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Examining Relations Between Public Participation and Public Expenditure: Opinions from English and French Users on Environmental Issues in the English Channel

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Abstract: Governments need to decide how to allocate their public expenditure, which is commonly misconstrued as simply targeting social issues. Most scientific literature highlights that the role of public spending is to enhance social welfare and fight poverty and inequality. Nonetheless, public expenditure also includes spending on environmental issues. This paper analyses relations between public participation, support for public expenditure, and pro-environmental behaviour (PEB) intentions in the English Channel region. An online public survey was developed to investigate public use of the English and French sides and the public's willingness to change their behaviour to better protect the Channel region. The survey was undertaken in the summer of 2014 and was answered by 2000 respondents. The Channel region public is willing to participate more in behaviour that involves direct changes or switches between buying/purchasing choices. In contrast, there is less willingness to engage in pro-environmental behaviour intentions that involve more active engagement activities. French respondents were slightly less inclined to change their consumer behaviour intentions, while women and older people were slightly more likely to do so. This research shows that pro-environmental behaviour could positively affect support for proposed public expenditure on environmental issues.

Keywords: public expenditure; public participation; pro-environmental behaviour; willingness to change; English Channel

1. Introduction

Governments have to decide how to allocate their expenditure [1] since budgets are limited [2]. Public spending can effect growth and distribution [3] and determine regional development [4]. The level and composition of expenditure can be used to influence policy objectives [3].

Most scientific literature highlights that the role of public spending is to enhance social welfare and fight poverty and inequality [2,5], and there is a popular misconception that public expenditure refers solely to social welfare programmes [2]. Nonetheless, public expenditure also addresses issues including crime prevention, defence, science, technology and public education [5], as well as important spending on environmental issues [6].

This paper is aimed at analysing the relationship between public participation, support for public expenditure, and pro-environmental behaviour (PEB) in the English Channel region.

This paper is structured in the following way. After the literature review (Section 2), Section 3 presents the project of which this study is a part, the research design, and the methods used; Section 4 discusses the results, and Section 5 presents the conclusions.

2. Public Expenditure and Public Participation in Environmental Decisions

Public opinion affects policy behaviour, such as that relating to public expenditure, especially when the issue is seen as relevant to society [1,7]. Public participation is important for public spending decisions and policy-making at all levels of government [8,9], particularly where attempts are being made to scale up processes of civic engagement to the macro level [10]. Although public opinion influences public policy [1,7], it is not clear how much influence public opinion has on policy behaviour.

Governments have to ensure that the public is reasonably well-informed in order to achieve effective participation in policy formation [11]. Citizen feedback can be received by policy-makers in different ways, such as by inviting feedback (via, for example, focus groups) about their satisfaction with the services they receive from governments [8]. Processes for adopting, implementing, or evaluating policies by their citizens have been attempted in some countries, such as Ireland, Brazil and India [10].

It is commonly assumed that the public knows about and reacts to what governments do, and, because of this, policy-makers may take into account public opinion on public expenditure, for instance [1], and its management through budgeting [8]. According to Heimans [8], there are four phases of participatory budgeting: (1) formulation, when the budget 'is being made'; (2) analysis, after the budget is presented in the legislature; (3) tracking, once the budget is approved; and (4) performance evaluation or assessment.

Public participation in public expenditure management requires communication flows between civil society and policy-makers, facilitating understanding and contributing to joint action [9]. Improved access to information and public participation in decision-making enhances the quality and the implementation of decisions [6,12]. However, participatory budgeting may also present risks, such as the loss of legitimacy of parliaments or potential fiscal impact due to the increase in public demands by allowing participation in public expenditure [8]. Previous research has studied individual attitudes toward government spending and the influence of social-demographic variables on these attitudes, with this influence varying greatly from country to country [13,14].

Agenda 21 highlighted the participation of civil society in economic, environmental and social change as one of its most important themes [11] and advocated for the implementation of mechanisms for communities in order to give the wider population ways in which they could participate in sustainable management activities. This emphasises the importance of public participation in promoting sustainable development at national and local levels [15,16].

According to O'Faircheallaigh [6], public participation has the following benefits for the transition to sustainability: sharing information, involving the community at an early stage of decision making, taking community aspirations into consideration, giving the community the ability to influence the outcomes of decision making, access to local knowledge, broadening the range of solutions considered, avoiding costly litigation, strengthening the democratic fabric of society, acting as a vehicle for individual and community empowerment, and promoting individual and social learning. However, the rationale for seeking greater public participation is not usually clearly articulated.

Public participation has become important in decision making, (for example in environmental impact assessment (EIA) [6]) and has been explicitly emphasised in the Aarhus convention [12], which states that citizens must have access to information and participation to protect, preserve, and improve the state of the environment and to ensure sustainable development.

Citizen support is essential in supporting political measures [17] and environmental issues [18]. Citizen support for environmental policy has indirect effects on the environment and can be presented in different ways, for example, in a willingness to pay higher taxes [19]. Research at the European

level includes a study of public opinion on the key issues facing the European Union (EU), with issues including immigration, the economy, and environment [20]. Understanding the public's views on future priorities for the governance of the environment can enable national and local government authorities to make informed decisions regarding future funding priorities and management, and lead to improved cooperation between stakeholders, institutions and governments [21].

Various environmental problems are rooted in human behaviour, which needs to be changed, since the exclusive use of technical solutions tends to be insufficient [15]. Pro-environmental behaviour (PEB) is an essential part of orienting societies towards a more sustainable future [22]. Environmental behaviour is determined by a combination of situational, psychological and value-based factors that provide a complex response by citizens [23]. According to Stern et al. [18], policy support is influenced by pro-environmental personal norms, which are affected by personal values. For example, higher levels of pro-environmental behaviour are more likely to result in reduced meat consumption [24], with self-interested motives and pro-social motives playing significant roles in an individual's intention formation when deciding on choosing organic menu items when dining out [25], norms, values and beliefs being associated with travel mode choice [26], and willingness to address climate change issues being positively correlated among all types of climate-friendly actions [27]. Perceived behavioural control, attitudes, and moral norms are the strongest predictors of pro-environmental intentions and behaviours [28]. The theory of planned behaviour (TPB) highlights that intentions are the strongest predictor of future behaviour [29].

Most research on public participation and the environment has been related to climate change issues (e.g., [22,25]), to anthropogenic impacts on the marine environment [30,31], or to flooding and sea-level rise [32]. However, there has been limited research on public participation and the use of marine and coastal environments [33]. At the regional level, there has been research into public preferences for use of the Baltic Sea [34]. At the national level, in the United Kingdom (UK) there have been studies performed on public engagement with, and attitudes towards, the wider environment [35], attitudes towards marine protection and the marine environment [21,36,37], and on public participation in making local environmental decisions [38]. There has been little research on linking public participation, public expenditure, and pro-environmental behaviour, especially for marine environments.

3. Methods

An online public survey was developed to investigate public use of the English Channel as a leisure resource, the public's preferences for spending public money on the region in general and on the marine and coastal environments more specifically, and the public's willingness to change their behaviour to better protect the Channel region. The survey was part of a research study conducted from 2014 to 2015. All questions were closed-ended.

An online survey was undertaken in the English Channel region in the summer of 2014. The survey was funded by the Interreg Europe programme (Interreg, undated) which provides funding for inter-regional cooperation projects under the Promoting Effective Governance of the Channel Ecosystem (PEGASEAS) Project, which has 14 participating organisations, including academic and local government agencies (seven organisations in each of England and France). The survey was conducted by Global Marketing Insite (GMI); GMI changed its name to GMI Lightspeed subsequent to the carrying out of the survey. GMI holds information on country, gender, age, employment, and education for the panel of potential survey respondents globally.

The survey questions were developed to combine both the requirements of Interreg for data on public funding preferences in the Channel region, and the research agendas of academic partners in the PEGASEAS Project. The survey covered the areas of southern England and northern France, as illustrated in Figure 1. The responses to the online survey were received from all the English counties and French *départements* identified in Figure 1, since all are located in the France (Manche)—England region, as defined under the Interreg V programme for 2014 to 2020.

Figure 1. English Channel map showing Interreg V eligible areas. Source: [39] (map courtesy of the Challenger Society, United Kingdom (UK) [40]).

The survey had four sections, the first of which covered basic information such as where the respondents lived (selected from the list of Interreg eligible areas as set out in Figure 1), the type of area they lived in (urban, suburban, village/rural or other) and their employment status (for example, in full time employment, self-employed, or retired).

The second section asked how frequently the respondents visited the English Channel region (in France, England or on both sides of the Channel), why they visited the Channel Region (for a holiday, work, recreation, to live there, for travel or another reason) and what they did when they visited the region (respondents could select as many options as were applicable from 15 types of activity).

The third section asked respondents to rank a number of funding priorities for the English Channel that had been identified by the funding body, Interreg, and used a five-point scale from not important to very important. From the online survey Interreg sought information under the broad themes of business and local economy, renewable energy, tourism and natural and cultural heritage, environment, and regeneration and deprivation. The respondents were asked to rate 13 specific priorities that could be funded to improve the English Channel coastal region in order to help direct the Interreg funding agenda for the period 2014–2020. The Interreg funding priorities used are set out in Table 1. Additionally, in the third section, the respondents were provided with a list of 17 marine and coastal environment-specific funding preferences, and were asked to select their five most favoured and five least favoured preferences. These funding preferences were as follows: protecting plants and animals in the sea; protecting plants and animals on the coast; working with businesses to become more sustainable and eco-friendly; creating new job opportunities on the coast and in the seas; promoting marine recreation and leisure opportunities; supporting the fishing industry; encouraging eco-friendly developments around ports; encouraging offshore marine renewable energy; enhancing safety at sea; promoting marine pollution prevention; improving coastal flood defences; identifying priorities for

coastal adaptation to climate change; ensuring clean water and beaches; creating stronger cultural links across the Channel; promoting cultural heritage and the arts around the Channel; developing better transport links across the Channel; and promoting research to support the better management of the Channel. The respondents were requested to rank the level of importance they placed on each funding priority, using a scale from not important to very important. These preferences have been considered elsewhere [21] and are not considered in this paper.

Table 1. Public priorities for the INTERREG V-A France (Channel)-England cross-border cooperation programme 2014–2020.

Theme	Public Priority
Business and local economy	To support and develop future sustainability in business To help businesses better respond to economic pressures and/or create new jobs To strengthen and build networks between businesses and other stakeholder groups
Renewable energy	To further research into renewable energy technology and its potential impacts (on land and sea) To increase the use and awareness of renewable energy by businesses and the public
Tourism and natural and cultural heritage	To promote tourism and interest in the history, culture and geology and other attractions on the Channel coast To support local businesses providing services or goods to visitors and tourists to the Channel Coast
Environment	To raise public awareness of the Channel environment (e.g., through campaigns and social media) To reduce pollution and improve the management of environmental risks To improve the management of natural resources and conservation of the Channel environment To increase awareness of the benefits that the Channel environment provides to humans (e.g., fish, leisure and recreation, and health) To support adaptation to climate change
Regeneration and deprivation	To support physical, economic and social regeneration in deprived urban and rural communities

The fourth section of the survey examined PEBs of the respondents. Academic partners within the PEGASEAS Project developed a list of PEBs and the survey asked respondents, based on their knowledge and previous responses to the survey, to identify if they had, or would be willing to, change their behaviour to protect the environment. They were provided with eight options with respect to changing their lifestyle (including whether they could, could not, or already had changed their behaviour), and with 11 types of behaviour (from buying sustainably sourced fish to participating in marine planning activities). These pro-environmental behaviours and options for change are set out in Table 2.

Table 2. Pro-environmental behaviour and options for change.

Pro-environmental Behaviour	Options for Change
Buy sustainably sourced fish	I like my lifestyle the way it is and am not likely to make this change
Join marine conservation groups and take part in activities (e.g., beach cleaning)	I'd like to make this change, but I don't know what to do
Switch to energy from renewable sources	I'd like to make this change, but it's too difficult
Use fewer plastic bags	I'd make this change if I knew other people were doing it
Buy more organic or locally produced food	I intend to make this change
Write to your politicians about marine issues	I already do a lot to protect the environment and so it would be difficult to do more
Use more public transport	I already do this
Vote for politicians who support marine issues	Don't know
Participate in public meetings or coastal forums	-
Support campaigns for more marine protected areas	-
Take part in marine planning	-

The survey was initially tested by 200 respondents in total divided equally between England and France, as questions were provided in their native language in order to ensure that they were clear and not open to misunderstanding. As there were no changes needed to the survey, it was subsequently sent to more participants, until 999 responses from England and 1001 from France were received. The survey required all respondents to be over the age of 16 and reside in one of the eligible areas covered by the Interreg V programme for the Channel region, a list of which was provided to them. A breakdown of survey respondents is provided in Table 3.

Table 3. Characteristics of survey respondents as percentages (n = 2000).

	England (n = 999)	**France (n = 1001)**
Age group	%	%
25 and under	13.4	15.4
26–35	19.5	13.5
36–35	21.9	18.8
46–55	19.9	19.6
56–55	12.8	23.8
66 and over	12.4	9.0
Gender		
Male	44.5	48.5
Female	55.5	51.5
Education Level		
No formal qualification/diploma	7.5	2.8
GCSE/CSE/O level UK-GCSE/NVQ France	32.7	22.7
A Level/Scottish Higher UK-A Level France	24.7	28.1
Degree level qualification or equivalent	25.5	18.3
Masters Level qualification or equivalent	6.8	24.1
PhD Level qualification or equivalent	1.5	3.7
Not known	1.2	0.4
Employment Status		
Employee full time (30+ h/week)	40.7	48.1
Employee part time (less than 30 h/week)	13.4	7.9
Self-employed full time (30+ h/week)	7.0	2.5
Self-employed part time (less than 30 h/week)	2.4	1.2
In full time education	5.6	7.3
Retired	16.3	20.7
Not working for any other reason	14.5	12.3

GCSE: General Certificate of Secondary Education; CSE: Certificate of Secondary Education; O-level is the basic level in the UK; NVQ: National Vocational Qualification.

3.1. Data Analysis Methods

Non-parametric methods were used because many of the variables (for example PEBs) were measured in ordinal scales. The statistical analyses were conducted using IBM SPSS 22 for Windows [41]. A research model was developed to analyse the data (see Figure 2). A quantitative analysis was performed using the following techniques: first, principal component analysis (PCA) and non-linear PCA (NLPCA) were used in order to assist further analysis. An NLPCA is similar to an ordinary PCA but it can be applied to variables that are not ratio or interval scales, such as the ordinal scales used in this survey [42]. NLPCA uses a process called quantification to replace the original values with optimally scaled ones and then conducts a PCA. The number of variables was reduced using this technique. Second, several multiple linear regressions were performed. As a first stage, a regression analysis was undertaken looking at respondent characteristics and behavioural intentions (rows 6 to 18 in Table 4). A regression analysis was also undertaken looking at respondent characteristics and willingness to spend public funding (rows 19 to 29 in Table 4). A regression analysis was then undertaken between behavioural intentions and willingness to spend public funding. Table 4 shows the main descriptive data (minimum, maximum, mean and standard deviation) of the items. Within

the behavioural variables (rows 19 to 29 in Table 4) there were many missing values. These were, therefore, replaced by mean values in the regression analysis.

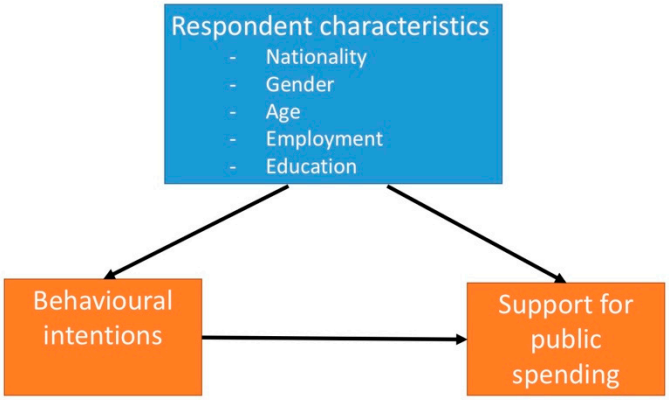

Figure 2. Research model explaining the relation between behavioural intentions and support for public spending.

Table 4. Descriptive data.

		N	Min.	Max.	Mean	Std. Dev.	Normalised Mean
1	Country	2000	0	1	0.50	0.500	
2	Gender	2000	0	1	0.54	0.499	
3	Age	2000	16	82	44.93	15.562	
4	Employment	2000	0	1	0.62	0.486	
5	Education dummy	1984	0	1	0.40	0.491	
6	To support and develop future sustainability in businesses	2000	1	5	3.65	0.981	0.913
7	To help businesses better respond to economic pressures and/or create new jobs	2000	1	5	3.62	0.983	0.905
8	To strengthen and build networks between businesses and other stakeholder groups	2000	1	5	3.25	1.035	0.813
9	To do further research into renewable energy technology and its potential impacts (on land and sea)	2000	1	5	3.70	1.016	0.925
10	To increase the awareness and use of renewable energy by businesses and the public	2000	1	5	3.58	1.045	0.895
11	To promote tourism and interest in history, culture and geology and other attractions on the Channel Coast	2000	1	5	3.80	0.934	0.950
12	To support local businesses providing services or goods to visitors and tourists of the Channel Coast	2000	1	5	3.72	0.931	0.930
13	To raise public awareness of the Channel environment (e.g., through campaigns and social media)	2000	1	5	3.53	1.008	0.883
14	To reduce pollution and improve the management of environmental risks	2000	1	5	3.96	0.950	0.990
15	To improve management of natural resources and conservation of the Channel environment	2000	1	5	3.97	0.901	0.993
16	To increase awareness of the benefits that the Channel environment provides to humans (e.g., fish, leisure and recreation, and health)	2000	1	5	3.77	0.935	0.943

Table 4. *Cont.*

		N	Min.	Max.	Mean	Std. Dev.	Normalised Mean
17	To support physical, economic and social regeneration in deprived urban and rural communities	2000	1	5	3.62	0.960	0.905
18	To support adaptation to climate change (e.g., environmental management and research)	2000	1	5	3.61	1.043	0.903
19	Buy sustainably sourced fish	1792	1	7	4.92	1.984	0.820
20	Join marine conservation groups and take part in activities (e.g., beach cleaning)	1645	1	7	3.31	1.820	0.552
21	Switch to energy from renewable sources (e.g., use solar panels)	1780	1	7	3.78	1.745	0.630
22	Use fewer plastic bags	1914	1	7	5.84	1.685	0.973
23	Buy more organic or locally produced food from the Coast	1783	1	7	4.41	2.047	0.735
24	Write to your local politicians about marine issues	1518	1	7	3.27	1.898	0.545
25	Use more public transport (instead of a private car)	1841	1	7	4.31	2.182	0.718
26	Vote for politicians who support marine issues	1543	1	7	3.99	1.951	0.665
27	Participate in public meetings or coastal forums	1515	1	7	3.08	1.840	0.513
28	Support campaigns for more marine protected areas	1655	1	7	3.73	1.835	0.622
29	Take part in marine planning	1492	1	7	3.07	1.734	0.512

3.2. Limitations of the Methods

Online surveys have limitations such as self-selection bias [43] and sample representativeness [44], as well as some possible small inherent bias from sampling respondents registered on a database with a market research company [43]. The difference in education levels between the groups may reflect differences in the education systems of the two countries. Only respondents residing close to the English Channel were included, which limits the findings to the surveyed population. Although beyond the scope of this study, including other comparable communities in other regions and countries would have increased generalisability. The data was collected as part of the PEGASEAS project. In ideal circumstances, data should have been collected at the beginning and at the end, but this was not possible due to the difficulty of tracing the respondents, combined with their anonymity. An adequate level of R^2 is not universally accepted, with some authors assigning different thresholds depending on the characteristics and criteria of their respective studies [45], whereas others stating that it is inappropriate to assign a specific R^2 threshold [46]. It is important to observe that residuals behave randomly to assess a model fit [47]. However, a relatively low R^2 value suggest that factors, other than those included in a regression model, explain a larger portion of the variation of the dependent variable.

4. Results and Discussion

Table 4 shows the results of the survey, where it can be seen that the variables with the highest mean (after normalisation against each variable's maximum) were: use of fewer plastic bags (PEB category); improved management of natural resources and conservation of the Channel environment (environment category); reduced pollution and improved management of environmental risks (environment category); promotion of tourism and interest in local history, culture and geology and other attractions on the Channel coast (tourism and natural and cultural heritage category); increased awareness of the benefits that the Channel environment provides to humans (environment category); support for local businesses providing services or goods to visitors and tourists to the Channel Coast (tourism and natural and

cultural heritage category); further research into renewable energy technology and its potential impacts (renewable energy category); support for and development of future sustainability in businesses (business and local economy category); help for businesses to better respond to economic pressures and/or create new jobs (business and local economy category); support for physical, economic and social regeneration in deprived urban and rural communities (regeneration and deprivation category); and support adaptation to climate change (environment category).

4.1. Reducing Number of Dimensions with Principal Component Analysis and Non-linear Principal Component Analysis

The constructs 'behavioural intentions' and 'willingness to support public spending' consisted of 11 and 13 items, respectively. In order to assist with further analysis, the number of variables used was reduced using PCA. The items on behavioural intentions were measured using ordinal scales, which meant that NLPCA was more appropriate than ordinary principal component analysis [42]. The variables were set as ordinals and the ranking method was used for discretization.

The outcomes of the PCA and the NLPCA were rotated using Promax (Tables 5 and 6). For the behavioural intentions dimension (see Table 5), the NLPCA produced two coherent dimensions which will be called 'participation' and 'consumer behaviour' in subsequent analysis. Both dimensions show satisfactory loading (the two columns in Table 5) and Cronbach alpha values. For the 'willingness to support for public expenditure' construct (Table 6), two items had to be removed in order to get two coherent dimensions. These were 'to raise public awareness of the Channel environment, e.g., through campaigns and social media' and 'to increase awareness of the benefits that the Channel environment provides to humans (e.g., fish, leisure and recreation, and health)'. After the two items were removed, the two dimensions did indeed have satisfactory component loadings and Cronbach alpha values. The two dimensions are named 'economic' and 'environmental' in subsequent analysis, reflecting the support for spending public money within these two areas.

Table 5. Non-linear principal component analysis of behavioural intentions.

	Dimension	
	Participation	**Consumer**
Buy sustainably sourced fish		0.878
Join marine conservation groups and take part in activities (e.g., beach cleaning)	0.851	
Switch to energy from renewable sources (e.g., use solar panels)	0.663	
Use fewer plastic bags		0.891
Buy more organic or locally produced food from the Coast		0.729
Write to your local politicians about marine issues	0.850	
Use more public transport (instead of a private car)	0.591	
Vote for politicians who support marine issues	0.709	
Participate in public meetings or coastal forums	0.877	
Support campaigns for more marine protected areas	0.775	
Take part in marine planning	0.864	
Cronbach alpha	0.92	0.68

Variance explained dimension 1 = 47%, dimension 2 = 18% (total 75%); Cronbach's alpha: dimension 1 = 0.92, dimension 2 = 0.68. KMO (Kaiser-Meyer-Olkin test) = 0.91, Bartlett's test of sphericity $p < 0.01$.

Table 6. Principal component analysis of willingness to support spending public money.

	Component	
	Economic	**Environmental**
To support and develop future sustainability in businesses	0.694	
To help businesses better respond to economic pressures and/or create new jobs	0.831	
To strengthen and build networks between businesses and other stakeholder groups	0.773	
To further research into renewable energy technology and its potential impacts (on land and sea)		0.797
To increase the awareness and use of renewable energy by businesses and the public		0.751
To promote tourism and interest in history, culture and geology and other attractions on the Channel Coast	0.720	
To support local businesses providing services or goods to visitors and tourists to the Channel Coast	0.879	
To reduce pollution and improve the management of environmental risks		0.874
To improve management of natural resources and conservation of the Channel environment		0.619
To support physical, economic and social regeneration in deprived urban and rural communities	0.674	
To support adaptation to climate change (e.g., environmental management and research)		0.891
Cronbach alpha	0.87	0.87

Rotation method: Promax with Kaiser normalization. Total variance explained = 63% (53% and 11%), KMO: 0.93, Bartlett test of sphericity $p < 0.01$, values under 35 suppressed.

4.2. Impact of Respondent Characteristics on Behavioural Intentions

In order to test the research model (Figure 2), multiple linear regression was used. In the first two regression models (Table 7), the impact of the characteristics of the respondents on behavioural intentions was tested. Five independents variables were used, of which four were dummy variables: country (France = 1), gender (female = 1), employment (in employment = 1) and education (university education = 1). The fifth variable was the age of the respondent. The results in Table 7 show that the independent variables' impact on behavioural intentions is generally rather low, although still significant for country, gender and age. The residuals for the participation model are skewed, which shows that the overall model is not satisfactory and the result are inconclusive. It cannot be determined whether any of the five items have any impact on 'participation' behavioural intentions. For 'consumerism' the residuals do indeed behave randomly, which strengthens the validity of the model. The results show that the French are slightly less inclined to change their consumer behaviour, while women and older people are slightly more likely to do so. Employment and education do not have any impact on consumer behavioural intentions. Note that the R^2 values are rather low, implying that other factors are needed in order fully explain behavioural intentions.

Table 7. The impact of respondent characteristics on behavioural intentions.

Dependent	**Behavioural Intentions: Participation**		**Behavioural Intentions: Consumerism**	
Independents	**Std. Beta**	**Sign**	**Std. Beta**	**Sign**
Country (dummy)	0.23	**	−0.06	**
Gender (dummy)	0.00	0.90	0.16	**
Employment (dummy)	0.07	**	−0.03	0.15
Education (dummy)	0.02	0.83	0.02	0.38
Age	−0.01	0.76	0.19	**
Model stats				
R^2	0.06		0.06	
Adjusted R^2	0.06		0.06	
F value	24.4 **		25.9 **	

n = 2001, ** $p < 0.01$.

4.3. Impact of Environmental Intentions on the Willingness to Support Spending Public Money (While Controlling for Respondent Characteristics)

The second stage of regression models (Table 8) tested the impact of respondent characteristics and behavioural intentions on support for spending public money. Multiple regression analyses were utilised, introducing clusters of variables sequentially. First, the impact of respondent characteristics was tested. Second, the 'participation' variable was added, and, then, the 'consumer behaviour intention' variable was included in the last multiple regression analyses.

Table 8. The impact of respondent characteristics and behavioural intentions on willingness to spend public money.

Dependent	**Willingness to Spend Public Money on Economy**			**Willingness to Spend Public Money on Ecology**		
Independent	**1st**	**2nd**	**3rd**	**1st**	**2nd**	**3rd**
Country	0.15 **	0.11 **	0.11 **	0.13 **	0.06 **	0.08 **
Gender	0.09 **	0.09 **	0.08 **	0.09 **	0.09 **	0.06 **
Age	0.15 **	0.15 **	0.14 **	0.09 **	0.09 **	0.06 *
Employment	0.05 *	0.04	0.04	0.02	0.00	0.01
Education	−0.03	−0.04	−0.04	−0.01	−0.01	−0.01
Intention: participation		0.18 **	0.16 **		**0.30 ** **	**0.26 ** **
Intention: consumer behaviour			0.09 **			0.16 **
Model stats						
R^2	0.048	0.077	0.084	0.029	0.113	0.136
Adjusted R^2	0.045	0.074	0.080	0.027	0.110	0.133
Change in R^2		0.029 **	0.006 **		0.084 **	0.023 **
F value	19.9 **	27.6 **	25.8 **	11.8 **	41.9 **	44.4 **

n = 2001, * $p < 0.05$, ** $p < 0.01$. The table displays standardized beta coefficients for all independent variables.

The results show that country, gender and age have some impact on willingness to support spending public money: the French are more likely to support public spending, as are women and older people. This partially contradicts the findings of Park [13] and Svallfors [14], who indicated large differences in attitudes between countries. The explanatory power of the first model is low. The impact of respondent characteristics is much lower than the impact of the two types of behavioural intentions: 'participation' and 'consumer behaviour'. These 'behavioural intentions' are significantly associated with willingness to support spending public money, and are the strongest predictors for future behaviour (see [29]). The results imply that people who intend to be more engaged in 'participation' are significantly more likely to support public spending and are particularly keen on public spending on ecology. People who intend to change their consumer behaviour are also likely to support public spending and are also keener on spending on ecology rather than on economic development. It should be noted that 'participation' has a much stronger impact on support for public spending than 'consumer behaviour'.

The explanatory power (R^2) is not particularly high for any of the models, although it is higher for spending on ecology than on spending on the economy. However, the F value is significant, and the residuals behave randomly, indicating the data fits the model well. The model shows that the variables included have an impact on willingness to spend public money but only explain a limited part of the variation. Other variables, not considered in this research, may have an equal or even bigger impact on willingness to spend public money.

5. Conclusions

Governments have to decide how to allocate their public spending, which is commonly misinterpreted as covering solely social issues (such as fighting poverty and inequality, welfare issues, and social programmes). However, public spending entails other social issues, as well as,

importantly, environmental ones. This paper has examined relations between public participation through pro-environmental behaviour and support for public spending on economic and environmental issues in the English Channel region. This could be considered an antecedent to full consultation on participatory budgeting, a stage prior to 'formulation' (complementing Heimans's [8] stages).

An online public survey was developed to investigate public use of the English Channel and the marine and coastal environment more specifically, as well as the public's willingness to change their behaviour to better protect the Channel region. The survey was undertaken in the English Channel region in the summer of 2014 and was answered by 2000 people in total in France and England.

A positive impact of environmental intentions on willingness to support spending public money was found while controlling for respondent characteristics. It was found that the Channel public participate more in behaviours that involve direct changes or switches between buying/purchasing choices. In contrast, there is less participation in PEBs that involve more active engagement activities, for example, meetings, groups, campaigns and politics. This research provides a comprehensive perspective on French and English public use of environmental goods and services.

This research highlights that pro-environmental behaviour and willingness to change could positively affect participation on public spending on environmental issues. Raising awareness about the importance of change in consumer behaviour could be achieved through general training in environmental issues, and, in this way, more support for environmental public expenditure could be achieved.

Further research should be carried out in other contexts and by studying other comparable communities in other regions and countries to explore further the relationship between PEBs, willingness to change, and public spending for environmental issues. Another topic that could be explored is the link between public policy and public spending in the context of cross-country environmental issues, as well as controlling for spending in general.

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