Researcher in the School of Geography and Archaeology at the National University of Ireland, Galway.

Mary Jo's research interests are situated in the field of environmental sustainability; specifically household consumption behaviours, sustainable lifestyles, and health and wellbeing. Mary Jo is particularly interested in the conceptual models that underpin environmental behaviour change. Her PhD research for the CONSENSUS project explored household consumption behaviours and sustainable lifestyles across Ireland. Her current research activities concern the role of segmentation analysis and its utility in promoting greater understanding of pro-environmental behaviours.

She received awards for her research from the German Federal Ministry of Education and Research; the College of Arts, Social Sciences and Celtic Studies; and the Centre for Environment, Development and Sustainability at NUI, Galway. Mary Jo has published articles in peer-reviewed journals such as *Global Environmental Change*, *Quality in Ageing and Older Adults*, and *Irish Geography*.

Dr Frances Fahy

Dr Frances Fahy is a Senior Lecturer and Head of Geography at the National University of Ireland, Galway.

Frances' primary research interests are in the field of sustainable consumption and environmental planning, specifically the social and cultural consequences of environmental change. Frances has published widely and led a number of research projects exploring governance for sustainable consumption, innovative methods for public participation in planning and the development of collaborative planning tools. Her publications include two edited volumes – *Methods of Sustainability Research in the Social Sciences* (with Prof Henrike Rau, Sage, 2013) and *Challenging Consumption* (with Prof Anna Davies and Prof Henrike Rau, Routledge, 2014) – and peer reviewed articles in *Global Environmental Change*, *Area*, *Nature and Culture*, and *Journal of Consumer Policy*.

Frances is the Chair of the Planning and Sustainability Research Cluster in Geography at NUIG. She is the past President of the Geographical Society of Ireland (2012-2014) and a past Chair of the Planning and Environment Research Group (PERG) of the Royal Geographical Society (2007-2012). Frances was the recipient of the 2013-14 Fulbright Scholar Award and travelled to WPI in the US to conduct research on: Communicating Sustainability Research – Challenges, Opportunities and Dissemination Strategies.

Further Readings & Resources:

Lavelle, M.J., Rau, H., and Fahy, F. (2015) Different shades of green? Unpacking habitual and occasional pro-environmental behavior. *Global Environmental Change*, 35, 368-378. doi:10.1016/j.gloenvcha.2015.09.021.

Lavelle, M.J. and Fahy, F. (2015) *From Ever-Greens to Never-Greens – Segmenting for Sustainability across the island of Ireland*. Wexford: Environmental Protection Agency. Available at: www.epa.ie/pubs/reports.

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For further details on CONSENSUS Project publications, please see website: www.consensus.ie.

About CONSENSUS

The CONSENSUS Project (CONSumption, ENvironment and SUStainability) is an interdisciplinary, collaborative cross-border research project involving researchers from the National University of Ireland, Galway and Trinity College Dublin. This seven-year research project is funded by the Environmental Protection Agency (EPA) under the Science, Technology, Research and Innovation for the Environment (STRIVE) Programme 2007–2015. This project examines four key areas of household consumption that currently impact negatively on the environment and inhibit our ability across the island of Ireland to achieve sustainable development: energy, water, food and transport. The CONSENSUS Project comprises of a set of integrated work packages that combine foundational, exploratory and integrative research initiatives. Full details of the CONSENSUS Project, and its findings, can be accessed online at www.consensus.ie.

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