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Corresponding Author:

Beata Kupiec-Teahan
Land Economy Research Group
SAC Research Division
SAC Edinburgh

EH9 3JG
Tel: 0131-535-4344
Email: Beata.Kupiec@sac.ac.uk

FOOD PRODUCTION, DISTRIBUTION AND CULTURE: PUBLIC VIEWS, INTERESTS AND CONCERNS.

Beata Kupiec-Teahan, Philip Leat, Cesar Revoredo-Giha

Abstract

A basic right of both a consumer and a citizen is the right to be heard, and their voiced concerns have to be taken into account when developing policies and obtaining trust for government actions. Therefore this study focuses on consumers' interests, opinions and expectations which are identified and categorised according to subject area, degree of involvement and political agenda of a consumer. The paper draws on the responses of individual members of the public in the National Food Policy discussion initiated by the Scottish Government in 2008. Altogether 246 responses were subjected to quantitative analysis of texts, supported by text mining. A variety of interests and opinions underpinning the political agendas of individuals responding to the National Food Policy discussion document were identified and discussed in the paper in the context of political consumerism and influence citizens-consumers are likely to have on policy development and its subsequent implementation. In the broad perspective of the Scottish food supply chain, the three pillars of sustainability: economy, environment and society, are defining the nature of public concerns and expectations. Findings could be applied across many different policy areas including food production and distribution, heath education and promotion, support of small local businesses, environment protection, travel, waste management/recycling and others.

Introduction

Behavioural economics has long relied on the concept of *Homo economicus,* defining it as a model of a consumer that always applies rational and self-satisfying decision making, focusing on the price (sacrifice) - gain (quantity, quality) relationship. However, even with an economic (as opposed to marketing and consumer behaviour) perspective, a "more human" vision of the contemporary consumer is increasingly being applied[i]. Buying, loyalty to or boycotting of specific products and brands can therefore be seen as civic engagement or a form of political participation in support or in opposition to specific political policy proposition[ii].

These "non-economic" drivers of consumer behaviour could be discussed in many different contexts. This paper contemplates a citizen-consumer and his/her embeddedness in the national perspective, food habits and their views on the well-being of society. When invited to take part in a national debate about food policy and its measures, consumers express opinions that are likely to represent their political beliefs. Political consumerism has an impact on consumer behaviour resulting in a politically motivated action, rather than simple completion of a retail transaction[iii]. In this context consumer knowledge and affective involvement in issues related to policy areas of sustainable consumption and production are seen as determinants of desirable behavior that policy makers try to induce. The research of ethical consumption differs from other consumer research due to its social and political orientation and belief that consumption in developed markets should be controlled. On the other hand businesses and their socially responsible behavior act upon recent "politically correct" trends in the market place and for years were aware that following changes in the political environment have a profound impact on successful performance in the market place[iv].

Nevertheless political consumerism should be related into other market and individual conditions[v] that are likely to influence daily purchase and consumption behavior directly. Declared interests and behaviours in the political context albeit important and having additional strength originating from political convictions and agendas of individual consumers, should be considered as one of driving forces in the market place and not a main factor alone. Opinions expressed in response to government or business propositions by specific group of individuals might not have direct transmission into general public/consumers views, however taking into account their persuasive power they can have significant impact on opinion-formation as well as normative and cultural behavioural controls. On the other hand, concepts and their meanings are dynamic and change in time resulting in specific use of terms and understanding of policy related communication originating from different sources.

Although using qualitative data input, the paper employs results of quantitative text analysis seeking to identify and visualise main topical concepts and associated meanings used by members of the public to express their interests, concerns and expectations in relation to National Food Policy in Scotland.

Methodology

The paper draws on the responses of individual members of the public in the National Food Policy discussion initiated by the Scottish Government. The discussion was

launched in January 2008 and the collection of responses to the food policy document was completed by the end of April 2008. Altogether 259 responses were received from individuals responding via e-mail, the Scottish Government website or by mail, after data cleaning 246 documents were included in the analysis. The text mining tool of Statistica[1] Data Miner has been applied to retrieve words from the documents, count the occurrences of individual words and phrases, and uncover underlying patterns of word use with the Singular Value Decomposition (SVD) algorithm which forms the basis for Latent Semantic Indexing[vi].

Before quantitative content and theme analysis was conducted, each written response was read and the key themes arising from the responses were identified and introduced to a data base. The Statistica text-mining module was used to analyse the cleaned text entries. The text mining software is specifically designed as a general and open-architecture tool for mining unstructured information, and was used in this study to extract the most common words and phrases used in the responses. The analysis of the responses involved identification of significant concepts and associated words on the basis of the initial frequency file built for each response document. In the next step, inclusion files containing phrases and synonyms relevant to the context of responses were created and used for text analysis. The matrix of the word frequency within all the documents was used for Singular Value Decomposition analysis in order to extract underlying "dimensions" which are linear combinations of original variables (i.e. counts of individual words/terms in all included documents). These dimensions (components) were used to identify patterns of similarity/dissimilarity in the responses to the National Policy Discussion.
The word importance scores calculated in SVD analysis revealed which words/terms contributed most to identified dimensions extracted from the matrix frequency file.

Results and Discussion

Overall content of individual responses.

Quantitative text analysis[vii], has revealed a vast array of interests and opinions underpinning the political and personal agendas of individuals responding to the National Food Policy discussion document.

Most of the concerns expressed by consumers agree with underpinnings of research into ethical consumerism discussed by Newholm and Shaw (2007)[viii]. As most of the structured work on ethical and socially responsible consumer has been developed in the last quarter of the 20th century with an early attempt in profiling of socially responsible consumer being carried out in the US[ix] (Webster 1975), the social, environmental and economic issues included in such research are reflected in the main points expressed by policy responses en mass. In the UK, such investigations were developed in the 1980s and commercial research companies introduced such "ethical" orientation to marketing research in the 1990s (Newholm and Shaw op. cit.). The UK public interest in ethical living has grown over the past five years with older and more affluent consumers having most interest in ethical issues such as recycling, organic food, origin of food and social responsibility of businesses[x]. In the case when the ethical choice involves higher cost to the consumer, the socio-economic position of

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[1] Statistica 2008, Copyright Statsoft, Inc 1984-2008.

consumers is likely to be a prediction of the intent and the resulting behavior[xi]. . For example, the 2008 report by the UK Department for Environment, Food and Rural Affairs[xii] provides a core set of behaviour goals together with propositions of social marketing approaches whilst communicating with different segments of consumers to promote responsible behaviours.

Table 1 below summarises the major conceptual terms mentioned by individual members of the public in their responses to the National Food Policy discussion. The order of major categories and constructs underpinning each of them is determined by importance as calculated in SVD analysis.

Strong emphasis was placed on local food in the responses and this reveals the social and cultural perspective of consumers' concern with food production and distribution in Scotland. "Buy Local" food campaigns, local food initiatives and the use of local food appeal in the branding and marketing of food seem to have an impact on the motivation and attitudes of consumers towards local food purchasing in general. Many of these opinions were extended into policy related recommendations, such as local procurement of food for public institutions. Local food and its heritage featured strongly in the responses, hence the need for a cultural dimension to such analysis. As it is difficult to measure cultural values[xiii] and their impact on consumer choices, emotive categories originating from the responses to identify specific factors related to Scottish culture could be investigated separately and analysed in relation to social marketing communication and applications.

Health of the nation, as influenced by diet, was the second most important thematic group identified in the responses of individual consumers. Quality of food, nutritional habits and lifestyles were the main themes discussed by the respondents. One of the main issues visible in these concerns relates to public trust in food offered and available in the market place. Adequate information on products, consumption recommendations and also definition of specific responsibilities of the food sector were mentioned in the context of worsening health statistics in Scotland; many of these negative trends being evoked by quantity and type of food consumed.

Education in food production, food preparation and dietary impact on health of the nation is prominent in many of the responses, and based on the frequency of responses alone, is the most important issue concerning Scottish consumers. Many of the respondents expressing their opinions in the matter were involved in the education of children – as parents, teachers or voluntary educators. As recent Scottish research has revealed[xiv], ethical consumerism is now embedded in the identity/role of parents, who see their own purchase and consumption behaviour as having an influence on the well being of children and their future.

Environmental aspects of food production and distribution were the third main thematic group mentioned by individual consumers. On and especially off-farm effects, were mentioned with general concern supported by many specific examples (e.g. food transported over long distances, excessive packaging etc.) and anticipation of long-term consequences likely to have an impact on both the natural and social environment of Scotland. Pollution, countryside quality, water and soil management are more "traditional" themes present in the responses, but more visible and emotional are those opinions that relate to climate change, greenhouse gas emission and food

miles recycling and an environment-friendly profile of agricultural production (priority environment over profit). The rising awareness and concern that is likely to lead to modification of consumption related behaviour has also been reported by authors investigating development of new environment related concepts and inclusion of these in evolving value systems[xv],.

Food availably and affordability have been defined by the respondents in the context of physical distribution of food, financial means and consumption situation. Unequal access to variety of food products was mentioned very often as having a negative impact on diet and health of specific communities. Responses underlining such problems were characterised by strong emotive expression and confirmed knowledge and understanding of food access inequality otherwise reflected in academic publications[xvi] official reports[xvii]. Altruistic concerns however, were accompanied by individual worries related to the supermarket domination, price increases and lack of self sufficiency in food production resulting from high share of imported food in the Scottish market.

Table 1 Importance ranking based on Singular Value Analysis and main constructs of Food Production and Consumption concepts identified in responses to the National Food Policy Discussion.

Thematic groups and main associated constructs
Local Food: quality, availability, support Industry and agriculture.
Health Diet, HSSF food, food additives Culture and Lifestyle.
Education School Home economics Children.
Environment GM free food Carbon emission/footprint Climate change Food miles.
Food access Local outlets Supermarkets Poverty, price, inequalities Hospitals, schools.

Source: Analysis of National Food Responses June 2008.

Meanings and patterns of their occurrence.

In order to investigate similarities/differences of responses, SVD was applied to reduce data extracted from text of the responses (number of responses by number of extracted words) to lower the number of components which represent the largest degree of variability (between words and documents) possible. The latent semantic space can therefore be identified by these components responsible for most of the

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variability (differences) between the words and documents. In this reduced, low-dimensional space underlying "meaning" of what was discussed, by individuals in their responses can be seen. In figure 1 and 2 below, four SVD components were shown to demonstrate how the conceptual spaces are being linked by respondents while discussing issues relating to food production, consumption and distribution.

The first component is defined by local aspect of production and distribution of food. Support for local producers, education in schools, quality and environmental aspects of food production are linked with support of locally produced and distributed food. Provision of local food by municipal institutions, institutional support, health and environment aspect of local food availability are also conceptually linked. Component 2 identifies links between growing food, and access to allotments. Interestingly, there is conceptual division between growing-your-own food and local food. It suggests that an interest in local food is being associated with commercial food production whereas growing food to satisfy individual household needs.

Component 3 on the other hand demonstrates a link between diet and environment related benefits and people being able to grow their own food. As the opposite to growing, the supermarkets and preparation of food at home are located at the other end of the component 3 dimension. Component 4 reflects strong feelings of some of the respondents expressed with regards to extinction of wild fish and problems with salmon farming in Scotland. The remote location of this particular category is related to a group of responses that focused almost solely on fish farming and extinction issues and there were few other issues discussed in these responses. Many of the components (also those that due to scarcity of place were not presented here) place meat, diet and animal categories in proximity. This particular grouping reflects specific and relatively numerous group of responses promoting vegetarian and vegan diet (responses largely generated by Vegan Society members). Although well represented in the responses, this particular group of consumers is a minority in general public. On the other hand, this small group can exert significant pressure, especially with the assistance of mass media.

Most general concepts are grouped together in both charts: environment, health, education and local (in figure 2) are mentioned/referred to in most of the responses. In order to extend the analysis, further evaluation is required within these four conceptual categories. Such a detailed approach will allow identifying individual responses/consumers groups who perceive and use these terms in similar ways. This particular division can demonstrate an emphasis placed on specific areas e.g. environmental issues are now most commonly associated with global climate change and gas emission/carbon footprint with pollution aspects of food production and consumption whereas recycling is now seen as social responsibility issue with less stress being place onto environmental consequences of recycling. As the relationship between consumption and sustainability is influenced and complicated by many emotional, symbolic and cultural meanings, these findings are of great importance for social marketing and its use in promotion of pro-sustainable behaviour[xviii].

Figure 1 Plot of major conceptual terms in two dimensional space of component 1 (Singular Value =43) and component 2 (Singular Value = 20).
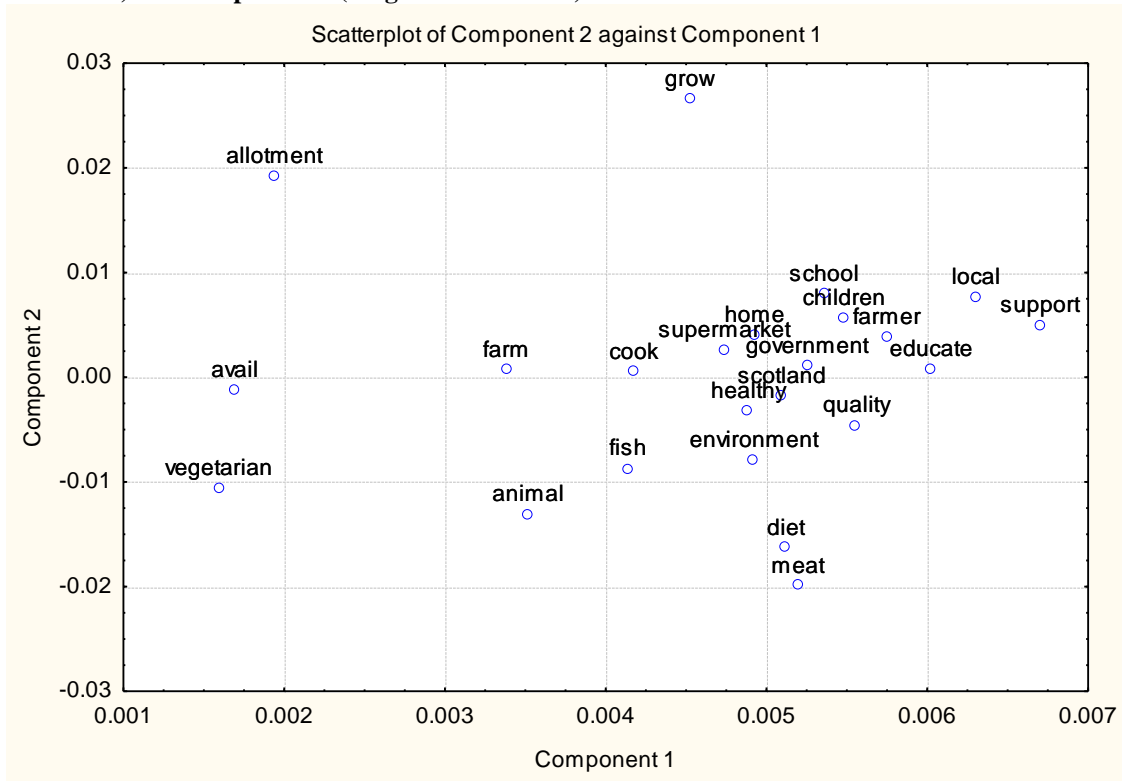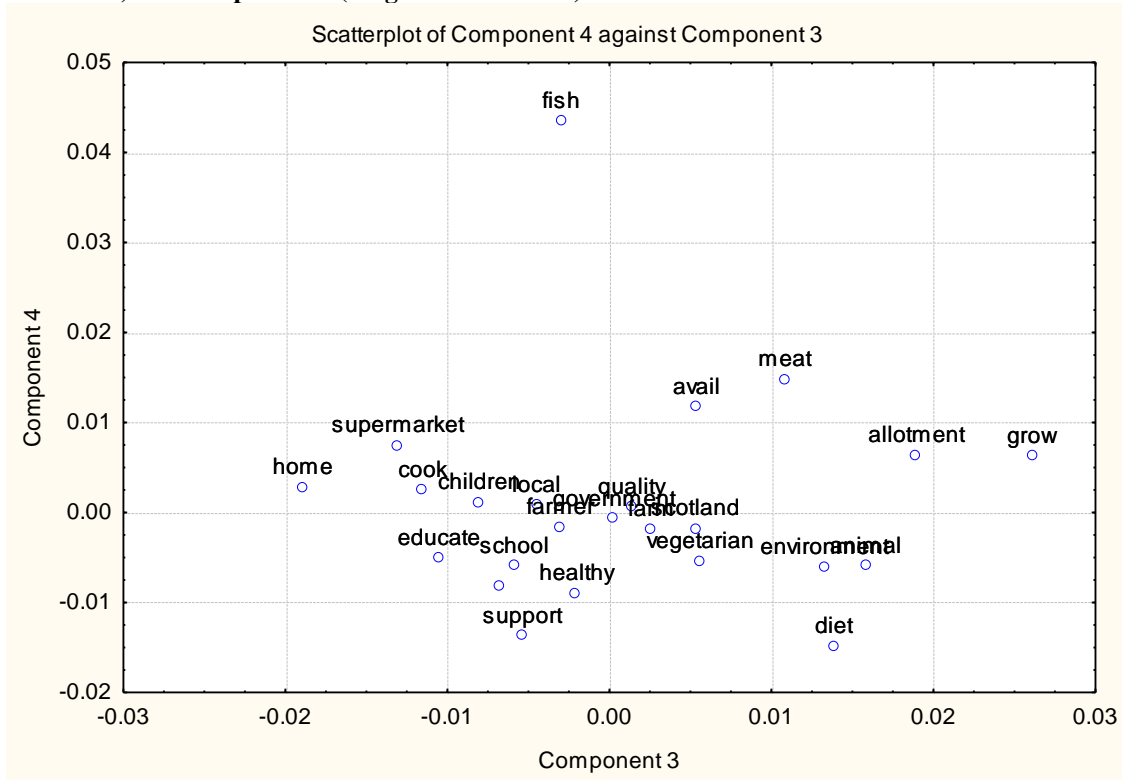

Scatterplot of Component 2 against Component 1

Figure 2 Plot of major conceptual terms in two dimensional space of component 3 (Singular Value =19) and component 4 (Singular Value = 18).

Scatterplot of Component 4 against Component 3

Conclusions

When looking into the spread of paradigms in the responses, there is an apparent bipolar division of perspectives employed. However, this dual approach of self-focused *homo economicus* and socially responsible *homo politicus* could have been seen in responses originating from the same individual. Looking after one's self-interest, therefore, does not exclude more altruistic, society-orientated goals of an individual that are to be achieved when purchasing and consuming food. The broad spectrum of such contrasting paradigms includes e.g. consumer rights versus consumer social responsibility, consumer safety – protection from self-inflicted consequences (obesity) and business (food safety and quality). Sustainable economic solutions were discussed in the context of farming sector survival, sustainable social and environmental issues were on the other hand mentioned as resulting from production and distribution activities of the whole food chain. Concerns about food quality, ethical and environmental issues are accompanied by those related to livelihood: affordability and accessibility to a quality and well-balanced food offering. This confirms that the differences in consumers' attitudes and perceptions due to the socio-economic inequalities in developed, rich countries could be significant.[xix] Complicated dynamics of political consumption[xx] have to then be recognised if involved consumers are to remain and /or become a significant force in the market place capable of supporting policy and sustainable food chain in the long term. As increasingly ethical behaviour of consumers is a subject of policy and policy related decisions, understanding of perceptions, attitudes and resulting behaviour is a foundation of any subsequent regulations and policy measures employed in the market place. Such frameworks can only be constructed with thorough understanding of concepts employed by consumers in the process of organising and interpretation of policy related messages. Hierarchies of interest, impact of knowledge and affect on specific behaviour within specific groups of public have to be recognised in order to facilitate both learning processes and persuasion linked to policy measures that aim to modify public behaviour.

Although most of the consumers are likely to be driven in first instance by economic drivers, the policy has to contend with more complete sets of consumer interests and values influencing their behaviour if it is to be accepted by an meet the needs of the society. On the other hand, effectiveness of any policy depends on understanding and considering in policy development psychological, experiential and cultural dimensions[xxi] of people's quest for the best possible satisfaction of their human, citizen and consumer needs.

Future research

In the next step, the latent semantic analysis will be extended to identify specific groups of respondents showing similar patterns of meaning associated with food policy expectations and concerns. These will involve recognition of specific constructs associated with major concepts as included in this analysis. Subsequently understanding of these psychodynamic evolutionary processes taking place in both individual and "public" minds should contribute to better effectiveness of food policy and its measures to be implemented in the future.

Appendix1 Importance of words and phrases based on Singular Value Decomposition.

Theme (words/phrases)	Importance
Local	100.0
Healthy	92.0
Education	90.6
Food	71.6
Farm	69.8
Education schools children involved	62.0
Farmed salmon environment	57.7
Fast food	55.5
Growing own	53.1
Scotland	45.5
Allotment	45.3
Scotland quality food	42.6
Local food initiatives	42.4
Wild	39.2
Animal	38.7
Supermarkets	36.4
Wild fish extinction	35.8
Government	35.8
Supermarkets stocking local food	32.8
Children	32.0
Local food availability	32.0
Healthy diet balanced	28.1
Healthy diet home cooking	28.1
Healthy diet vegetarian	27.7
Healthy diet meat	27.7
Education schools healthy food	27.7
Local food initiatives example	27.7
Farmed salmon government support	27.7
Farmers	27.7
Local food support	27.7

Appendix 2 Inverse frequencies of augmented words in the response documents.

Category	Frequency	No of documents
allotment	16	9
animal	57	41
availability	15	13
children	152	80
cook	63	43
diet	116	60
educate	104	58
environment	78	53
farm	35	23
farmer	119	65
fish	60	34
government	170	92
grow	66	33
healthy	191	101
home	90	54
local	383	122
meat	108	58
quality	125	76
school	128	77
scotland	338	137
supermarket	108	66
support	161	72
vegetarian	18	11

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