European Commission

JRC TECHNICAL REPORTS

Consumer Markets Scoreboard: Refinement, Further development and Analysis of Micro-data

Final Report for the Consumers Directorate of DG Justice and Consumers

Marcos Domínguez-Torreiro
Stergios Athanasoglou
Pawel Stano

2015

Report EUR 27724

Contact information
Name: Marcos Domínguez-Torreiro, Stergios Athanasoglou, Pawel Stano
Address: Joint Research Centre, Via Enrico Fermi 2749, TP 361, 21027 Ispra (VA), Italy
E-mail: marcos.dominguez-torreiro@jrc.ec.europa.eu, stergios.athanasoglou@jrc.ec.europa.eu, pawel.stano@jrc.ec.europa.eu
Tel.: +39 0 332 78 6192

JRC Science Hub
https://ec.europa.eu/jrc

JRC99640

EUR 27724

ISBN 978-92-79-54721-8 (PDF)

ISSN 1831-9424 (online)

doi:10.2760/911696 (online)

How to cite: Marcos Domínguez-Torreiro, Stergios Athanasoglou, Pawel Stano, 2015, Consumer Markets Scoreboard: refinement, further development and analysis of micro-data, European Commission, Joint Research Centre; EUR 27724; doi:10.2760/911696

Table of contents

EXECUTIVE SUMMARY

The present report has been commissioned by the Consumers Directorate of DG Justice and Consumers from the Joint Research Centre's Econometrics and Applied Statistics Unit as part of a broader collaborative effort that aims to extend and revise the statistical indicators, methodology, and presentation of information that underpin both the 'Consumer Markets' and the 'Consumer Conditions' Scoreboards, within the more general framework of internal market integration. The present document has been conceived to address the refinement and further development of the Consumer Markets Scoreboard (CMS). As a result, the main objectives of this report are twofold:

1. To provide a comprehensive review of the theoretical framework and methodology behind the CMS, and to assess the statistical soundness and robustness of the existing Market Performance Indicator (MPI).
2. To review the empirical tools that can be used to analyse micro-level data on market performance, as perceived and reported by the experienced consumers responding to the Market Monitoring Survey (MMS).

In this light, the report is structured in two parts. The first part commences with a survey of the literature about consumer satisfaction and market performance studies (chapter 1.1), which is divided in three main sections. The first section focuses on the different theoretical approaches and behavioural models that have been proposed to analyse the consumer decision-making process and subsequent satisfaction outcomes. The second section of the literature review focuses on the issue of how to empirically assess consumer satisfaction. Finally, the third section addresses the links between consumer satisfaction and profitability and economic growth.

After the literature review, chapter 1.2 discusses the methodological framework for the assessment of consumer market satisfaction. The theoretical foundations of the assessment and the prospective list of

indicators have been revised in line with the findings from the literature review. Additionally, a new component based on the individuals' subjective perception of the perceived value of the goods or services available in the market has been proposed to further refine the conceptual framework underlying the CMS.

In chapter 1.3, the statistical soundness of the 2014 Market Performance Indicator (MPI) is reviewed and assessed. For that purpose, both descriptive statistics and correlation structure analyses of the components aggregated within the indicator are performed. The results confirm that the statistical structure of the MPI is fairly balanced and that, as expected, the countries' scores obtained in terms of aggregate markets (goods and services) are correlated.

In the section devoted to the uncertainty and sensitivity analysis of the MPI (chapter 1.4), the starting point for the analysis has been to check to what extent the scores and rankings resulting from the indicator are sensitive to subjective modelling choices, in particular to the choice of weights and the aggregation scheme. As explained therein, the results presented in the current report—based on aggregate data from the CMS 2014—tend to confirm the robustness of the scores and rankings of the MPI across countries and across markets.

The first part of the report concludes with a section (chapter 1.5) which aims to set in a wider context the results from the previous sections and to discuss possible avenues for further analysis.

The general objective of the second part of the report is to explore the heterogeneity in consumer experiences across consumer markets. The first section of the second part (chapter 2.1) presents an overview of studies exploring the sources of heterogeneity in consumer motivation, preferences and behaviour. From chapter 2.2 to chapter 2.4, individual level data from the MMS 2015 are used for the empirical investigation of consumer markets performance as subjectively perceived by consumers themselves. Econometric tools such as multiple linear regression models, logistic regression and

multinomial logistic regression have been used to perform the analyses. Explanatory variables in those models are in line with the literature, and include socio-demographic characteristics of survey respondents such as age, gender, education, occupation, internet usage, mother tongue and income. Additional explanatory variables accounting for market specific conditions and cross-country or cross-cultural differences have also been included in the models. The results obtained therein show that socio-demographic characteristics shape consumer assessment of market performance. Regional and cross-country differences have also a significant impact on the results. Furthermore, there is significant evidence that consumers are influenced by the specific conditions encountered in the different markets and assess their consumption experiences within them accordingly.

When looking at socio-demographic trends, results of the multivariate analyses performed on the overall MPI scores indicate that women are statistically significantly more positive than men. The middle age group (35-54 year-olds) is negatively associated with higher MPI scores. People with higher levels of education tend to give significantly more negative scores. Ratings are significantly higher when respondents belong to the categories of housepersons and pensioners, and conversely seem to be the lowest when respondents are self-employed. Both those who never use the internet and those who use it very frequently (daily) assign significantly more positive ratings. Those whose mother tongue is not an official language tend to be more negative in their overall market assessments. Furthermore, negative associations have also been found to be very intense for those consumers in a very difficult financial situation.

With regard to regional differences, overall ratings are significantly lower in the Eastern and Southern regions. On the other hand, ratings appear to be significantly higher when considering Eurozone countries and New Member States. When looking at the different markets and market groupings, goods markets perform significantly better than services when assessed through the overall MPI scores. In

general, the assessment of market performance is found to be significantly poorer for those services markets related to clusters such as banking, utilities and telecoms.

However, when analysing the results obtained from the MMS 2015 data, we must also highlight that the situation may differ heavily across the individual components of the MPI (comparability, trust, problems and detriment, expectations and choices). Additionally, outside the realm of the MPI, complaints and switching behaviour are two additional dimensions of market performance included in the MMS 2015 and assessed by survey respondents. Heterogeneity in consumer assessment has also been found in the empirical analyses undertaken on these dimensions.

The second part of the report concludes with a section devoted to summarise the main findings of the empirical analyses.

Finally, a brief summary of overall results and conclusions is presented at the end of the report.

1. THEORETICAL AND EMPIRICAL ASSESSMENT OF THE CONCEPTUAL FRAMEWORK USED TO MONITOR CONSUMER MARKETS PERFORMANCE

1.1. LITERATURE REVIEW ON CONSUMER SATISFACTION AND MARKET PERFORMANCE

1.1.1. Behavioural models and consumer decision-making processes

A thorough knowledge of how consumers process information will help understand how people are likely to behave, which in turn may help policy-makers to design better regulations -or even aim at changing consumers' behaviour (see e.g. Van Bavel et al. 2013, OECD 2010). From a traditional economic perspective, theoretical constructs modelling individual behaviour are built mainly on the neoclassical assumptions of fully rational and fully informed individuals, with well-formed and stable preferences, who maximise their well-being by means of making choices of goods and services in perfectly competitive markets (see e.g. Varian 2010).

However, alternative behavioural models posit that individuals make decisions based on *satisficing* rather than utility maximisation criteria (i.e., searching for a consumption alternative that meets a subjective and personal acceptability threshold, instead of looking for the best alternative available). Satisficing behaviour is one of the main components of the *bounded rationality* approach (Simon 1955, Kahneman 2000), which stands as the main theoretical framework for economic analyses that depart from the neoclassical assumption of fully rational and utility maximising individuals. Under a bounded rationality framework, individuals' rationality is very limited, and very much bounded by human computational abilities as well as by the context of choice (Simon 1983). Closely related to the bounded rationality concept, the *prospect theory* developed by Kahneman and Tversky (1979) should be regarded as the most formal attempt to model consumer behavioural traits that are not in line with the

traditional economic model (OECD 2010). Prospect theory postulates that consumers evaluate outcomes relative to some status quo point and, in addition, tend to feel losses from that reference point more intensely than they would feel the pleasure of gains. Moreover, behavioural-economics models often assume that individuals adopt 'rules of the thumb' (i.e. heuristics) to make decisions in complex situations, or simply tend to ignore some of the attributes of the alternative products to be compared, focusing only on a limited number of such attributes, price in particular (OECD 2010).

Lingering on the subject of choice and complexity, random utility theory (Luce, 1959; McFadden 1974; Manski 1977) and stated preference valuation techniques (Bateman et al. 2002), which are rooted to the standard theoretical framework of utility maximising individuals, provide us with some analytical insights on the issue of uncertain preferences of individuals facing complex evaluation contexts. For example, the multiple bounded uncertainty analytical framework has proved to be useful when studying the choices made by individuals confronted with complex and unfamiliar tradeoffs, such as those related to environmental issues (Welsh and Poe 1998). But also from the perspective of alternative behavioural paradigms we could find approaches that deal with uncertain or unstable individual preferences in a way that conflicts with standard economic theory, such as *coherent arbitrariness* assumptions (Ariely et al. 2003) or *preference learning* and the *discovered preferences hypothesis* (Plott 1996).

Focusing specifically on the issue of satisfaction, causal behavioural models have been developed that aim to relate consumer satisfaction with its main drivers, as well as with its expected results. As a starting point, the definition of consumer satisfaction proposed by Oliver (1997) has become widely accepted: 'It is a judgement that a product or service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfilment, including levels of under-or-over fulfilment'. In other words, satisfaction should be viewed as a pleasant post-purchasing experience given the consumer's *a priori* needs or expectations (Inra and Deloitte 2005, Grigoroudis and Siskos 2010). As

a result, the gap between *a priori* expectations and actual performance of the good or service is the basis for the measurement of consumer satisfaction, according to Oliver's *disconfirmation theory* (Oliver 1977, 1980, 1997). Accordingly, satisfaction results are in turn used to predict behavioural outcomes like loyalty, word-of-mouth, repeat purchase intentions, etc. (Grigoroudis and Siskos 2010). Finally, it is also worth noting that, as suggested by Johnson and Fornell (1991), a disconfirmation paradigm based on the comparison between actual performance and perceptual reference points is closely related to research in welfare economics relating aspirations levels and satisfaction (see e.g. Simon 1974).

As described in detail by Oliver (1980), within the framework of the theory of expectation disconfirmation, repurchase intentions are linked to consumers' expectations, attitudes, and overall satisfaction via a simple intertemporal structural equation model (SEM). The essential features of this model are twofold: (i) current satisfaction is assumed to be a function of prior expectations and their so-called disconfirmation (i.e., whether and to what degree these expectations were met) as well as a driver of current purchasing attitude, and (ii) purchasing intentions are functions of prior intentions and current satisfaction and attitude. Oliver applied this framework to data on a federal flu vaccination program and estimated the coefficients of the corresponding path diagrams, providing evidence of the postulated relations between the various underlying concepts.

Johnson et al. (2001), building on the theoretical framework developed by Poiesz and von Grumbkow (1988), posit that consumer satisfaction is synonymous with the concept of consumption utility, and consequently, one of the three components of economic well-being, together with job satisfaction and income evaluation. This welfare-based perspective of satisfaction is the one that lies behind the development of the majority of recent national consumer satisfaction indices (Johnson et al. 2001). Alternative proposals to measure individual welfare from a broader perspective include different approaches to operationalise and compute Hicks' *equivalent income* measure, defined as the

hypothetical income that, if combined with the best possible value on all non-income dimensions, would place the individual in a situation equivalent to the initial reference point (see e.g. Decancq and Schokkaert 2013).

Focusing on the development of national consumer satisfaction indices, Fornell's (Johnson and Fornell 1991, Fornell 1992, Fornell et al. 1996) approach aims at capturing in a parsimonious model the primary psychological antecedents of satisfaction, and it is the theoretical framework behind most of the models that trying to establish links between consumer satisfaction, its antecedents (i.e. determinants) and consequences (i.e. immediate outcomes) at a country level. More precisely, the variables present in Fornell's model can be categorised as follows (Grigoroudis and Siskos 2010): i) satisfaction causes, including perceived quality, perceived value and consumer expectations; ii) cumulative satisfaction, defined as a customer's overall experience to date with a product or service provider, and evaluated taking also into account disconfirmation of expectations and distance from the ideal good or service; and iii) satisfaction results relevant to the economic performance of the firm, in particular loyalty, which is to be considered by the model as the key proxy for profitability. The model was originally developed as a basis for the calculation of a Swedish Customer Satisfaction Barometer (SCSB), and later was reformulated and expanded to delineate the American Customer Satisfaction Index (ACSI) (Fornell et al. 1996).

In their critical review of the Swedish and American satisfaction indices, Johnson et al. (2001) questioned the role of expectations as a separate antecedent of cumulative consumer satisfaction, mostly due to the strong link between expectations and quality constructs in the models, and to the fact that through cumulative experience expectations should become more rational and precise, i.e. becoming either passive or ceasing to exist. With regard to alternative theoretical constructs for analysing consumers' choices that focus on and underscore the importance of perceived quality as a key

variable in individuals' decision making, we should at least mention the Engel-Blackwell-Miniard (EBM) model (Engel et al. 1995) and the Steenkamp (1997) model; the latter should be regarded as a translation of the decision making process of the EBM model into the specifics of the food market (Marreiros and Ness 2009). In addition, the Quality Guidance Model (QGM) of Steenkamp and Van Trijp (1996) and the Total Food Quality Model (TFQM) from Grunert (1997) are specifically focused on the quality evaluation stage of the decision making process. Notwithstanding, we should also keep in mind that Fornell's model emphasizes the potential impact of quality on overall consumer satisfaction, in particular when compared to price-driven satisfaction. As empirically shown in Fornell et al. (1996), even though perceived value may be more central to the initial formation of preferences and choice, quality is, in contrast, more central to the consumption experience itself.

As a final remark for this section, it is also worth noting that given the importance of perceived quality as a key factor for creating satisfaction, quality will usually be portrayed as an antecedent of consumer satisfaction in existing models (Inra and Deloitte 2005). However, we must bear in mind that perceived quality is a multi-dimensional, subjective and dynamic concept, and consequently not one easy to define and measure (see e.g. Bernués et al. 2003).

Table 1 summarises selected studies from the existing literature on consumer behaviour, preferences and decision making, their methodology and main findings.

Table 1: Selected papers on consumer behaviour, preferences and decision-making

Authors	Research subject	Main findings
Ariely, Loewenstein and Prelec (2003)	Whether it is possible or not to estimate demand curves/consumer preferences from market data	People tend to adjust valuations around arbitrary base values (anchors), thus challenging the premise that individuals' choices reveal true and stable underlying preferences
Bernues, Olaizola and Corcoran (2003)	Analyses consumers' attitudes towards quality attributes as an opportunity for market segmentation and for developing consumer-lead products	Extrinsic quality attributes of food products can be perceived by the consumers through appropriate cues and play a significant role in their quality evaluation process
Decancq and Schokkaert (2013)	Identify the principles and mechanisms for the measurement of well-being and social progress	Hick's *equivalent income* is proposed as an appropriate measure of individual welfare
Engel, Blackwell and Miniard (1995)	Develop an analytical model of consumers' behaviour and decision making	Identifies four stages in the analysis of consumers' behaviour: decision process, information input, information processing and variables influencing the decision process
Fornell, Johnson, Anderson, Cha and Bryant (1996)	Develop a survey methodology to collect data on customer satisfaction in the US	Posits perceived quality, perceived value and customer expectations as the antecedents of consumer satisfaction, and customer complaints and loyalty as its main consequences
Johnson and Fornell (1991)	Present an economic and psychological framework for the development of a national index of customer satisfaction in Sweden	Identifies product expectations and perceived product performance as direct antecedents of perceived satisfaction
Johnson, Gustafsson, Andreassen, Lervik and Cha (2001)	Review the validity and reliability of national and international customer satisfaction barometers	Questions the role of expectations as a direct antecedent of consumer satisfaction
Kahneman and Tversky (1979)	To develop a descriptive theory of consumer behaviour that departs from standard economic analysis	Perception is reference-dependent and the *status quo* influences decision making, as individuals tend to feel losses more intensely than gains
McFadden (1974)	How to model consumers' choices on the basis of unknown consumer preferences and observable consumer and product characteristics	Statistical theory (Discrete Choice Models) can be combined with microeconomic theory (Random Utility Models) to develop a probabilistic model of consumer's choice
Oliver (1977, 1980, 1997)	Investigates the relationship between outcomes, expectations and satisfaction after consumption	Identifies the gap between expectations and actual performance as the main driver of consumers' satisfaction
Plott (1996)	How individuals learn about their own preferences	Preferences are initially unstable but eventually discovered (i.e. become stable) by the individual through practice, repetition and

		gaining experience with the goods or services
Simon (1955, 1983)	Explains cognitive procedures and how individuals obtain and process the information they need to make a decision	There is not such thing as a neoclassical "homo economicus"; satisficing instead of utility-maximising is used by individuals as a decision-making rule
Steenkamp (1997)	Decision-making processes related to food consumption, and the factors influencing consumers' behaviour	Identifies four key stages in decision-making for food products: need recognition, search for information, evaluation of alternatives, and choice
Welsh and Poe (1998)	Dealing with individuals' uncertain preferences when assessing the value of unfamiliar or complex goods and services	It is possible to develop a contingent valuation model that explicitly takes into account individuals self-reported degree of uncertainty in their own assessments/preferences

Source: Own elaboration

1.1.2. Monitoring and assessing consumer market satisfaction

From a practical viewpoint, consumer-satisfaction studies and the indices and barometers resulting from them are designed to serve as a benchmark for both public and private managers, tracking trends in consumer satisfaction in different economic sectors or across national economies on a uniform and independent basis (Grigoroudis and Siskos 2010, Grigoroudis et al. 2008). The shift experienced in the last years from individual company level customer satisfaction measurement to national consumer satisfaction indices has proved to be a significant development, providing aggregated results at industry, sector and national economy levels (Ogikubo et al. 2009), as well as providing what should be regarded as additional macroeconomic variables that help understand national economic health and development (Grigoroudis and Siskos 2010).

When it comes to screening market performance and consumer satisfaction, either one-dimensional (e.g. consumer dissatisfaction or complaints) or multi-dimensional (composite) indicators have to be chosen and subsequently implemented into a survey mechanism (OECD 2010). For example, within the framework of the Consumers Market Scoreboard a composite indicator has been developed and

implemented to monitor the performance of selected markets across EU countries, since no single indicator is deemed sufficient to draw conclusions on malfunctioning markets (European Commission 2014). The same reasoning applies to Fornell's behavioural models described in the previous section, where consumer satisfaction evaluation is treated as a latent construct whose measurement involves weighing a selected set of survey measures (Johnson et al. 2001).

At this point, it is also worth noting that besides the abovementioned Swedish (SCSB) and American (ACSI) models, Fornell's methodology for measuring consumer satisfaction has been applied to empirical studies in many other countries. According to the official ACSI website (www.theacsi.org), the methodological approach of the index has spread worldwide and has been adopted in countries such as United Kingdom, Portugal, Turkey, Kuwait, Brasil, Colombia, South Africa, South Korea, etc. In addition, Johnson et al.'s (2001) critical review of the ACSI model also set the foundations for the Norwegian Customer Satisfaction Barometer (NCSB). Moreover, we can also find some empirical attempts to quantify consumer conditions and satisfaction that depart from Fornell's approach and are more in line with the European Commision Consumer Markets Scoreboard and the European Commission Consumer Conditions Scoreboard. As an example, a Consumer Market Index is calculated and included in the annual Swedish Consumer Reports (Swedish Consumer Agency, 2014), which aim at providing insights on how Swedish consumers perceive their ability to understand and act in the surveyed markets. Also, in 2008 and 2009 the UK undertook a national Consumer Conditions Survey (CCS), considered as a precursor to the EU consumer surveys (Consumer Futures, 2013). In a similar vein, Denmark has also published its own Consumer Conditions Index for the assessment of national consumer markets (Danish Competition and Consumer Authority, 2013).

Delving into the empirical analyses of consumer satisfaction and sound consumer markets, the aggregation of scores for different product/service/market characteristics by means of a weighted sum

formula is usually combined with alternative analytical tools that help providing additional insights on the subject. For instance, multiple linear regression analysis could be used to study the links between an overall satisfaction measure and a set of potential explanatory variables related to different aspects of market performance. Factor analysis (FA) could also be used to analyse the relationships among the product's or service's characteristics affecting consumer satisfaction. And finally, when complex causal behavioural models are proposed as a theoretical basis for the consumer satisfaction analysis, it is necessary to recur to econometric techniques such as partial least squares (PLS) or structural equation modelling (SEM) to estimate those models and, as a result, to gain an insight on the web of relationships among the antecedents and consequences of consumer satisfaction.

By way of example, Gomez et al. (2004) performed an extensive empirical study of store attribute perceptions and customer satisfaction. Their time-series data derived from a sizeable number of stores, all associated with a large supermarket retailer. As a first step, factor analysis was employed to reduce the multifaceted concept of satisfaction to three main dimensions involving customer service, quality, and value. Subsequently, Gomez et al. (2004) specified a simultaneous-equation, first-difference econometric model linking store attributes to factor satisfaction levels and, in turn, factor satisfaction to overall satisfaction. The authors made sure to consider asymmetries and nonlinearities in their econometric analysis, carefully explaining why standard ordinary-least-squares (OLS) estimation techniques were appropriate for the empirical context at hand.

Focusing on the Greek banking sector, Athanassopoulos (2000) broadened the concept of customer satisfaction to explicitly account for considerations on price, convenience, and innovativeness. In the first part of his paper, Athanassopoulos distinguished between individual and business customers and used confirmatory factor analysis (CFA) to investigate the underlying structure of the postulated model. This analysis confirmed the posited dimensions of customer satisfaction regarding price, convenience,

and innovativeness along with two additional dimensions regarding corporate issues and staff/service concerns. Subsequently the impact of these five dimensions on customer satisfaction was assessed via logistic regression, suggesting that customer segments (i.e., individual vs. businesses) are important determinants of consumer satisfaction and behaviour.

More recently, Deng et al. (2009) formulated a SEM of customer satisfaction that explicitly models the consumer drivers of trust and emotional value, among others. The proposed model was applied to Chinese data originating from the novel source of mobile-phone instant messages. The empirical results of Deng et al. (2009) were largely consistent with those of earlier studies confirming that trust and perceived customer value and service quality are positively related to customer satisfaction and loyalty.

Following up on Oliver's work, Bearden and Teel (1983) extended his disconfirmation framework to account for consumer complaints. In particular, they enhanced the structure of Oliver's SEM to incorporate the fact that dissatisfaction is a driver of consumer complaints, which, in turn, serve to influence attitude. Bearden and Teel (1983) went on to apply and estimate their model on data from customer experiences with automobile purchases and repairs. In concurrent work, LaBarbera and Mazursky (1983) proposed a closely related SEM of consumer behaviour that distinguishes between repurchasing and switching decisions. Here, in contrast to the theoretical setting of Oliver (1980) and Bearden and Teel (1983), consumer expectations and attitude are not explicitly modeled as a driver of behaviour. Meanwhile, in the empirical section of their paper, LaBarbera and Mazursky (1983) applied their model to data from a three-stage longitudinal study on consumer purchase/switching behaviour with respect to various inexpensive household products such as margarine, coffee, toilet paper, etc. The empirical analysis confirmed the important role of current satisfaction in determining future consumer intentions.

Staying within the disconfirmation paradigm, Cadotte et al. (1987) generalized Oliver's model to take into account alternative *standards of performance*. Such performance standards subsume the earlier notion of customer expectations by drawing attention to the broader concept of *experience-based norms*. Such norms are meant to encompass beliefs about the average, best, and expected consumer experiences, and thus provide a more holistic view of consumers' thought processes. Once again, the methodology of choice was SEM, and the model's theoretical apparatus was applied to data from the fast food industry.

McCollough et al. (2000) studied customer satisfaction following service failure and recovery. Working within the established disconfirmation paradigm, they conducted two scenario-based (i.e., role-playing) experiments based on the airline industry. The paper's major finding was that service failure has a strong negative impact on customer satisfaction, independently of a company's subsequent recovery and associated corrective actions to attract customers back to its business. The authors tested various related hypotheses using statistical techniques such as Analysis of Variance and Covariance (ANOVA, ANCOVA).

Also motivated by the lack of consensus in the literature, Szymanski and Henard (2001) conducted an extensive meta-analysis on the empirical evidence regarding customer satisfaction. Using correlation and regression analysis as their main analytical tools, the authors argued that disconfirmation of expectations is strongly related to customer satisfaction. The same strong relationship was found to hold in the case of *consumer equity*, a concept designed to capture consumers' views on the relative status of their experience compared to that of others -and thus the fairness of the overall process.

Table 2 summarises selected studies from the existing literature on measuring consumer satisfaction, their methodology and main findings.

Table 2: Selected papers on the practicalities of measuring consumer satisfaction

Authors	Research subject	Main findings
Ahanassopoulos (2000)	Analysis of individual and business customers drivers (dimensions) of satisfaction in the banking sector using confirmatory factor analysis	Underlines the importance of segmentation of customers (individual vs. businesses)
Bearden and Teel (1983)	To extend Oliver's disconfirmation framework to consumer complaints	Apply and estimate a model on automobile purchases and repairs data incorporating dissatisfaction as a driver of consumer complaints
Cadotte, Woodruff and Jenkins (1987)	Within the context of the fast food industry, the concept of expectations and experience-based norms is discussed	Provides additional empirical support of the disconfirmation paradigm
Deng, Lu, Wei and Zhang	How to integrate drivers of satisfaction such as trust and emotional value in a structural equation model of consumer satisfaction	Trust, perceived customer value and service quality are positively related to consumer satisfaction and loyalty
Gomez, McLaughlin and Wittink (2004)	Analyse store attribute perceptions using a factor analysis and a econometric model that links store attributes to satisfaction outcomes	Better understanding of the behavioural links between customer satisfaction and performance in the food retail sector to develop appropriate consumer satisfaction policies
Labarbera and Mazursky (1983)	Longitudinal study of purchase/switching behaviour	Empirically confirmed the importance of current satisfaction in future consumer intentions
McCullough, Berry and Yadav (2000)	Focus on the issue of service failure and recovery	Service failure has a negative impact on customer satisfaction regardless of corrective actions
Szymanski and Henard (2001)	Meta-analysis on empirical evidence related to consumer satisfaction	Underscore the strong relationship between consumer satisfaction and the concepts of disconfirmation of expectations and 'consumer equity'

Source: Own elaboration

1.1.3. The impact of sound consumer markets and consumer satisfaction on economic growth and firm returns

It is generally accepted that a simplified and efficient institutional framework -in particular, in relation to consumer rights and law-, together with more educated, well informed and empowered consumers, are necessary conditions for well-functioning and sound consumer markets, characterised by high levels of innovation and competition between the firms in the market, which eventually will have an impact on overall economic growth (ICF GHK 2013). The rationale behind this argument is that well informed consumers modifying their actual behaviour (e.g. switching consumption to firms that best satisfy their needs and wants and seeking redress) may impact on economic growth via stimulus on competition and innovation. In this sense, consumers might be considered as a key driver of competition, innovation, productivity and economic growth. OFT (2011) also highlights the idea that competition can be a crucial factor in driving economic growth in an economy, impacting on innovation and providing strong incentives for firms to be more efficient than their rivals. However, apart from the overall consensus on this issue in the theoretical literature, there is paucity of empirical evidence on the relationships between consumer rights, consumer awareness, well-functioning markets and economic growth (ICF GHK 2013). Moreover, opening up markets to competition will not lead to more consumer benefits unless consumers have sufficient information about the choices available in the market (ICF GHK 2013), and unless active and confident consumers are willing to engage in those markets to adopt new and innovative products (OFT 2011). Consequently, even though competition is a necessary condition for the maximisation of consumer welfare, it is not always sufficient, since competitive markets may fail to provide the necessary discipline to prevent firms from engaging in practices (including deception) that might harm consumers (OECD 2010). For instance, competition among firms might result in a dynamic of 'wrong' innovation that could lead to a 'race towards the bottom' in standards, with firms trying to gain a competitive advantage by obfuscating consumers instead of addressing consumer demand and improving processes; in this respect, consumer protection policies can also help competition to foster the 'right' kind of innovation (OFT 2011).

If we change the focus from the wider concept of sound consumer markets to look more closely into the specifics of consumer satisfaction, we find a significant body of empirical literature trying to relate consumer satisfaction measures with outcomes such as economic growth and financial and accounting returns of firms. In fact, one of the key aspects of addressing consumer satisfaction from a policy maker's perspective is the possibility to exploit the expected positive links between well-functioning markets, consumer satisfaction, profitability at the firm level and economic growth. According to the most widely accepted view on the subject, there is a strong relationship between consumer satisfaction and economic growth, in the sense that firms that do well by their customers will be more likely to increase their revenues, resulting in new jobs and the creation of economic growth nationwide (Fornell 2003, Grigoroudis and Siskos 2010).

As we have already remarked in previous sections of this report, satisfaction barometers (i.e. consumer satisfaction indicators) are usually integrated into a cause-effect behavioural model that links satisfaction drivers to satisfaction results such as loyalty (Grigoroudis and Siskos 2010). In this sense, overall consumer satisfaction is treated by the model as a predictor of repeat business and, consequently, as a *leading indicator* of future financial performance, revenue and profits (Anderson and Fornell 2000, Ittner and Larcker 1998, Lambert 1998).

In two studies based on data from the American Customer Satisfaction Index (ACSI), Fornell et al. (2006) and Fornell et al. (2009) analyse the relationships among consumer satisfaction, economic performance, securities pricing, investment returns and risks associated. In particular, they present empirical evidence of the association between satisfied consumers and the likelihood of an improvement in the level and the stability of the firm's net cash flows. Furthermore, they show that, from an investor's perspective, it is possible to 'beat the market' in a consistent manner by investing in firms that do well according to recorded consumer satisfaction scores. According to these results, satisfied consumers should be

regarded as an extremely valuable asset for firms, an asset characterised by high return rates and low risk (Fornell et al. 2006).

Adopting a different approach and methodology to that of the SEM literature of the 80's, Anderson et al. (1994) studied the causal link between customer satisfaction and economic returns. They formulated a simultaneous-equation econometric model that combines expectations, perceived quality of service, satisfaction, and returns to investment over time. Using a difference-based specification, they were able to draw on well-established econometric theory to estimate the dependence of (i) expectations on quality; (ii) satisfaction on quality and expectations; and finally, (iii) economic performance on satisfaction. Applying their framework to an extensive dataset of firms participating in the Swedish Customer Satisfaction Barometer, the authors found evidence of a positive impact of quality on customer satisfaction and, in turn, profitability. In related work, Hallowell (1996) examined the relationship between customer satisfaction, customer loyalty, and profitability on a more limited cross-sectional dataset originating from the operations of a big retail bank. Using a simple OLS regression, he demonstrated that customer satisfaction is positively related to bank retention rates and relationship tenure, which act as proxies of customer loyalty.

However, the empirical measurement of the existence, nature and strength of the expected relationship between consumer satisfaction and the economic performance of a firm or industry is still in its infancy (Fornell et al. 2006) and has always been problematic (Yeung and Ennew 2000). For instance, the results of the study undertaken by Yeung and Ennew (2000), based also on ACSI data, suggest that even though there seems to be a positive relationship between consumer satisfaction and financial performance, the direct effects are generally small. Anderson et al. (2004) also present the results of an extensive theoretical and empirical analysis across industries and firms of the significant and positive association between consumer satisfaction on the one hand, and long-term financial performance and shareholder

value on the other hand. Notwithstanding this general result, Anderson et al. also discovered that the strength of the relationship varies across industries according to their degree of fragmentation and rivalry among competitors, being weaker in more fragmented markets characterised by low concentration.

Differences can also arise when considering products vs. services markets. In a study based on the Swedish Customer Satisfaction Index, Edvardsson et al. (2000) found that the impact of consumer satisfaction and loyalty on firm performance operates differently depending on the type of market involved. In fact, they conclude that loyalty can have a negative impact on company performance for product firms, but still a positive effect for service firms. The suggested implication is that whilst service firms must earn loyalty from their clients, their product markets' counterparts can lower their prices to retain their customers. In a previous study, Anderson et al. (1997) had signalled the existence of a tradeoff between customer satisfaction and productivity in the case of services, but conversely they found a positive association between consumer satisfaction and productivity for goods. The practical implication of their findings is that simultaneous attempts to increase both customer satisfaction and productivity are likely to be more challenging in the service industries.

Cronin et al. (2000) revisited the literature on service quality, service value, and customer satisfaction, noting that it does not deliver a clear verdict on their effect on firm profitability. According to Cronin et al., one of the main reasons behind this ambiguity was the fact that the aforementioned three drivers of consumer behaviour had not been simultaneously studied in a systematic manner. Thus, the objective of their paper was to propose a novel SEM integrating these three facets of the consumer experience and, subsequently, to perform a thorough empirical study of their effect on firms' bottom lines. The main findings of Cronin et al. (2000) were in line with the authors' expectations as they appeared to confirm the simultaneous importance of quality, value, and satisfaction to boosting firm performance.

Furthermore, the entire exercise of the paper shed light on the inadequacy of considering quality, value, and satisfaction separately when trying to ascertain their economic importance.

Moreover, as already discussed in Hardeman (2014), the empirical analysis of the relationship between market performance as experienced by consumers and economic growth at a macro (national) level may also lead to ambivalent results. On the one hand, the use of consumer satisfaction indices as a means of evaluating and forecasting economic growth (as measured for example by GDP) is supported by the assumption that changes in consumer satisfaction lead to changes in national stock exchange indices, which in turn have been shown to be predictors of national economic performance (Anderson and Fornell 2000). But on the other hand, as explained by authors like Ogikubo et al. (2009), economic growth should also be considered as an antecedent factor that positively influences consumer satisfaction at the aggregate level. Additional insights contesting the idea of a unidirectional impact of consumer satisfaction on economic growth are provided for example by Frank and Enkawa (2008, 2009), who suggest that macroeconomic influences such as economic growth (and the subsequent rise in the average consumers' budget) and economic expectations can help shape consumer satisfaction at a national level. As an important implication of these studies, corporate and public managers should take into account that consumer satisfaction indicators might as well improve as a consequence of better economic conditions and the subsequent rise in the spending power of consumers, but not necessarily because of a better performance of the firms involved in any specific market.

Other authors such as Fornell et al. (2010) have underscored the importance of consumer satisfaction (together with increases in consumers' debt service ratio) as an explanatory variable of consumer spending growth, and consequently as a driving force of overall economic growth. These attempts to predict consumer spending growth parallel to a certain extent other theoretical proposals trying to

explain how consumption in modern economies has not been altogether satiated, thus allowing for a sustained increase in the quantity of goods and services to be sold (see e.g. Witt 2001).

Table 3 summarises selected studies from the existing literature on the relationship between consumer satisfaction, profitability and economic growth.

Table 3: Selected papers on consumer satisfaction, profitability and economic performance

Authors	Research subject	Main findings
Anderson and Fornell (2000)	Review of customer satisfaction indices as potential leading indicators of the financial performance of the firms	There is evidence supporting the idea of a positive link between customer satisfaction and profitability at firm level, as well as between customer satisfaction and economic performance at the national level
Anderson, Fornell and Lehman (1994)	Develop a simultaneous equation model that combines expectations, perceived quality, satisfaction and returns to investment on data from Swedish firms and customers	Found evidence of a positive impact of quality on customer satisfaction and profitability
Anderson, Fornell and Mazvancheryl (2004)	Empirical analysis on the positive association between consumer satisfaction, long-term financial performance and shareholder value across industries	Fragmentation and rivalry affect the strength of the relationship
Anderson, Fornell and Rust (1997)	Identify the impact of consumer satisfaction on productivity for goods and services	Existence of a tradeoff satisfaction-productivity in the case of services, but a positive association for goods
Cronin, Brady and Hult (2000)	Revisit the literature on service quality, service value and customer satisfaction, and their effect on firm profitability, and propose a simultaneous equation model that combines the aforementioned drivers of consumer behaviour	Recommends analysing the impact of service quality, service value and quality satisfaction in a simultaneous and integrated way in order to ascertain their economic importance
Edvardsson, Johnson, Gustafsson and Strandvik (2000)	Study the impact of consumer satisfaction and loyalty on firm performance	The impact differs depending on the type of market (goods vs. services)
Fornell, Mithas, Morgeson and Krishnan (2006)	Analyse the relationships among consumer satisfaction, economic performance and securities pricing, based on data from American firms	Empirical evidence of a positive association between satisfied consumers and higher and more stable net cash flows

Frank and Enkawa (2008, 2009)	Analyse the effects of economic growth on consumer satisfaction	Economic growth and economic expectations help shape customer satisfaction
Hallowell (1996)	Analyse the relationship between consumer satisfaction, loyalty and profitability on a small cross-sectional data set	Demonstrate a positive relationship between customer satisfaction and retention rates (i.e. loyalty)
Ogikubo, Schvaneveldt and Enkawa (2009)	In a cross-country study they investigate the antecedents of consumer satisfaction	Economic growth should be considered as an antecedent factor of consumer satisfaction
Witt (2001)	Explain the growth in the demand of goods and serivces	Increasing variety of consumption items and increasing specialization of the consumers in their demand play a crucial role in the fact that consumption has not been increasingly satiated
Yeung and Ennew (2000)	Analyse the relationship between consumer satisfaction and financial performance of the firms	Direct effects in the relationship between consumer satisfaction and profitability are found to be small

Source: Own elaboration

1.2. REVISION OF THE THEORETICAL FRAMEWORK AND PROPOSAL OF INDICATORS FOR THE ASSESSMENT OF CONSUMER MARKET SATISFACTION IN THE EU

Measuring market performance and consumer satisfaction from the perspective of consumers is a basic starting point for consumer policy to serve citizens across EU member states. As stated in the *European Consumer Agenda* (COM(2012) 225 final: A European Consumer Agenda – Boosting confidence and growth): "To meet the main objectives of this Agenda in the most effective way and minimise administrative burden, any *policy action must be solidly based on evidence on how markets work in practice and how consumers behave* […] the measures announced in this Agenda will be also *supported by continuously updated sources of key information, such as the Consumer Markets Scoreboards*, consumer market rankings *and the Consumer Conditions Scoreboards*, benchmarking the consumer environment in Member States and tracking progress in the integration of retail markets."

Consequently, there exists a need from a policy-making perspective to answer the question of when markets are considered by consumers to perform satisfactorily. As a starting point it is obvious that, from a consumer's point of view (and according to his or her own perception and evaluation), markets perform well when the goods and services purchased deliver on all the different aspects identified as crucial in consumer satisfaction (e.g. price, but also issues such as health, environment, pleasure, trust, status, etc.).

From a methodological point of view, but also in practical terms, we are in a position to support and validate the proposal of developing a composite indicator for measuring actual market performance from the perspective of consumers that may help support policy action. More precisely, in Hardeman (2014) six criteria were identified that should underpin the construction and analysis of indicators related to market performance and consumer satisfaction:

- First, it is clear that any methodological approach focused on the analysis of market performance from a consumer perspective should implement a survey-based approach targeting a representative sample of the relevant population. Also, to ensure comparability, the definition and measurement of the variables and indicators should be equivalent and homogeneous across markets and countries in which the data collection mechanisms will be implemented.
- Second, the approach to the measurement of market performance and consumer satisfaction needs to focus on the actual experience of the surveyed consumers with products or services within the market. In this respect, it is also worth noting that cumulative satisfaction instead of transaction-specific satisfaction should be targeted when assessing consumer satisfaction.
- Third, it is assumed that no single indicator could offer a comprehensive insight on the different set of outcomes that consumers might deem important. As a consequence, a multidimensional

approach in the form of a composite indicator, that explicitly weighs and aggregates the different aspects considered, should be developed and implemented.

- Fourth, it is convenient to be able to analyse the particularities of different socio-demographic groups in terms of their perceptions of market performance and satisfaction. This will allow us to identify vulnerable groups that require specific attention in terms of consumer policy design. For that reason, socio-demographic and attitudinal data of respondents should be collected by the survey mechanism implemented.
- Fifth, but closely related to the first criterion, the issue of homogeneity and comparability across different markets and countries implies that the empirical application should aim at covering all the markets unambiguously and neutrally. In other words, the issue of benchmarking of markets (and countries) should be regarded as an explicit objective of the analysis.
- Finally, more valuable insights from inter-temporal comparability will be available inasmuch as the time-series of market performance indicators are interrupted as little as possible. As such, this criterion acts as a limiting factor when it comes to proposing modifications in the current set of indicators or in the already existent analytical framework.

Building on these criteria, seven individual indicators (Comparability, Expectations, Trust, Problems & Detriment, Choice, Novelty and Risk) and an additional explicit weighting question of the importance assigned to each one of them by the individual survey respondent were initially suggested by Hardeman (2014) as the basic analytical framework for the measurement of market performance from a consumer perspective (see Table 4).

Table 4: Alternative proposals of components of market performance and survey questions

Component	Survey question (CMS 2012)	Component	Survey question (Hardeman 2014)	Component	Survey question (Final JRC proposal)
1. Comparability	On a scale from 0 to 10, how difficult or easy was it to compare services/products in a specific market?	1. Comparability	On a scale from 0 to 10, how difficult or easy was it to compare services/products in a specific market?	1. Comparability	On a scale from 0 to 10, how difficult or easy was it to compare services/products in a specific market?
2. Expectations	On a scale from 0 to 10, to what extent did products/services on offer from different suppliers live up to what you wanted within the market?	2. Expectations	On a scale from 0 to 10, to what extent did products/services on offer from different suppliers live up to what you wanted within the market?	***2. Meeting expectations***	On a scale from 0 to 10, to what extent did products/services on offer live up to your expectations?
3. Trust	On a scale from 0 to 10, to what extent do you trust retailers/service providers in the market to respect the rules and regulations protecting consumers?	3. Trust	On a scale from 0 to 10, to what extent do you trust retailers/service providers in the market to respect the rules and regulations protecting consumers?	3. Trust	On a scale from 0 to 10, to what extent do you trust retailers/service providers in the market to respect the rules and regulations protecting consumers?
4. Problems & Complaints	[i] Within the past <X> year(s), did you experience any problem with the product/services you purchased/paid for, either with the product or the retailer/the service or provider, where you thought you had a legitimate cause for complaint? [ii] Have you complained about any of these problems?	**4. Problems & Detriment**	In the [reference period], on a scale from 0 to 10, to what extent have you encountered financial loss due to problems either with the product/service or the retailer/service provider (including the costs incurred trying to resolve the problem)?	***4. Problems & Detriment***	By detriment, we mean financial loss or other types of harm (e.g. loss of time, stress, adverse health effects, etc.) On a scale from 0 to 10, within the <past period>, to what extent have you suffered detriment as a result of problems experienced either with the <products/services> or the <suppliers/retailers>?
		5. Complaints (no longer part of MPI)	Have you complained about any of these problems?	**5. Complaints** (no longer part of MPI)	Have you complained about any of these problems?
5. Choice	On a scale from 0 to 10, would you say there are enough 'retailers/providers' you can choose from?	**6. Choice** (same question, but now asked in	On a scale from 0 to 10, would you say there are enough 'retailers/providers' you can choose from?	***6. Choice*** (same question, but now asked in	On a scale from 0 to 10, to what extent are you satisfied with the number of <suppliers/retailers> of <products/services> you can choose from?

		all markets and part of MPI)		all markets and part of MPI)	
6. Switching	[i] Have you switched service or provider in the past year? [ii] On a scale from 0 to 10, how difficult or easy do you think it would have been/was it to switch provider in the past year?	**7. Switching** (not part of MPI)	Have you tried to switch your … provider in the [reference period]? - Yes, you switched and it was easy; - Yes, you switched but it was difficult; - You tried to switch but you gave up due to the obstacles you faced; - No, you did not try because you thought it might be difficult; - No, you did not try because you are not interested in switching; - DK.	**7. *Switching*** (not part of MPI)	[i] Have you switched your … provider in the past [reference period]? [ii.1] If yes: - On a scale from 0 to 10, how difficult or easy do you think it was? [ii.2] If not: Why didn't you switch? - Because you were not interested in switching - Because you thought it might be too difficult - For other reasons - You tried to switch but you gave up because of the obstacle you faced
		8. Novelty	On a scale from 0 to 10, to what extent do you consider goods/services in the market sufficiently innovative?	***8. Novelty***	On a scale from 0 to 10, to what extent do you consider what is offered to you in the market sufficiently innovative?
		9. Risk	On a scale from 0 to 10, to what extent do you consider the goods/services offered in the market to pose a potential threat on your future well-being?	***9. Risk***	On a scale from 0 to 10, to what extent do you consider that the different suppliers of the goods and services in the market are committed to contributing to the issue of environmental sustainability?
				10. Perceived value	Considering the quality of the services/products purchased, on a scale from 0 to 10 to what extent are you satisfied with the price that you have paid?

		Weighting	On a scale from 0 to 10, how important do you consider the issue of "component" for "the market"? (0 = not important at all to 10 =	***Weighting***	On a scale from 0 to 10, how important do you consider the following aspects for <the market>?:

			extremely important) "Component" can stand for: - Goods/services being comparable - Goods/services meeting your expectations - Being able to trust different players that they conform to the rules and regulations protecting consumers - The non-occurrence of financial loss due to problems with the product/service or the retailer/service provider - The availability of enough retailers/service providers - Innovativeness of goods/services - Not putting your future well-being at risk by purchasing goods/services		- Comparability of <services/products> sold by different <suppliers/retailers> - <Services/products> living up to your expectations - Being able to trust that <suppliers/retailers> respect the rules and regulations protecting consumers - Not encountering problems either with the <products/services> or the <suppliers/retailers> that lead to financial loss or other detriment - The number of <suppliers/retailers to choose from - Innovativeness of goods/services - Commitment to contributing to environmental sustainability - Perceived value of the product/service

Note: In bold the components/survey questions that have undergone modifications with respect to the CMS (2012) version; in bold and italics the components/survey questions that have been modified also with respect to Hardeman's (2014) proposal.

For an in-depth conceptual and statistical analysis of the proposed individual indicators, the reader is again referred to Hardeman (2014). However, subsequent discussions during and after the *Informal inter-service consultation on the methodological revision of the Consumer Markets Scoreboard* held on the 30th of September 2014 and the Consumer Markets Expert Group meeting on 1-2 October 2014 have raised some doubts on specific issues related to the definition and implementation of some of the indicators that need further reflection. In addition, this report presents some new insights and additional proposals (see also Table 4) related to the indicators and questions to be included in future consumer markets monitoring surveys. A summary of the key discussion points and JRC proposals is given below:

- First, it is not clear how the concept of perceived innovation embedded in the novelty-innovation indicator should be conveyed to, and is to be perceived by, survey respondents throughout the wide range of markets covered by the survey (e.g. innovation perceived in the fruits and vegetables market as compared to innovation perceived in ICT products). Moreover, even though the focus of the question should be on innovation that is visible for consumers, it has also been discussed the possibility of widening the scope of the indicator to include non-product aspects (e.g. the business model). Finally, it has been proposed not to include the question on innovation in the 2015 wave of the market monitoring survey. However, as there is still a general agreement on the importance of this topic, the possibility to address the issue of innovation in future surveys (possibly for selected markets) has been left open.
- Second, the expectations component, as it is presently defined and implemented, should be regarded as a 'meeting expectations' indicator, and not as a direct measure of expectations from an individual's point of view. In fact, in previous versions of the Consumer Market Scoreboard (as well as in the latest 10th edition, see European Union 2014) this indicator has often been referred to as 'overall satisfaction' or 'satisfaction component', even though such headings might also be misleading when we take into account the actual wording of the

survey question used for measuring the indicator (see Table 4). A suggestion to avoid this confusion in the future would be to modify slightly the wording of the question and to rename the indicator as 'meeting expectations'. In addition, we must take into account that even though the wording for this question resembles that of the expectancy disconfirmation measures discussed in the literature review above, the rating scale selected to record the interviewee's answers is defined from 0, meaning "not at all", to 10, meaning "fully". According to such a scale, the only possible outcomes of the expectancy disconfirmation process that could be recorded for further analysis are necessarily comprised between the extremes of "falling short" or "(fully) meeting" expectations, i.e. the potential outcome of expectations having been exceeded is excluded from the present scale. This situation seems to be precluding the interpretation of the results of this indicator as a proper proxy of expectancy disconfirmation. To tackle this issue of potential ambiguity, the JRC suggests to modify the wording/rating scale in order to take into account the whole set of potential answers for that question, i.e. extending the range of answers from "falling short" to "exceeding" expectations.

- Third, the introduction of a risk indicator has been regarded as too general/vague and problematic with respect to cross market 'neutrality'. The JRC proposal included in this paper to bridge this problem implies transposing the risk component into a more narrow but more precise setting than the present one, in the sense that it could be redirected to the measurement of individuals' perception of the environmental sustainability of the products offered by any specific industry/market under analysis. This proposal is in line with the issue of the visibility of business ethics and consumers' assessment of corporate social responsibility behaviour of firms with regard to environmental issues. Independent of the market considered, and according to their own subjective perceptions, consumers should be in a position to assess neutrally and unambiguously (i.e. without penalizing individual markets with low scores due to their very nature, see e.g. Hardeman 2014) to what extent

firms in the market encourage and engage in actions with a positive impact on the environment. Of course, some of these actions would have a bigger impact on the environment in absolute terms, in particular when undertaken by firms in sectors potentially more harmful for the environment (e.g. transport, utilities). However, we might also find a strong commitment to eco-friendly actions by firms in sectors *a priori* less harmful for the environment (e.g. finance and insurance). A proposal for the wording of the question that would measure the risk dimension is included in the last column of Table 4. While the question has not been included in the 2015 wave of the market monitoring survey, the possibility to address the issue in future surveys (possibly for selected markets) has been left open.

- Fourth, Fornell's models described in the literature review (e.g. SCSB and ACSI) show that perceived value can be operationalised as an antecedent of consumer satisfaction in terms of quality for price/price for quality ratings (i.e. value judgements of the quality perceived considering the costs involved in the purchase). Such an indicator of market performance seems to be very well suited for inclusion in a composite indicator aimed at measuring sound consumer markets, as it provides additional information on and controls for differences in income and budget constraints across respondents (Fornell et al. 1996). In addition, we also agree with the approach undertook by the SCSB/ACSI surveys according to which it is possible to operationalise and measure perceived value as a separate variable in the model. Moreover, we consider that a 'relative' measure of quality -to some extent 'weighted' by value (price)- should be more comprehensive, meaningful and relevant in terms of identifying and defining sound consumer markets than an 'absolute' measure of perceived quality. Consequently, we propose the inclusion of a perceived value question in future CMS market evaluation surveys, as presented in the last column of Table 4. While the question has not been included in the 2015 wave of the market monitoring survey, the

possibility to address the issue of perceived value in future surveys (possibly for selected markets) has been left open.

- Fifth, splitting the switching question as displayed in Table 4 might have the advantage of making things easier for the interviewee when answering the survey. Moreover, we must take into account that the switching question is not part of the MPI indicator, and as such it is not necessary to recode the categorical responses into a numerical scale.
- Sixth, from a JRC perspective it would be desirable to maintain only one question related to the issue of problems and detriment, including a short introductory text to introduce the concept of detriment to the interviewees (see Table 4). This approach is in line with the recommendation made by Hardeman (2014) relative to including in the survey only one question for each aspect of the consumer market that will feed into the MPI indicator, all of them measured in the same scale. As in previous waves, an accompanying question related to complaints (not part of the MPI) should also be posed to the survey participants to help identifying the severity of the problem experienced.
- Finally, with regards to the choice question, a minor modification in the wording of the question would help to take into account the fact that a higher number of retailers does not necessarily result in higher satisfaction. As already discussed in the literature review, increased competition alone might not be deemed sufficient for the maximisation of consumer welfare. Consequently, the new wording included in Table 4 acknowledges this issue and puts less emphasis on the number of providers in the market.

1.3. CONCEPTUAL AND STATISTICAL COHERENCE IN THE EXISTING MARKET PERFORMANCE INDICATOR

The Market Performance Indicator (MPI) attempts to summarize complex and versatile concepts across 30 European countries and across 52 markets. Such an attempt unavoidably raises practical challenges related to the combination of these concepts into a set of numbers and finally into an overall index, which is presently composed of 4 indicators: COMPARABILITY, TRUST, PROBLEMS & COMPLAINTS, EXPECTATIONS. Indeed, extending what Saltelli and Funtowicz (2014) argue for models in general, stringent criteria of transparency must be adopted when composite indicators are used as a basis for policy assessments.

The analysis of conceptual and statistical coherence of the MPI can be undertaken along four main steps: (a) the consideration of the underlying conceptual framework with respect to the existing literature, (b) the preliminary data quality checks including data coverage, missing values, reporting errors, existence of outliers, (c) the assessment of the statistical coherence through a set of correlation-based analyses, followed by robustness tests about weighting schemes and aggregation methods, (d) and finally the qualitative confrontation with the expert bodies in order to get suggestions and reviews about the decisions undertaken in the previous stages of analysis **Invalid source specified.**. The section herein focuses on the statistical soundness of the MPI framework. We consider statistical soundness to be a necessary but not a sufficient condition for a sound index. Given that the statistical audit of the MPI is mostly based on correlation analysis, both cross-country and cross-market, but not only, the correspondence of this index with a real world phenomenon needs to be critically discussed. This is because “correlations need not necessarily represent the real influence of the individual indicators on the phenomenon being measured” **Invalid source specified.**. In other words, the validity of the MPI relies on the interplay between both statistical and conceptual soundness.

1.3.1. Descriptive statistics

The MPI framework builds on four indicators that originate from the consumer surveys. As explained in the methodological annex of the 4th wave of the consumer markets monitoring survey (European Commission 2013), the aggregate scores are computed for individual indicators in the following way:

1) The aggregate scores for EU28 are computed as weighted average (according to country demographics) of EU countries.
2) The aggregate scores for GOODS and SERVICES markets are computed as simple averages (with equal weights) across the individual markets in either group.

Each of the four indicators to be considered for the MPI is scored 1-10, whereas the MPI is computed as a simple average of all the indicators, multiplied times 10. Thus, the maximum score of the MPI for a specific market in a specific country always ranges from 0-100. In the following we present the statistics of indicators for:

1) aggregate EU28 across GOODS and SERVICES markets,
2) aggregate GOODS across (30) countries,
3) aggregate SERVICES across (30) countries.

Table 5: Descriptive statistics of the indicators for aggregate EU28

EU28: ACROSS GOODS & SERVICES	comparability	trust	problems & complaints	expectations	MPI
MIN	6.12	5.73	8.40	6.51	69.92
MAX	7.98	7.71	9.85	8.16	84.15
MEAN	7.28	6.83	9.34	7.52	77.44
STD	0.50	0.47	0.33	0.42	3.80
SKEWNESS	-0.48	-0.25	-0.55	-0.51	-0.20
KURTOSIS	-0.86	-0.73	0.12	-0.60	-1.12

Source: Own elaboration based on aggregate data from the 10th Consumer Markets Scoreboard (2014).
Notes: Numbers represent minimum, maximum, mean, standard deviation, skewness, and kurtosis of the scores of the individual indicators and the final score of the MPI for the aggregate EU28 across 52 markets (GOODS and SERVICES).

Table 6: Descriptive statistics of the indicators for aggregate GOODS

GOODS: ACROSS COUNTRIES	comparability	trust	problems & complaints	expectations	MPI
MIN	6.50	5.76	8.98	7.09	71.29
MAX	8.39	8.28	9.87	8.40	87.23
MEAN	7.55	7.01	9.38	7.85	79.49
STD	0.37	0.55	0.25	0.32	3.08
SKEWNESS	-0.90	-0.27	0.31	-0.77	-0.40
KURTOSIS	2.22	0.52	-0.74	0.76	1.42

Source: Own elaboration based on aggregate data from the 10th Consumer Markets Scoreboard (2014).
Notes: Numbers represent minimum, maximum, mean, standard deviation, skewness, and kurtosis of the scores of the individual indicators and the final score of the MPI for the aggregate GOODS across 30 countries.

Table 7: Descriptive statistics of the indicators for aggregate SERVICES

SERVICES: ACROSS COUNTRIES	comparability	trust	problems & complaints	expectations	MPI
MIN	6.16	5.77	8.80	6.77	69.71
MAX	7.99	7.83	9.77	8.09	82.25
MEAN	6.97	6.78	9.22	7.42	75.97
STD	0.45	0.54	0.26	0.33	3.34
SKEWNESS	-0.02	-0.07	0.57	-0.16	0.10
KURTOSIS	-0.39	-0.46	-0.66	-0.53	-0.58

Source: Own elaboration based on aggregate data from the 10th Consumer Markets Scoreboard (2014).
Notes: Numbers represent minimum, maximum, mean, standard deviation, skewness, and kurtosis of the scores of the individual indicators and the final score of the MPI for the aggregate SERVICES across 30 countries.

The results presented in the tables above show that the analysed data are not affected by outliers or highly asymmetric distributions.[1] Although theoretically the scores of the indicators vary from 0 to 10, the actual scores vary, circa, from 6 to 10. Furthermore, the scores of indicators, thus, also for the MPI, are highly concentrated around the mean due to small standard deviations.

1.3.2. Analysis of the correlation structure

The correlation analysis was performed within individual indicators and the overall MPI, across markets and countries to assess to which extent the conceptual framework is confirmed by statistical approaches and to identify potential pitfalls. The analysis is performed on two levels: Table 8 presents the correlations across the markets (for fixed aggregate EU28); whereas Table 9 gives the results across the countries (for fixed aggregate GOODS or SERVICES).

The analysis of the correlation structure across the four MPI indicators on both levels confirms the expectation that the indicators are positively correlated with each other. Note that the correlations between indicators are not so strong as to support the idea of redundancy in the information conveyed by each of them to the composite indicator. Also the correlations between the individual indicators and overall MPI are positive and strong. Hence, from the statistical point, no revision of the framework is needed. The statistical structure of the MPI is fairly balanced, in the sense that the statistical importance of all indicators is similar. Nevertheless, it is interesting to note that on both levels of the analysis the indicator TRUST has, comparatively, the highest correlation with the overall MPI, ranging from r=0.90 to r=0.95. On the other hand the indicator PROBLEMS and COMPLAINTS has the weakest correlation with the overall MPI, ranging from r=0.63 to r=0.87. The latter phenomenon is particularly visible when analyzing correlations across the markets with the aggregate EU28 fixed (Table 8). In the aforementioned case a relatively weaker (with respect to

[1] Groeneveld and Meeden (1984) set the criteria for absolute skewness above 1 and kurtosis above 3.5. The skewness criterion was relaxed to 'above 2' to account for the small sample.

remaining three indicators) correlation of the PROBLEMS and COMPLAINTS with the final index makes the MPI structure slightly unbalanced, which might suggest that different (unequal) weighting of the indicators is more suitable on this level. Finally, it might also be worthy looking beyond these statistical associations and trying to identify the conceptual reasons behind them, which in turn might lead to a substantial change in the assumptions and metric on which this indicator is built upon, e.g. following the suggestions already made by Hardeman (2014).

Finally, we have investigated whether the countries' scores for the aggregate GOODS markets are correlated with the scores for the aggregate SERVICES markets. This has proven to be the case, with the Pearson correlation coefficient between the two tables equal to r=0.78. For better visualization of this phenomenon we have produced a scatterplot of GOODS vs SERVICES (Figure 1).

Table 8: Statistical coherence across the markets in the MPI (for aggregate EU28)

EU28: ACROSS GOODS	comparability	trust	problems & complaints	expectations	MPI
comparability	1.00	0.64	0.38	0.68	0.78
trust	0.64	1.00	0.53	0.93	0.95
problems & complaints	0.38	0.53	1.00	0.52	0.70
expectations	0.68	0.93	0.52	1.00	0.94

EU28: ACROSS SERVICES	comparability	trust	problems & complaints	expectations	MPI
comparability	1.00	0.75	0.35	0.79	0.88
trust	0.75	1.00	0.53	0.82	0.93
problems & complaints	0.35	0.53	1.00	0.35	0.63
expectations	0.79	0.82	0.35	1.00	0.90

EU28: ACROSS GOODS & SERVICES	comparability	trust	problems & complaints	expectations	MPI
comparability	1.00	0.74	0.49	0.85	0.90
trust	0.74	1.00	0.59	0.85	0.92
problems & complaints	0.49	0.59	1.00	0.51	0.70
expectations	0.85	0.85	0.51	1.00	0.94

Source: Own elaboration based on aggregate data from the 10th Consumer Markets Scoreboard (2014).
Notes: Numbers represent the Pearson correlation coefficients between the indicators and the overall index. All coefficients are statistically significant at 99% level. The numbers are computed for aggregate EU28 across: 22 GOODS markets (above); 32 SERVICES markets (middle); 52 combined GOODS & SERVICES markets.

Table 9: Statistical coherence across the countries in the MPI (for aggregate GOODS and SERVICES)

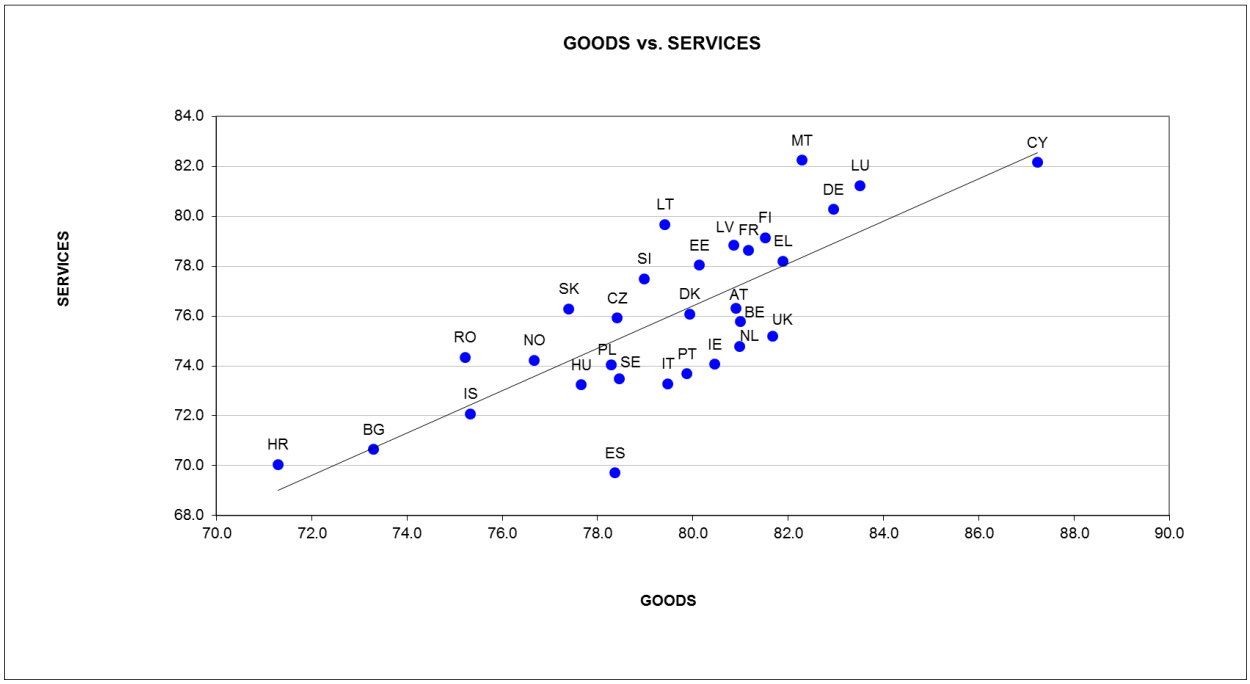
GOODS: ACROSS COUNTRIES	comparability	trust	problems & complaints	expectations	MPI
comparability	1.00	0.58	0.49	0.46	0.78
trust	0.58	1.00	0.69	0.69	0.94
problems & complaints	0.49	0.69	1.00	0.30	0.73
expectations	0.46	0.69	0.30	1.00	0.77

SERVICES: ACROSS COUNTRIES	comparability	trust	problems & complaints	expectations	MPI
comparability	1.00	0.51	0.58	0.35	0.74
trust	0.51	1.00	0.81	0.86	0.94
problems & complaints	0.58	0.81	1.00	0.61	0.87
expectations	0.35	0.86	0.61	1.00	0.83

GOODS & SERVICES: ACROSS COUNTRIES	comparability	trust	problems & complaints	expectations	MPI
comparability	1.00	0.55	0.60	0.59	0.82
trust	0.55	1.00	0.76	0.74	0.90
problems & complaints	0.60	0.76	1.00	0.54	0.82
expectations	0.59	0.74	0.54	1.00	0.85

Source: Own elaboration based on aggregate data from the 10th Consumer Markets Scoreboard (2014).
Notes: Numbers represent the Pearson correlation coefficients between the indicators and the overall index. All coefficients are statistically significant at 99% level. The numbers are computed across 30 countries for: aggregate GOODS (above); aggregate SERVICES (middle); combined aggregate GOODS & SERVICES [60 data entries, across 30 countries for GOODS plus across 30 countries for SERVICES] (below).

Figure 1: correlation between aggregate GOODS and SERVICES MPI scores (across countries)



Source: Own elaboration based on aggregate data from the 10th Consumer Markets Scoreboard (2014).
Notes: Countries' MPI scores of aggregate GOODS versus aggregate SERVICES markets together with the linear trend.

1.4. UNCERTAINTY AND SENSITIVITY ANALYSIS OF THE EXISTING MARKET PERFORMANCE INDICATOR

The uncertainty and sensitivity analysis presented in this section is based on aggregate data from the 10th Consumer Markets Scoreboard, i.e. aggregated values per (set of) country(s) and/or per (set of) market(s). Scores of every country and market on the MPI depend for example on modelling choices such as the actual selection of variables, imputation of missing data, capping outliers, normalization, weights, aggregation method, among others. In this report, the robustness analysis performed is limited to the assessment of the joint impact of the main two modelling choices (namely, weights and aggregation method) on the scores and rankings, and thus to complement the MPI ranks with error estimates stemming from the unavoidable uncertainty in the modelling assumptions.

Our assessment of the MPI is based on a combination of Monte Carlo experiments and multi-modelling approach, following good practices suggested in the composite indicators literature (Saisana et al. 2005; Saisana et al. 2011). As mentioned above, the assessment dealt with two key issues: weights of the four sub-indicators included in the present formulation of the MPI (comparability, trust, problems and expectations), and the aggregation formula selected. The aim of this type of assessment is to anticipate potential criticism that the MPI ranks have been calculated under conditions of certainty, whilst this is certainly not the case (neither in any other multidimensional measure).

Weight uncertainty

The Monte Carlo simulation related to the issue of weighting comprises 1,000 runs, each corresponding to a different set of importance weights assigned to the four sub-indicators, randomly sampled from continuous uniform distributions centered in the reference values of weights. To ensure a wide enough interval to have meaningful robustness checks the variation in weights was set to ±25% of the reference value. Accordingly, weights are sampled independently from the set $\mathrm{W} = \{\mathrm{w} \in \Re^4 \colon \mathrm{w_i} \in \left[\frac{3}{16}, \frac{5}{16}\right], \forall\, \mathrm{i} \in \{1,2,3,4\},\ \sum_{\mathrm{i}=1}^{4} \mathrm{w_i} = 1\}$ and then normalized to sum to one.

Aggregation function uncertainty

Regarding the choice of aggregation formula, the simple arithmetic average has been criticized on the basis of its perfectly substitutable structure, whereby high performance in one indicator can fully compensate for low performance in another.[2] We relaxed this strong perfect substitutability assumption by introducing a parametric family of aggregating functions that are known as generalized weighted means (Decancq and Lugo, 2013). Parameterized by $\beta \in \Re$, the generalized weighted mean of a vector x given weights w is given by:

[2] Intuitively, in a situation where for example scores could range from 0 to 10 points, the combination of two scores of 0 and 10 under an arithmetic formula would lead to an average score of 5 points, whilst the combination of the same scores under a geometric formula would result in an average value of 0 (i.e. extremely low scores would not be compensated even by extremely high scores when a geometric aggregation formula is in use).

$$y^{\beta}(x, w) = \left(\sum_{i} w_i x_i^{\beta} \right)^{\frac{1}{\beta}}.$$

When $\beta = 1$ the above function reduces to a weighted arithmetic mean, whilst in the limit case $\beta \to 0$ the above aggregation reduces to simple geometric aggregation (i.e., it equals the product $\prod_i x_i^{w_i}$). The parameter β can be interpreted in terms of the elasticity of substitution between the different dimensions of the index, e, where $e = \frac{1}{1-\beta}$. The smaller the value of β, the lower the substitutability between the different dimensions of performance (note that the case $\beta = 1$ corresponding to an arithmetic mean implies infinite substitutability).

For values of $\beta < 1$, generalized weighted means reflect a preference for balanced performance across the different dimensions of the index. Such balance is desirable in our context, so for the purposes of our uncertainty analysis we mainly considered this range of β. Specifically, in our simulations we considered five values for β, namely $\beta \in \{0, 0.25, 0.50, .75, 1\}$, ranging from the arithmetic to the geometric mean specifications of the aggregation formula.

Generating weight-aggregation samples

We generated a sample of 5,000 weight-aggregation pairs in the following manner. First, we drew a vector of weights w from the set $W = \{w \in \Re^4: \ w_i \in \left[\frac{3}{16}, \frac{5}{16}\right], \forall\, i \in \{1,2,3,4\}, \ \sum_{i=1}^{4} w_i = 1\}$. Using these weights w, the MPI scores were computed via their generalized weighted means for $\beta \in \{0, 0.25, 0.50, 0.75, 1\}$, where the aggregations were performed at the thematic area level.

The sources of uncertainty are summarized in the Table 10.

Table 10: Sources of uncertainty in the MPI

	Reference	***Alternative***
I. Uncertainty in the aggregation formula	Weighted arithmetic average, i.e., $\beta = 1$	Generalized weighted mean $\beta \in \{0,0.25,0.50,0.75,1\}$
II. Uncertainty in the weights	Equal weights $w_i = 0.25, \forall i$	Uniform distribution over set $W = \{w: w_i \in \left[\frac{3}{16}, \frac{5}{16}\right], \forall i \in \{1,2,3,4\}, \sum_{i=1}^{4} w_i = 1\}$.

Uncertainty Analysis Results

Fixed aggregate markets

The uncertainty analysis has been performed for two fixed aggregate markets: GOODS and SERVICES. Figure 2 and Figure 3 below present the results of such an analysis for GOODS and SERVICES markets, respectively. Countries are ordered from best to worst according to their reference rank, the red bar being the median rank, the grey bar being 50% confidence interval, and the vertical line being 95% confidence interval. All reference MPI ranks lay within the simulated 95% confidence intervals. In fact, for both GOODS and SERVICES markets there is very little variation in country ranks with the simulated changes in weights and aggregation. Indeed, in case of GOODS market the median rank of 26 countries out of 30 is equal to the reference ranking whereas in case of SERVICES market the same holds for 27 countries. In the remaining cases the median rank differs only by one position from the reference rank. Also the 95% confidence intervals are relatively narrow: in case of GOODS market the interval ranges of 19 countries are smaller than 3 positions with the widest range being 5 positions (FR); in case of SERVICES market the interval ranges of 22 countries are smaller than 3 positions with the widest range being 4 positions (DK, RO, NO, PT, SE).

Figure 2: Uncertainty analysis results for the MPI ranks for GOODS market (based on 5,000 weight-aggregation pairs)

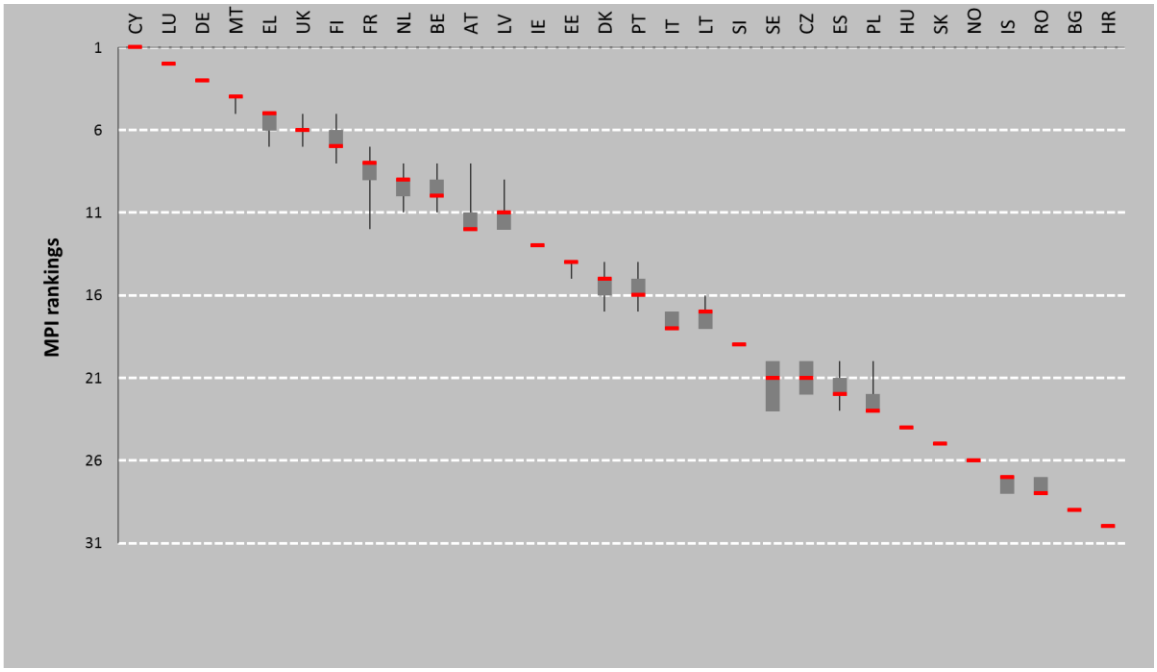


Figure 3: Uncertainty analysis results for the MPI ranks for SERVICES market (based on 5,000 weight-aggregation pairs)

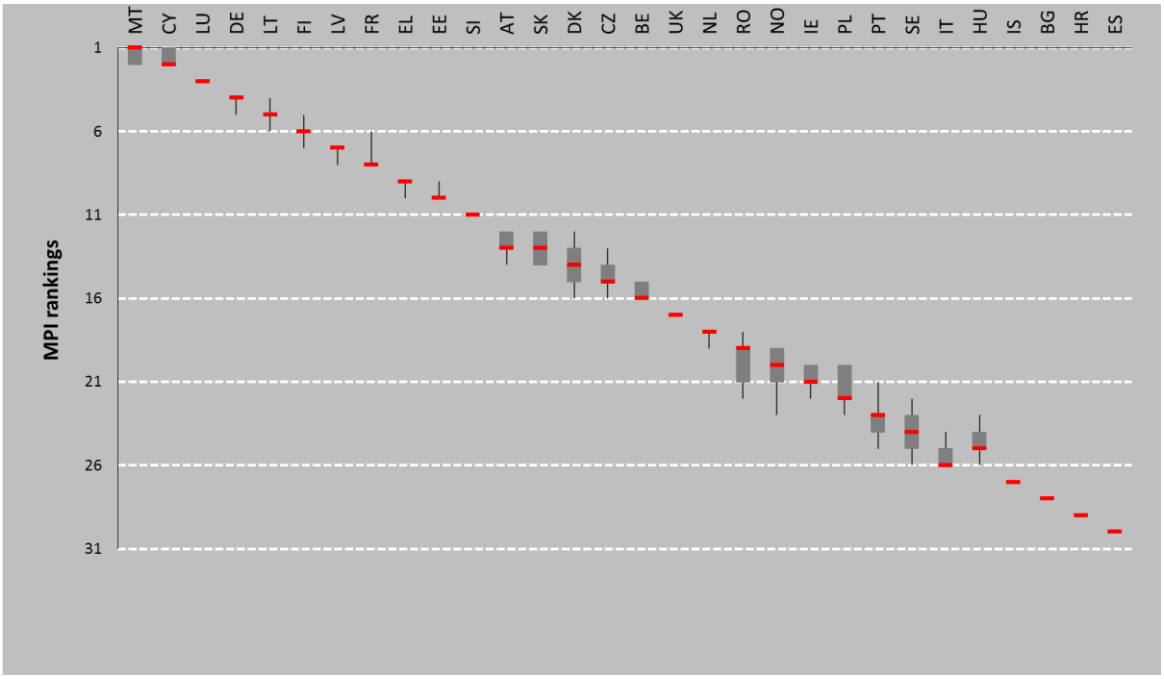


Table 11 reports the MPI ranks for GOODS and SERVICES aggregate markets together with the simulated median values and 95% confidence intervals, in order to better appreciate the robustness of the results to the choice of weights and aggregation function.

Table 11: Uncertainty analysis results for the MPI country ranks

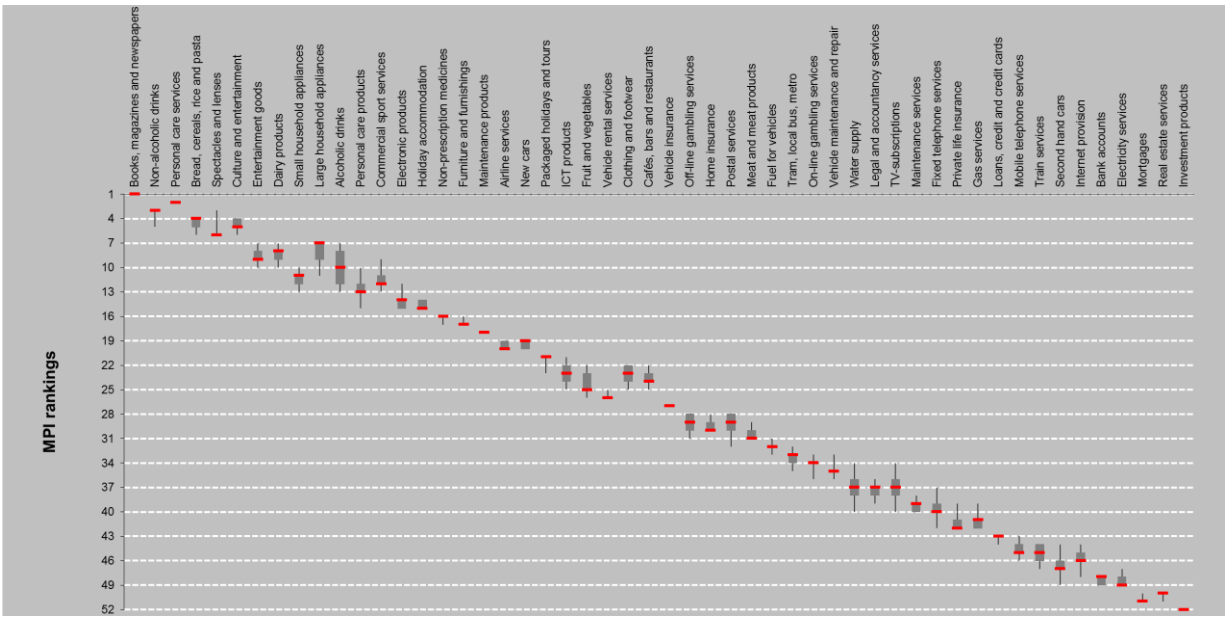
GOODS				SERVICES			
Country	Rank	Median	Confidence Interval (95%)	Country	Rank	Median	Confidence Interval (95%)
CY	1	1	[1,1]	MT	1	1	[1,2]
LU	2	2	[2,2]	CY	2	2	[1,2]
DE	3	3	[3,3]	LU	3	3	[3,3]
MT	4	4	[4,5]	DE	4	4	[4,5]
EL	5	5	[5,7]	LT	5	5	[4,6]
UK	6	6	[5,7]	FI	6	6	[5,7]
FI	7	7	[5,8]	LV	7	7	[7,8]
FR	8	8	[7,12]	FR	8	8	[6,8]
NL	9	9	[8,11]	EL	9	9	[9,10]
BE	10	10	[8,11]	EE	10	10	[9,10]
AT	11	12	[8,12]	SI	11	11	[11,11]
LV	12	11	[9,12]	AT	12	13	[12,14]
IE	13	13	[13,13]	SK	13	13	[12,14]
EE	14	14	[14,15]	DK	14	14	[12,16]
DK	15	15	[14,17]	CZ	15	15	[13,16]
PT	16	16	[14,17]	BE	16	16	[15,16]
IT	17	18	[17,18]	UK	17	17	[17,17]
LT	18	17	[16,18]	NL	18	18	[18,19]
SI	19	19	[19,19]	RO	19	19	[18,22]
SE	20	20	[20,23]	NO	20	20	[19,23]
CZ	21	21	[20,22]	IE	21	21	[20,22]
ES	22	22	[20,23]	PL	22	22	[20,23]
PL	23	23	[20,23]	PT	23	23	[21,25]
HU	24	24	[24,24]	SE	24	24	[22,26]
SK	25	25	[25,25]	IT	25	26	[24,26]
NO	26	26	[26,26]	HU	26	25	[23,26]
IS	27	27	[27,28]	IS	27	27	[27,27]
RO	28	28	[27,28]	BG	28	28	[28,28]
BG	29	29	[29,29]	HR	29	29	[29,29]
HR	30	30	[30,30]	ES	30	30	[30,30]

Fixed country (aggregate EU28)

The second uncertainty analysis has been done for fixed country: aggregate EU28. Figure 4 shows the

results of such an analysis. Markets are ordered from best to worst according to their reference rank, the red bar being the median rank, the grey bar being 50% confidence interval, and the vertical line being 95% confidence interval. The reference MPI ranks of 47 markets (out of 52) lay within the simulated 95% confidence intervals while for the remaining 5 markets (NON-ALCOHOLIC DRINKS, PERSONAL CARE SERVICES, SMALL HOUSEHOLD APPLIANCES, VEHICLE RENTAL SERVICES, CAFES, BARS AND RESTAURANTS) the reference ranks are only 1 position away from the corresponding confidence intervals. Also in this case, there is very little variation in market ranks with the simulated changes in weights and aggregation. Indeed, the median rank of 23 markets out of 52 is equal to the reference ranking, the median rank of 28 markets differ only by 2 positions from their reference ranks, the median rank of the remaining 1 market (LARGE HOUSEHOLD APPLIANCES) differs by 3 positions from the reference rank. Also the 95% confidence intervals are relatively narrow: the interval ranges of 42 markets are smaller than 4 positions with the widest range being 6 positions.

Figure 4: Uncertainty analysis results for the MPI ranks for EU28 (based on 5,000 weight-aggregation pairs)



To better appreciate the robustness of the results to the choice of weights and aggregation function, we report the MPI market ranks for fixed EU28 aggregate together with the simulated median values and 95% confidence intervals in Table 12. The markets whose reference rankings lay outside the 95% confidence intervals are flagged with red color.

Table 12: Uncertainty analysis results for the MPI market ranks

Market	Rank	Median	Confidence Interval (95%)	Market	Rank	Median	Confidence Interval (95%)
Books, magazines and newspapers	1	1	[1,1]	Vehicle insurance	27	27	[27,27]
Non-alcoholic drinks	2	3	[3,5]	Off-line gambling services	28	29	[28,31]
Personal care services	3	2	[2,2]	Home insurance	29	30	[28,30]
Bread, cereals, rice and pasta	4	4	[4,6]	Postal services	30	29	[28,32]
Spectacles and lenses	5	6	[3,6]	Meat and meat products	31	31	[29,31]
Culture and entertainment	6	5	[4,6]	Fuel for vehicles	32	32	[31,33]
Entertainment goods	7	9	[7,10]	Tram, local bus, metro	33	33	[32,35]
Dairy products	8	8	[7,10]	On-line gambling services	34	34	[33,36]
Small household appliances	9	11	[10,13]	Vehicle maintenance and repair	35	35	[33,36]
Large household appliances	10	7	[7,11]	Water supply	36	37	[34,40]
Alcoholic drinks	11	10	[7,13]	Legal and accountancy services	37	37	[36,39]
Personal care products	12	13	[10,15]	TV-subscriptions	38	37	[34,40]
Commercial sport services	13	12	[9,13]	Maintenance services	39	39	[38,40]
Electronic products	14	14	[12,15]	Fixed telephone services	40	40	[37,42]
Holiday accommodation	15	15	[14,15]	Private life insurance	41	42	[39,42]
Non-prescription medicines	16	16	[16,17]	Gas services	42	41	[39,42]
Furniture and furnishings	17	17	[16,17]	Loans, credit and credit cards	43	43	[43,44]
Maintenance products	18	18	[18,18]	Mobile telephone services	44	45	[43,46]
Airline services	19	20	[19,20]	Train services	45	45	[44,47]
New cars	20	19	[19,20]	Second hand cars	46	47	[44,49]
Packaged holidays and tours	21	21	[21,23]	Internet provision	47	46	[44,48]
ICT products	22	23	[21,25]	Bank accounts	48	48	[48,49]
Fruit and vegetables	23	25	[22,26]	Electricity services	49	49	[47,49]
Vehicle rental services	24	26	[25,26]	Mortgages	50	51	[50,51]
Clothing and footwear	25	23	[22,25]	Real estate services	51	50	[50,51]
Cafés, bars and restaurants	26	24	[22,25]	Investment products	52	52	[52,52]

The importance of weights and aggregation to the variation in the MPI ranks: cross-sectional perspective

In this section we investigate the importance of the modelling assumptions on:

i) the MPI market ranks for 30 fixed countries and the aggregate EU28 (Figure 5),

ii) the MPI country ranks for two aggregate markets (Figure 6),

iii) the MPI joint scores for both market and countries (Figure 7).

Following Saisana et al. (2005), our measure of robustness is the absolute shift in rank (simulations [i] and [ii], Figure 5 and Figure 6) or score (simulation [iii], Figure 7) with respect to the benchmark choice of equal weights and linear aggregation, which we denote by the variable $\Delta\mathrm{R}$. That is, given an object of interest *n*, where the object *n* can be a market (simulation [i], Figure 5), a country (simulation [ii], Figure 6), or a country-market pair (simulation [iii], Figure 7) and a weight-aggregation pair (w, β), we are interested in one of the following quantities:

$$\Delta R_n(w,\beta) = \left|Rank_n\left(w^{ref},1\right) - Rank_n(w,\beta)\right|,$$

for simulations [i] and [ii], or

$$\Delta R_n(w,\beta) = \left|Score_n\left(w^{ref},1\right) - Score_n(w,\beta)\right|,$$

for simulation [iii].

Note that $\mathrm{Rank}_n(\mathrm{w},\beta)$ and $\mathrm{Score}_n(\mathrm{w},\beta)$ denote object n's rank and score, respectively, under the version of our composite index that uses weights w and aggregation β.

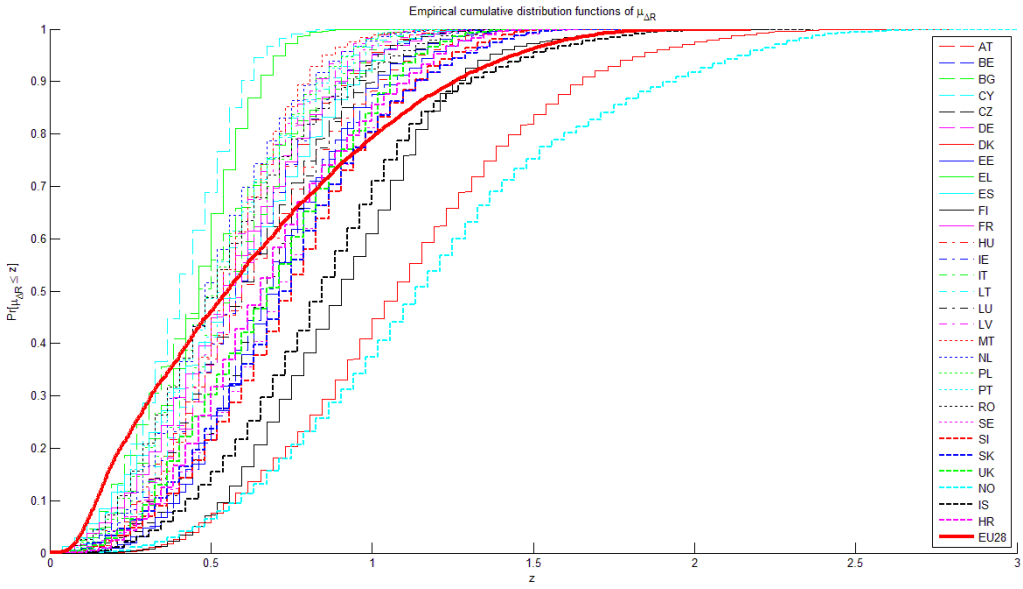
Given a weight-aggregation pair (w,β), a compelling aggregate measure of robustness can be found in the average shift in rank or score (over the set of objects) that (w,β) results in, denoted by $\mu_{\Delta\mathrm{R}}(\mathrm{w},\beta)$:

$$\mu_{\Delta R}(w,\beta) = \frac{1}{N} * \sum_{n=1}^{N} \Delta R_n(w,\beta),$$

where N is the number of observations. Note that N=52 for simulation [i] (Figure 5), N=30 for simulation [ii] (Figure 6), and N=1560 for simulation [iii] (Figure 7).

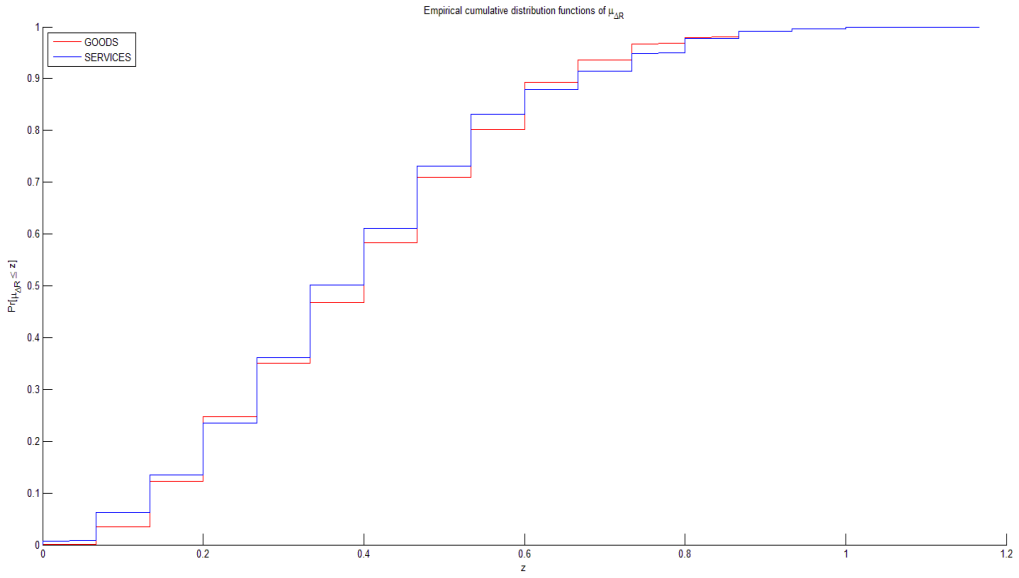
Figure 5, Figure 6 and Figure 7 below depict the empirical cumulative distribution function (cdf) of $\mu_{\Delta R}$.

Figure 5: Empirical cumulative distribution functions of mean shift in markets' ranks for fixed countries



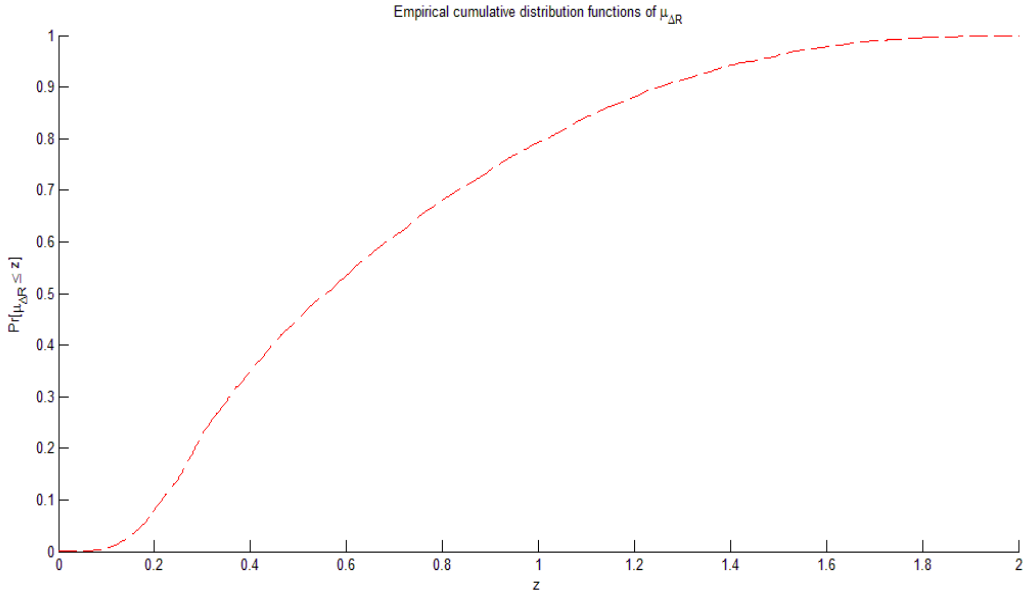
Note: The vertical axis shows the cumulative probability of the average shift in markets' ranks, given at the horizontal axis. The *p*-th percentile of each distribution is obtained in three steps: i) draw a horizontal line h_p originating at the point *p* on the *y*-axis; ii) calculate the point of intersection p_h between the horizontal line h_p and the CDF under consideration; iii) the *x*-coordinate of p_h is the desired *p*-th percentile. For example the 0.5 percentile (median) of the average shift in the market ranks for Cyprus (CY) is about 0.4 positions (out of 52), whereas the 0.5 percentile of the average shift in the market ranks for Norway (NO) is about 1.2 positions (out of 52).

Figure 6: Empirical cumulative distribution functions of mean shift in countries' ranks for fixed markets



Note: The vertical axis shows the cumulative probability of the average shift in countries' ranks, given at the horizontal axis. The *p*-th percentile of each distribution is obtained in three steps: i) draw a horizontal line h_p originating at the point *p* on the *y*-axis; ii) calculate the point of intersection p_h between the horizontal line h_p and the CDF under consideration; iii) the *x*-coordinate of p_h is the desired *p*-th percentile. For example the 0.5 percentile (median) of the average shift in the country ranks for fixed GOODS market is about 0.4 positions (out of 30), whereas the 0.5 percentile of the average shift in the country ranks for fixed SERVICES market is about 0.35 positions (out of 30).

Figure 7: Empirical cumulative distribution functions of mean shift in cross-country & cross-market scores



Note: The vertical axis shows the cumulative probability of the average shift in MPI scores, given at the horizontal axis. The *p*-th percentile of the scores' distribution is obtained in three steps: i) draw a horizontal line h_p originating at the point *p* on the *y*-axis; ii) calculate the point of intersection p_h between the horizontal line h_p and the CDF under consideration; iii) the *x*-coordinate of p_h is the desired *p*-th percentile. For example the 0.5 percentile (median) of the average shift in the MPI scores is about 0.6 points (out of 100).

Figure 5, Figure 6 and Figure 7 make graphically clear that the choice of modelling assumptions does not seem to have a big effect on the observed variance of $\mu_{\Delta R}$. For all the fixed countries (Figure 5), in 90% of simulations the average variations in market ranks are smaller than 2 positions (out of 52) – the smallest variations are observed for Cyprus (CY) and Greece (EL), the largest variations are observed for Denmark (DK) and Norway (NO); for goods and services aggregates (Figure 6), in 90% of simulations the average variations in countries ranks are smaller than 0.65 positions (out of 30); indeed, according to Figure 7, in 90% of simulations the average variations in scores are smaller than 1.2 (out of 100) points.

Summary of findings from the uncertainty and sensitivity analysis

As is the case with any composite indicator, the scores and ranks of the MPI depend on various modelling choices. The uncertainty and sensitivity analysis performed in this section aimed at assessing the joint impact of the two main modelling assumptions on the rankings: weights of the four sub-indicators and aggregation method. Two types of rankings were considered: country rankings for a fixed market (ranks from 1 to 30), and market rankings for a fixed country (ranks from 1 to 52). The uncertainty analysis revealed that, overall, the MPI ranks are robust to methodological assumptions related to both the moderate perturbation (± 25%) in the weights assigned to the four sub-indicators and the choice of the aggregation method. The detailed analysis conducted a) for fixed GOODS and SERVICES markets; and b) for fixed country EU28 showed that in most cases the MPI ranks of individual countries (a) and individual markets (b) lay within very narrow 95% confidence intervals. Furthermore,

- when comparing the GOODS with the SERVICES markets, we observe that the sensitivity to the modelling assumption of the MPI country ranks is similar,
- when comparing all the 30 countries under the study, we observe that the sensitivity to the modelling assumption of the MPI market ranks is similar in all but two (DK and NO) cases.

Thus, we conclude that, overall, the MPI ranks are very weakly influenced by the changes in the main modelling parameters, which confirms sound statistical structure of the MPI. However, it is also true that the market rankings for DK and NO are noticeably more sensitive to the changes in the weights and the aggregation function than the similar market rankings for the remaining 28 countries. Therefore, for these two countries, the MPI market ranks should be treated with caution and considered as moderately sensitive to changes in the model assumptions.

1.5. COMPARISON BETWEEN THE CONSUMER MARKET SCOREBOARD INDICATORS AND OTHER COUNTRY LEVEL ECONOMIC INDICATORS

In addition to the previous analyses, it might also be interesting to try to correlate the different indicators considered in the Consumer Markets Scoreboard with alternative (macroeconomic) country level indicators measuring either welfare or market structure and competiveness. In particular, we are going to focus on two possible measures of welfare, such as the indices of real Gross Domestic Product (GDP) per capita (in Purchase Parity Standards, PPS) provided by Eurostat and the United Nations Human Development Index (HDI), and three different indicators of market structure and competitiveness, which are the World Bank Doing Business (DB) Distance to Frontier measure, the OECD Product Market Regulation (PMR) index and the World Economic Forum Global Competitiveness Index (GCI). The country values for those indices (see Table 13) have been downloaded from the public access databases hosted in the corresponding websites and are referred to the year 2013. Higher values for all the country indices are indicative of a better performance of the country, with the exception of the PMR index, which has been designed in a way that identifies decreasing index values with positive trends in country performance over time.

Table 13: Country level indicators of market performance, welfare, market structure and competitiveness in EU28 (year = 2013)

Country	MPI	COMP	TRUST	PROB	EXP	SWI	CHO	DB	GDP	HDI	PMR	GCI
Austria	78.16	71.13	69.54	92.43	79.53	38.32	84.88	78.29	128.00	0.88	1.19	5.15
Belgium	77.89	71.40	69.75	92.80	77.60	43.42	80.83	74.24	119.00	0.88	1.39	5.13
Bulgaria	71.72	70.69	57.88	89.32	68.97	41.13	77.36	68.76	45.00	0.78	1.57	4.31
Cyprus	84.29	79.53	79.73	97.08	80.83	40.22	84.08	69.16	89.00	0.85	1.65	4.30
Czech Republic	76.93	74.26	66.34	91.15	75.95	44.04	81.09	68.79	82.00	0.86	1.39	4.43
Germany	81.36	75.75	74.98	96.55	78.17	39.18	79.85	79.71	122.00	0.91	1.29	5.51
Denmark	77.64	66.95	70.71	92.39	80.51	46.69	84.05	85.79	124.00	0.90	1.22	5.18
Estonia	78.88	72.72	70.73	94.77	77.30	38.80	80.29	75.51	73.00	0.84	1.29	4.65
Greece	79.69	76.39	71.52	96.04	74.81	37.91	75.67	62.57	73.00	0.85	1.74	3.93
Spain	73.20	68.91	61.52	90.55	71.80	42.01	77.31	72.97	94.00	0.87	1.44	4.57
Finland	80.11	72.30	74.45	91.81	81.89	43.43	85.90	82.44	113.00	0.88	1.29	5.54
France	79.65	74.06	73.02	96.75	74.78	37.84	77.52	70.98	107.00	0.88	1.47	5.05
Hungary	75.04	69.22	67.64	89.64	73.64	39.69	83.96	67.03	66.00	0.82	1.33	4.25
Ireland	76.66	71.07	69.10	91.28	75.20	41.89	76.21	82.14	130.00	0.90	1.45	4.92
Italy	75.79	72.24	63.69	93.35	73.88	40.19	71.88	66.86	99.00	0.87	1.26	4.41
Lithuania	79.56	79.58	70.49	90.12	78.07	47.01	84.78	75.00	73.00	0.83	1.52	4.41
Luxembourg	82.15	76.62	76.19	97.03	78.75	38.41	80.10	66.79	257.00	0.88	1.46	5.09
Latvia	79.65	72.07	73.38	94.89	78.26	37.47	77.00	75.70	64.00	0.81	1.61	4.40
Malta	82.27	75.35	78.20	98.12	77.41	37.01	79.15	61.97	86.00	0.83	1.57	4.50
Netherlands	77.29	71.61	68.46	93.24	75.87	40.11	81.20	77.03	131.00	0.92	0.92	5.42
Poland	75.75	73.78	63.47	91.43	74.33	44.31	79.94	71.15	67.00	0.83	1.65	4.46
Portugal	76.18	74.18	62.84	91.97	75.72	41.85	80.60	76.19	79.00	0.82	1.29	4.40
Romania	74.70	74.24	62.88	91.76	69.94	41.84	78.90	65.42	55.00	0.78	1.69	4.13
Sweden	75.53	65.87	67.48	91.36	77.42	42.14	84.54	82.40	127.00	0.90	1.52	5.48
Slovenia	78.10	72.70	68.21	93.86	77.60	41.47	84.77	69.90	82.00	0.87	1.70	4.25
Slovakia	76.73	72.78	66.82	91.88	75.42	42.32	84.03	71.30	75.00	0.83	1.33	4.10
United Kingdom	77.80	72.53	70.35	91.99	76.33	42.91	81.68	84.36	109.00	0.89	1.08	5.37
Croatia	70.56	63.67	58.66	89.86	70.04	38.03	77.03	62.11	61.00	0.81	2.08	4.13

Source: Own elaboration based on publicly available data from the official websites of The World Bank (DB), Eurostat (GDP), United Nations (HDI), OECD (PMR) and World Economic Forum (GCI).

Table 14 and Table 15 show the results of the analysis of correlation between the whole set of country level indices, including both the overall MPI measure and the separate indicators included in the Consumer Markets Scoreboard (*COMP*-Comparability, *TRU*-Trust, *PROB*-Problems and complaints, *EXP*-Meeting expectations, *SWI*-Switching and *CHO*-Choice). According to these results, the MPI

indicator is not significantly correlated to competition and market structure indices such as DB, PMR or GCI. The only significant correlation we find for the MPI indicator is that with the GDP per capita (but not with the HDI welfare measure). We also find that GDP in EU28 countries is not only correlated to MPI, but to HDI (i.e. both welfare indicators show a positive correlation) and GCI as well. Moreover, HDI is correlated to the three alternative market conditions indicators considered: DB, PMR and GCI. In addition, PMR and GCI show a significant bivariate correlation, as well as PMR and DB and DB and GCI (i.e. the three indicators measuring market structure and competition show significant correlations among themselves). With regard to the four sub-indicators included in the MPI (COMP, TRU, PROB, EXP), we find that EXP is positively correlated with most of the alternative indicators considered in the analysis (DB, GDP, HDI and GCI), and that TRUST is correlated to both GDP and HDI. Furthermore, SWI and CHO -the two sub-indicators excluded from the MPI but *a priori* more related to market structure and competitiveness issues- show a significant and positive correlation with the DB indicator.

Table 14: Correlation between MPI and country level indicators of welfare, market structure and competitiveness in EU28 (year = 2013)

		MPI2013	DB	GDP	HDI	PMR	GCI
MPI2013	Pearson Correlation	1	0.103	0.408*	0.339	-0.175	0.268
	Sig. (2-tailed)		0.604	0.031	0.078	0.373	0.167
DB	Pearson Correlation		1	0.289	0.589**	-0.609**	0.750**
	Sig. (2-tailed)			0.136	0.001	0.001	<0.001
GDP	Pearson Correlation			1	0.682**	-0.368	0.655**
	Sig. (2-tailed)				<0.001	0.054	<0.001
HDI	Pearson Correlation				1	-0.546**	0.786**
	Sig. (2-tailed)					0.003	<0.001
PMR	Pearson Correlation					1	-0.617**
	Sig. (2-tailed)						<0.001
GCI	Pearson Correlation						1
	Sig. (2-tailed)						

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Table 15: Correlation between Consumer Market Scoreboard indicators and country level indicators of welfare, market structure and competitiveness in EU28 (year = 2013)

		COMP	TRU	PROB	EXP	SWI	CHO
DB	Pearson Correlation	-0.220	0.168	-0.192	0.507**	0.458*	0.411*
	Sig. (2-tailed)	0.260	0.392	0.328	0.006	0.014	0.030
GDP	Pearson Correlation	0.067	0.442*	0.358	0.467*	-0.075	0.120
	Sig. (2-tailed)	0.733	0.018	0.061	0.012	0.703	0.541
HDI	Pearson Correlation	-0.077	0.393*	0.252	0.530**	0.124	0.176
	Sig. (2-tailed)	0.696	0.039	0.195	0.004	0.528	0.372
PMR	Pearson Correlation	-0.019	-0.179	0.015	-0.363	-0.204	-0.258
	Sig. (2-tailed)	0.924	0.362	0.940	0.058	0.297	0.186
GCI	Pearson Correlation	-0.172	0.364	0.126	0.511**	0.129	0.295
	Sig. (2-tailed)	0.382	0.057	0.522	0.005	0.514	0.127

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

To look further into the issue of the comparison between CMS indicators and others, it has also been checked whether there is a correlation between the changes in the MPI and the country level indicators proposed above. Yearly data available for the DB, GDP, HDI, GCI and MPI indicators has

been used to calculate the proportional annual changes corresponding to the years 2010 and 2011, 2011 and 2012, and 2012 and 2013. The results of the correlation analysis are shown in Table 16.

Table 16: Correlations between changes in the indicators across countries

		MPI	DB	GDP	HDI	GCI
MPI	Pearson Correlation	1	-.129	-.119	-.108	-.021
	Sig. (2-tailed)		.257	.290	.336	.854
DB	Pearson Correlation		1	.106	.076	-.068
	Sig. (2-tailed)			.342	.500	.546
GDP	Pearson Correlation			1	.269*	.248*
	Sig. (2-tailed)				.013	.023
HDI	Pearson Correlation				1	.117
	Sig. (2-tailed)					.287
GCI	Pearson Correlation					1
	Sig. (2-tailed)					

*. Correlation is significant at the 0.05 level (2-tailed).

According to the results of the analysis, there is only a low significant positive correlation between GDP and both HDI and GCI. However, we cannot conclude that there is a significant correlation between the fluctuations in market performance (MPI) and the changes experienced by any of the indicators relative to welfare, market structure and competiveness that have been considered in the analysis.

1.6. DISCUSSION AND AVENUES FOR FURTHER ANALYSIS

Given the appeal of the already established fulfilment of expectations component and of the newly proposed overall quality indicator as summary measures and potential proxies of consumer satisfaction, it would be interesting to analyse the relationship between those variables and the

remaining components of the composite indicator of market performance. Both correlation and regression analysis would be appropriate methodological approaches to tackle this task. Such a study could also be complemented and extended by the introduction of data on socio-demographic and attitudinal characteristics of the individuals as potential explanatory variables. Analysis of micro-data will probably provide some additional insights on this issue.

Of course, a more challenging avenue for research would be to develop a full-fledged behavioural model that took into account all the relationships between potential antecedents and consequences of consumer satisfaction. Partial Least Squares or Structural Equation Modelling techniques would then be necessary to estimate the model and interpret the results. But probably such a theoretical construction goes beyond the aims and the conception of the current Consumer Markets Scoreboard.

As a potential avenue for research, it might also be useful to combine the analysis of price convergence across countries with the Consumer Markets Scoreboard results. In this vein, an analysis of the linkage between competition, price levels and market performance indicators (e.g. choice, comparability and ease of switching) might also be tackled at individual market level. Such an analysis could provide some valuable insights on the expected correlation between consumer satisfaction and market performance on the one hand and price levels on the other hand.

In addition, a cluster analysis of countries along the main axes of different consumer markets performance aspects and consumers' socio-economic backgrounds has been suggested as a potential tool to identify differences across EU member states. This would also help identify and take into account the needs of consumers and businesses operating within specific national contexts and socio-economic environments, and could inform more representative choices of sample countries in consumer-related studies that cannot cover all the EU Member States.

Regarding the sensitivity analysis, on the one hand the work already done could be complemented with an independent sensitivity analysis for each of the 52 fixed markets could also be performed,

similar to the analysis done for goods and services aggregates. Such an exercise could be helpful in gaining deeper insight into the variability of country ranks for different markets and identify the markets that are potentially sensitive to the modelling assumptions of the MPI. On the other hand, because the joint distribution of average variations in the MPI ranks and scores are fairly robust, we might consider that there is no reason for performing the sensitivity analysis with respect to the individual modelling assumptions, as the variations due to weights (or aggregation) are smaller than the variations due to both. Further, the sensitivity/uncertainty analysis could be expanded to cover also the impact of additional modelling choices (regarding the treatment of missing data, outliers, noise in indicator data, normalization, etc.) on the MPI results.

2. MULTIVARIATE ANALYSIS OF THE MARKET MONITORING SURVEY 2015

2.1. LITERATURE REVIEW

As already discussed in the first part of the present report, theoretical and empirical research in management and marketing has dealt extensively with the analysis of the drivers of customer loyalty and retention. This literature tends to focus on formulating and testing theoretical models of consumer behaviour that link abstract concepts such as consumer expectations, disconfirmation, and satisfaction to subsequent decisions (e.g., purchasing and/or switching goods or services). Furthermore, studies on consumer behaviour occasionally take into account demographic variables. In doing so, their primary aim is to understand whether and how such variables moderate the main hypothesized effects between the various theoretical constructs of consumer motivation and behaviour. For instance, scholars are often interested in determining whether the causal link between consumer satisfaction and eventual retention is maintained across different socio-economic groups. As the following discussion demonstrates, the empirical results of such exercises (primarily obtained via econometric regression techniques) are somewhat mixed.

An early and often-cited contribution to the literature above is the study of Mittal and Kamakura (2001). In their work, Mittal and Kamakura argue that customer characteristics are an important determinant of repurchase decisions. Using a large dataset of automotive-industry customers they show that, at similar levels of stated satisfaction, consumer characteristics are a systematic source of variation in repurchase decisions. Specifically, customers who are female, older, and have a college or post-graduate degree tend to have higher retention rates. Moreover, response bias in satisfaction ratings, captured by interaction terms in the econometric specification, is shown to be significant. Along a similar vein, Keaveney and Parthasarathy (2001) report the results of two field studies focused on users of online services, in which they examine the relationship between selected

behavioural, attitudinal, and demographic variables on switching behaviour. Echoing the results of Mittal and Kamakura (2001), they show that higher incomes and education levels are positively associated with service retention. Keaveney and Parthasarathy conjecture that a possible explanation for these relationships may be that wealthier and more educated individuals are better informed before making a purchase and more aware of what to expect from it. Thus, according to this logic, their choices reflect a more conscious thought process that it less likely to be reversed in the future. In related work, Dholakia and Uusitalo (2002) compare the electronic retail industry to its traditional physical-store counterpart and find that demographic characteristics such as being young, having a higher income and pre-school children all have a positive impact on the perception of online shopping benefits. In contrast, education and gender were not found to be significant in this regard.

Counter to the above findings, Chen and Hitt (2002) study data from the online brokerage industry and reach different conclusions, suggesting that customer demographic characteristics have little effect on switching behaviour. This result is in contrast to other variables involving system usage and quality, as well as firm characteristics, which do play an important role in shaping customer decisions. Yang and Peterson (2004) obtain similar findings in their study of switching costs in an extensive web-based survey of online service users. In particular, they find that customer satisfaction and perceived value are the main drivers of consumer loyalty, while demographic factors have little effect. Consistent with these results, Sorce et al. (2005) perform a study of internet shoppers and find that age is not a significant factor of customer purchases (what age did seem to be a predictor of was online searching behaviour). Instead, attitudinal factors were more important predictors of purchasing behaviour.

Staying within the field of online consumer shopping, Jayawardhena et al. (2007) find that gender is a significant predictor of purchase intention. Using cluster and factor analysis and analysis of variance tests, they argue that gender and prior purchase decisions are more important than

consumer orientation in predicting online purchasing intentions. Nevertheless, it should be mentioned that their analysis was based on a small sample of UK internet users and thus may not be very representative.

Similar studies have also been pursued in the context of the telecommunications industry in which subscriber "churn", i.e. attrition, is an important concern. Kim and Yoon (2004) study survey data from the Korean mobile telephony market and conclude that income is positively related to customer churn. They speculate that this may be because wealthier clients perceive switching mobile providers as less costly. However, it should be noted that this relationship is not present when considering customers' propensity to recommend their provider to others. Meanwhile, Eshghi et al. (2007) also focus on the mobile telephony industry and argue, using structural equation modelling, that increasing customer satisfaction is a far more effective way of improving customer retention than the introduction of "lock-in" measures via switching costs. They proceed to examine the influence of socio-demographic factors including age, education, and income on customers' propensity to switch and find very small effects. This indicates that the link between customer satisfaction and churn is relatively invariant across different socio-economic groups.

The determinants of customer attrition have also been investigated using data from the financial services and banking industries, reaching somewhat different conclusions to those of the telecommunications industry. Van den Poel and Lariviere (2004) study customer retention in the financial services industry by setting up a proportional-hazards model that takes into account customer behaviour, perceptions and demographics as well as macro-environment variables. The demographic variables they consider are age, gender, education level, and social status. Van den Poel and Lariviere find that customer retention is positively associated with age and education levels, echoing the earlier results of Mittal and Kamakura (2001) and Keaveney and Parthasarathy (2002), respectively. Moreover, men are found to be more likely to leave their financial services company than women. In related work, Cooil et al. (2007) also study customer satisfaction and

retention in the context of the banking industry. Their analysis suggests that income is the only demographic variable that significantly affects consumers' decisions to stay with their current company. In particular, income is seen to negatively moderate the relationship between customer satisfaction and retention. Conversely, age and education levels are not found to be significant predictors of customer behaviour.

Meanwhile, in a comprehensive analysis of US airline-industry data, Anderson et al. (2008) find that customer characteristics are an important driver of various dimensions of customer satisfaction. They suggest that higher age and lower income are positively associated with mean levels of customer satisfaction. Moreover, they find that demographic characteristics such as gender, income and age are important determinants of the composition of overall satisfaction.

In an innovative paper, Mittal et al. (2004) enhance the standard model of customer service and satisfaction by explicitly accounting for spatial heterogeneity. They do so by applying geographically weighted regression techniques to a large sample of automotive customers in the United States. Their analysis demonstrates that geographical patterns are important and systematic drivers of customer satisfaction and its antecedents. In contrast, demographic characteristics are found to be significant (thus confirming the results of earlier studies) but not particularly powerful in explaining the variation of customer satisfaction.

Closer to the subject matter of the present study, Nardo et al. (2013) construct a composite index of consumer empowerment for European Union member states. Their index has three, roughly equally-weighted, pillars corresponding to consumer skills, awareness of consumer legislation, and consumer engagement. To calculate the index for EU member states, the authors use data from a special Eurobarometer survey. They find that Northern European countries (Germany, the Netherlands and Nordic countries) tend to be the best performers while Mediterranean and Eastern European countries the worst, with Western European countries such as France and the UK being in the middle. An econometric analysis of the Eurobarometer data demonstrates that the consumer

empowerment index is positively linked to internet use, education levels, while it is negatively linked to material deprivation. Furthermore, consumer empowerment is shown to follow an inverse U-shaped relationship with age, with consumers in the middle 30-50 year-old age bracket being the most empowered. Meanwhile, occupational status is not systematically associated with high or low empowerment.

Finally, it is also worth noting that even though some lessons on the importance and use of socio-demographic and attitudinal variables in multivariate analyses can be drawn from the available literature (see Table 17), the main focus of these studies differs substantially from the one underlying the Market Monitoring Survey (MMS). The MMS is not focused on uncovering the relationship between customer retention and consumer satisfaction with a specific product, but rather on assessing whether the overall market works for consumers. Clearly, it is likely that for obvious reasons the existing literature has focused almost entirely on the former and not on the latter issues.

Table 17: Reviewed papers

Authors	Research subject	Main findings
Keaveney and Parthasarathy (2001)	Investigate the effect of attitudinal, behavioural and demographic factors on consumer churn in online services industry	Moderate evidence for hypothesis that online service continuers have higher incomes and education levels than switchers
Mittal and Kamakura (2001)	Study the effect of demographic characteristics on customer satisfaction and repurchase decisions in auto industry	Customers with different characteristics may report similar satisfaction but exhibit systematically different repurchase behaviour
Chen and Hitt (2002)	Measurement of switching costs and brand loyalty in the online brokerage industry	Random utility modeling exercise suggests that demographic characteristics have little effect on switching
Dholakia and Uusitalo (2002)	Investigate why e-tailers have difficulty in retaining customers	Demographic factors (age, household income, family composition) influence perceived shopping benefits
Kim and Yoon (2004)	Investigate subscriber churn and loyalty in Korean mobile telephony market	Churn partly depends on subscriber income
Van den Poel and Lariviere (2004)	Study customer attrition in European financial services industry with a novel proportional-hazards model	Attrition negatively associated with age and education levels. Men more likely to change service provider
Mittal et al. (2004)	Incorporate geography into the study of customer satisfaction via geographically weighted regression	In a large sample of auto customers geographical patterns were significant and systematic drivers of satisfaction
Yang and Peterson (2004)	Examine the effect of online service switching costs on customer loyalty	Switching costs are important only when customer satisfaction is above average. Demographic factors not significant.
Sorce et al. (2005)	Research on the effects of attitude and age on internet shopping	Attitudinal factors more important than age in predicting online shopping behaviour
Cooil et al. (2007)	Longitudinal study on customer satisfaction and “share of wallet” in Canadian banking industry	Income has a negative moderating effect on the relationship between satisfaction and share of wallet.
Eshghi et al. (2007)	Examination of switching behaviour in the telecom industry	SEM identifies drivers of customer loyalty, demographic factors of limited importance in the propensity to switch
Jayawardhena et al. (2007)	UK web survey on online shopping experiences and motivations	Purchase orientations is not associated with higher shopping propensity, while gender and prior purchase are
Anderson et al. (2008)	Study the effects on customer satisfaction in the US airline industry of service components and demographic factors	Both core and peripheral attributes are positively related to satisfaction. Demographic factors also important.
Nardo et al. (2013)	Construct composite index of consumer empowerment and measure its determinants	Certain demographic factors (internet use, income, and middle age) are strongly associated with higher empowerment

Source: Own elaboration

2.2. SURVEY DATA AND DEFINITION OF VARIABLES

The present report is based on the results of the fifth wave of the Market Monitoring Survey (MMS), carried out in spring 2015. Telephone interviews were undertaken on representative samples of 500 people (aged 18+), with experience of the market in question within a certain period. A total of 42 consumer markets were analysed in 28 EU Member States, Norway and Iceland.[3] The main purpose of the survey was to monitor how the most important consumer markets are functioning from a consumer perspective, and identify those that are perceived as not delivering the desired outcomes for consumers (European Commission 2015).

The 42 markets addressed in the survey are presented in Table 18. As displayed in the table, the different goods and services markets are grouped in a total of 10 market clusters. Moreover, some of the services markets have been classified as 'switching markets', i.e. markets where the consumer has an on-going contract with the supplier and where alternative suppliers are available.

[3] In Malta, Cyprus, Luxembourg and Iceland, only 250 people were interviewed per goods/services market. Each respondent was requested to answer a maximum of 7 markets. A three-step weighting procedure has been applied to the data collected with the survey: i) post-stratification weights, ii) a factor to correct for different sample sizes per market, and ii) a factor representing the population distribution across countries. Note that all the descriptive statistics and multivariate analyses presented in this paper will be based on weighted data. For additional details on the background, objectives and implementation of the survey the reader is referred to European Commission (2015).

Table 18: Consumer markets assessed by the MMS 2015

Market	Goods/Services	Market clusters	Switching market
Fruit and vegetables	Goods	Fast moving retail	No
Meat and meat products	Goods	Fast moving retail	No
Bread, cereals, rice and pasta	Goods	Fast moving retail	No
Non-alcoholic drinks	Goods	Fast moving retail	No
Electronic products	Goods	(Semi-)durable goods	No
Large household appliances	Goods	(Semi-)durable goods	No
ICT products	Goods	(Semi-)durable goods	No
Entertainment goods	Goods	(Semi-)durable goods	No
New cars	Goods	Automotive goods	No
Second hand cars	Goods	Automotive goods	No
Fuel for vehicles	Goods	Automotive goods	No
Books, magazines and newspapers	Goods	Fast moving retail	No
Real estate services	Services	Other services	No
House and garden maintenance services	Services	Other services	No
Vehicle maintenance and repair services	Services	Other services	No
Bank accounts	Services	Banking services	Yes
Investment products, private pensions and securities	Services	Banking services	Yes
Home insurance	Services	Insurance services	Yes
Vehicle insurance	Services	Insurance services	Yes
Postal services	Services	Utilities	No
Fixed telephone services	Services	Telecoms	Yes
Mobile telephone services	Services	Telecoms	Yes
Internet provision	Services	Telecoms	Yes
Tram, local bus, metro, and underground services	Services	Transport	No
Train services	Services	Transport	No
Airline services	Services	Transport	No
Vehicle rental services	Services	Other services	No
Holiday accommodation	Services	Recreational services	No
Packaged holidays and tours	Services	Recreational services	No
Cafés, bars and restaurants	Services	Recreational services	No
Commercial sport services	Services	Recreational services	Yes
Cultural and entertainment services	Services	Recreational services	No
Water supply	Services	Utilities	No
Electricity services	Services	Utilities	Yes
Gas services	Services	Utilities	Yes
Non-prescription medicines	Goods	Fast moving retail	No
Mortgages	Services	Banking services	Yes
Private life insurance	Services	Insurance services	Yes
TV-subscriptions	Services	Telecoms	Yes
Legal and accountancy services	Services	Other services	No
Loans, credit and credit cards	Services	Banking services	Yes
Online gambling and lottery services	Services	Recreational services	No

Source: Own elaboration from MMS 2015

The country groupings used in the reporting are shown in Table 19. These groupings have been defined taking into account the currency available in the Member State (Euro vs. other national currency), the specific region within the EU (South, West, East and North regions), and the date of accession to the EU (EU15 vs. New Member States).

Table 19: Country groupings used in the analysis

Country	Eurozone	South	West	East	North	EU15_NMS
Austria	X		X			EU15
Belgium	X		X			EU15
Bulgaria				X		NMS
Cyprus	X	X				NMS
Czech Republic				X		NMS
Germany	X		X			EU15
Denmark					X	EU15
Estonia	X			X		NMS
Greece	X	X				EU15
Spain	X	X				EU15
Finland	X				X	EU15
France	X		X			EU15
Croatia				X		NMS
Hungary				X		NMS
Ireland	X		X			EU15
Italy	X	X				EU15
Lithuania				X		NMS
Luxembourg	X		X			EU15
Latvia				X		NMS
Malta	X	X				NMS
Netherlands	X		X			EU15
Poland				X		NMS
Portugal	X	X				EU15
Romania				X		NMS
Sweden					X	EU15
Slovenia	X			X		NMS
Slovakia	X			X		NMS
United Kingdom			X			EU15

Source: Own elaboration from MMS 2015

A summary description of the variables used in the multivariate analyses is presented in Table 20. In addition, Table 21 presents the mean and standard deviation values for the Market Performance Indicator (MPI) scores, as well as for its five individual components, broken down by different socio-demographic variables.

Table 20: Definitions of variables used for multivariate analyses of the MMS 2015

Variable	Based on survey question	Explanation
MPI	Q1, Q2, Q3, Q3d, Q7, Q8, and importance weights	Aggregate Market Performance Indicator (MPI) score calculated using components' weights (i.e. subjective importance weights, re-scaled to sum up to 1)
Comparability	Q1	On a scale from 0 to 10, how difficult or easy was it to compare the <product/services>?
Trust	Q2	On a scale from 0 to 10, to what extent do you trust retailers of <product/services> to respect the rules and regulations protecting consumers?
Problems	Q3	Within the past year, did you experience any problem with the <product/services> you purchased, either with the product or the retailer, where you thought you had a legitimate cause for complaint?
Detriment	Q3d	On a scale from 0 to 10, within the past year, to what extent have you suffered detriment as a result of problems experienced either with the <product/services> or the retailer?
Complaint to…	From Q4_1 to Q4_5	Complaint addressed to: retailer/provider, manufacturer, third-party complaints body, friends or family or relatives, no complaints
Switching	Q5	(only switching markets) Have you switched provider?
Ease of switching	Q6	(only switching markets) On a scale from 0 to 10, how difficult or easy do you think it was to switch provider?
Reason for not switching	Q6b	(only switching markets) Why didn't you switch?
Expectations	Q7	On a scale from 0 to 10, to what extent did the <product/services> on offer live up to your expectations?
Choice	Q8	On a scale from 0 to 10, to what extent are you satisfied with the number of retailers of <product/services> you can choose from?
Problems and detriment	Q3 and Q3d	Experienced no problems: score 10; Experienced problems: 10-score on Detriment
gender	S1	Dummy indicating whether male or female ('1' female and '0' male)
age	S2_1	Dummies per age strata (18-34 year-old is the baseline)
education	S3	Dummies per highest level of education completed (Low level is the baseline)
occupation	S4	Dummies per current occupation (Self-employed is the baseline)
internetusage	S5	Dummies per use of internet for private purposes (Don't know/no answer is the baseline)
mothertongue	S7	Dummy indicating whether the moder tongue is an official language ('1' yes and '0' no)
Income	S8	Dummies per financial situation (Don't know/no answer is the baseline)
Country dummies		Dummies per country (Croatia is the baseline)
EU region dummies		Dummies per region within EU (Northern region is the baseline)
Eurozone dummy		Dummy representing national currency ('1' if euro,'0' otherwise)
EU15_EU13 dummy		Dummy representing EU Member State date ('1' if New Member State, '0' if EU 15)
Market dummies		Dummies per market (Online gambling and lottery services is the baseline)
Market cluster dummies		Dummies per market cluster (Other services is the baseline)
Goods_services dummy		Dummy indicating whether it is a services ('1') or goods ('0') market

Source: Own elaboration from MMS 2015

Table 21: Descriptive statistics of MPI and individual components by grouping variables

		MPI	Comparability	Trust	Problems & detriment	Expectations	Choice
	Mean	79.756	7.451	7.229	9.443	7.855	7.694
	Std. Dev.	15.664	2.48	2.415	1.924	2.089	2.287
	N	561341	561341	561341	561341	561341	561341
Gender							
Man	Mean	78.97	7.379	7.097	9.414	7.769	7.602
	Std. Dev.	15.808	2.501	2.472	1.961	2.112	2.32
	N	259699	259699	259699	259699	259699	259699
Woman	Mean	80.554	7.524	7.364	9.471	7.942	7.788
	Std. Dev.	15.475	2.456	2.347	1.884	2.061	2.248
	N	301642	301642	301642	301642	301642	301642
Age							
18-34	Mean	80.059	7.543	7.302	9.412	7.882	7.716
	Std. Dev.	15.077	2.413	2.341	1.939	2.012	2.253
	N	134402	134402	134402	134402	134402	134402
35-54	Mean	79.027	7.385	7.125	9.381	7.783	7.648
	Std. Dev.	15.981	2.518	2.441	2.037	2.112	2.307
	N	230930	230930	230930	230930	230930	230930
55+	Mean	80.354	7.454	7.292	9.539	7.918	7.73
	Std. Dev.	15.721	2.486	2.438	1.765	2.119	2.289
	N	196009	196009	196009	196009	196009	196009
Education							
Low (ISCED 0-1-2)	Mean	80.329	7.527	7.29	9.435	7.924	7.759
	Std. Dev.	16.37	2.496	2.55	1.958	2.19	2.318
	N	73605	73605	73605	73605	73605	73605
Medium (ISCED 3-4)	Mean	80.683	7.624	7.37	9.476	7.91	7.794
	Std. Dev.	15.259	2.37	2.364	1.879	2.052	2.216
	N	250569	250569	250569	250569	250569	250569
High (ISCED 5-6-7-8)	Mean	78.494	7.22	7.052	9.407	7.776	7.557
	Std. Dev.	15.576	2.57	2.375	1.957	2.054	2.332
	N	220106	220106	220106	220106	220106	220106
Occupation							
Self-employed	Mean	77.09	7.192	6.807	9.279	7.62	7.44
	Std. Dev.	17.274	2.692	2.592	2.17	2.244	2.495
	N	51608	51608	51608	51608	51608	51608
Manager	Mean	79.289	7.308	7.151	9.37	7.857	7.714
	Std. Dev.	15.721	2.549	2.385	2.014	2.051	2.273
	N	38294	38294	38294	38294	38294	38294
Other white collar	Mean	80.875	7.604	7.479	9.51	7.91	7.798
	Std. Dev.	14.039	2.262	2.168	1.815	1.9	2.087
	N	177211	177211	177211	177211	177211	177211
Blue collar	Mean	78.744	7.412	7.017	9.308	7.771	7.662
	Std. Dev.	16.745	2.573	2.573	2.132	2.22	2.377
	N	81071	81071	81071	81071	81071	81071
Student	Mean	80.591	7.48	7.448	9.451	7.999	7.701
	Std. Dev.	13.555	2.296	2.065	1.815	1.791	2.15
	N	26728	26728	26728	26728	26728	26728
Houseperson and other	Mean	80.504	7.573	7.255	9.428	7.975	7.801
	Std. Dev.	16.906	2.611	2.601	1.98	2.223	2.379
	N	34597	34597	34597	34597	34597	34597
Seeking a job	Mean	77.042	7.222	6.796	9.215	7.611	7.424
	Std. Dev.	17.837	2.75	2.732	2.284	2.344	2.538
	N	23577	23577	23577	23577	23577	23577
Retired	Mean	80.284	7.393	7.208	9.584	7.952	7.686
	Std. Dev.	16.168	2.595	2.547	1.672	2.198	2.411
	N	116113	116113	116113	116113	116113	116113
Internet usage							
Daily	Mean	79.823	7.47	7.235	9.414	7.876	7.718
	Std. Dev.	15.421	2.455	2.365	1.967	2.027	2.252
	N	407773	407773	407773	407773	407773	407773
Weekly	Mean	79.902	7.45	7.361	9.533	7.791	7.659
	Std. Dev.	14.967	2.366	2.314	1.766	2.088	2.215
	N	60411	60411	60411	60411	60411	60411
Monthly	Mean	80.877	7.599	7.454	9.464	7.911	7.814
	Std. Dev.	14.887	2.324	2.365	1.889	2.031	2.145
	N	13187	13187	13187	13187	13187	13187

		MPI	Comparability	Trust	Problems & detriment	Expectations	Choice
Less than monthly	Mean	78.861	7.297	7.236	9.443	7.725	7.484
	Std. Dev.	15.604	2.391	2.418	1.872	2.153	2.282
	N	4797	4797	4797	4797	4797	4797
Hardly ever	Mean	79.567	7.357	7.123	9.48	7.917	7.643
	Std. Dev.	16.954	2.662	2.675	1.904	2.234	2.449
	N	8720	8720	8720	8720	8720	8720
Never	Mean	79.789	7.388	7.082	9.587	7.886	7.637
	Std. Dev.	18.134	2.83	2.862	1.714	2.487	2.648
	N	52015	52015	52015	52015	52015	52015
Don't know/no answer	Mean	75.93	6.953	6.571	9.375	7.425	7.249
	Std. Dev.	19.177	2.919	2.899	2.006	2.485	2.612
	N	2288	2288	2288	2288	2288	2288
Mother tongue							
Official language	Mean	79.872	7.461	7.244	9.451	7.869	7.705
	Std. Dev.	15.562	2.471	2.403	1.911	2.074	2.277
	N	518423	518423	518423	518423	518423	518423
Not an official language	Mean	78.681	7.398	7.172	9.258	7.729	7.617
	Std. Dev.	16.722	2.551	2.498	2.166	2.187	2.365
	N	30762	30762	30762	30762	30762	30762
Income							
Very difficult	Mean	75.852	7.182	6.595	9.106	7.477	7.32
	Std. Dev.	19.618	2.898	2.963	2.463	2.557	2.708
	N	58502	58502	58502	58502	58502	58502
Fairly difficult	Mean	78.967	7.418	7.069	9.382	7.79	7.622
	Std. Dev.	16.134	2.51	2.482	2.027	2.109	2.329
	N	172481	172481	172481	172481	172481	172481
Fairly easy	Mean	81.078	7.553	7.446	9.537	7.989	7.821
	Std. Dev.	14.333	2.356	2.218	1.741	1.923	2.148
	N	231365	231365	231365	231365	231365	231365
Very easy	Mean	80.246	7.415	7.38	9.512	7.873	7.727
	Std. Dev.	14.503	2.434	2.266	1.777	2.074	2.235
	N	70959	70959	70959	70959	70959	70959
Don't know/no answer	Mean	80.921	7.604	7.386	9.469	7.967	7.853
	Std. Dev.	15.796	2.403	2.432	1.882	2.031	2.196
	N	15781	15781	15781	15781	15781	15781

Source: Own elaboration from MMS 2015

2.3. METHODOLOGICAL FRAMEWORK

As indicated by Grigoroudis and Siskos (2010), the selection of the appropriate multivariate method to analyse the data depends heavily on the nature and the measurement scale of the dependent variables. In the 2015 version of the Market Monitoring Survey, most of the core questions of the questionnaire (comparability, trust, detriment, expectations and choice) are based on 0 to 10 scales. On the other hand, the questions relating to problems, complaints and switching provider have different answer modes, which might be represented either as dichotomous (yes/no) variables (e.g. having experienced or not a problem, having switched provider) or as purely nominal outcome

variables (e.g. to whom the consumer has complained after experiencing a problem in the market). Below, we introduce briefly the models that are feasible for the analysis of the corresponding (dependent) variables assessing market performance, and its relationship with those (explanatory) variables accounting for demographic and socio-economic characteristics of survey respondents.

- Multiple linear regression models: When dealing with quantitative variables, linear regression models and ordinary least squares (OLS) estimation techniques will be used. The estimated coefficients associated with the explanatory variables in these models have a straightforward interpretation. They measure the direct effect of a unit change in the value of the regressor on the expected value of the continuous dependent variable. For example, the multivariate analysis of the MPI and its five individual components will be based on the results of OLS regressions.

- Binary dependent variable models: The dependent variable in these models is a discrete binary variable—i.e. a variable representing only two possible outcomes. Because of computational issues, logit models have been extensively used for the analysis of binary dependent variables. The estimated coefficients related to the explanatory variables in the logit model indicate the influence of those variables on the likelihood of observing the two discrete outcomes. To put it in another way, the estimated coefficients in the logit model will measure the impact of a change in the explanatory variable on the relative probabilities—or, to be more precise, on the log of the odds—of the two possible outcomes under consideration.

- Multinomial logistic models: The statistical foundations of these models are similar to those of the logistic regressions, with the additional feature that the range of possible values for

the dependent variable in the model encompasses more than two purely nominal outcome categories. For example, the set of five possible different answers to the question included in the MMS "To whom you have complained about your problems?" could be represented by a nominal outcome variable. When it comes to estimating multinomial logistic models, one of the outcome categories needs to be set as the baseline comparison group. Accordingly, the log odds of choosing one outcome category over the probability of choosing the baseline category will be modelled as a linear combination of the explanatory variables.

It is also worth noting that in the case of survey questions based on rating scales—such as the '0-10' answer modes used to assess most of the market performance dimensions in the MMS 2015—the resulting outcomes could also be treated by the analyst as an ordinal dependent variable. Ordinal variables present a sequence of outcomes ranked in a clearly ordered fashion. When the dependent variables are assumed to be ordinal, ordered dependent variable models (e.g. ordered logit models) should be implemented. However, whether the underlying rating scales—like the ones included in the MMS 2015—should be treated as quantitative or ordinal dependent variables remains a matter of debate.[4]

2.4. RESULTS

In the present section we discuss the results of the multivariate analyses undertaken following the methodological guidelines described in the previous section. Using data from the MMS 2015, we

[4] For the sake of completeness, ordinal regression models have also been estimated whenever a rating scale dependent variable was involved in the analysis. As a further robustness check of the results presented in this report, it is worth mentioning that the results obtained with the ordered logit regressions are qualitatively similar to those from the OLS regressions.

investigate to what extent demographic and socio-economic characteristics shape consumers assessment of market performance. Together with the analysis of the Market Performance Indicator (MPI) and its individual components (comparability, trust, problems and detriment, expectations and choice), the results section also deals with the analysis of those other aspects of subjective market assessment addressed in the MMS 2015 but not included in the MPI (complaints and switching behaviour).

The tables and figures presented in this section display the coefficients estimated for the explanatory variables included in the models. In addition, OLS estimates are accompanied by the marginal effects—i.e. predicted values—calculated from the fitted linear models at the means of the independent variables. In a similar vein, logit and multinomial logit results tables also display the marginal effects for the probability of observing the outcome(s) of interest as defined in the respective models.

2.4.1 MPI results

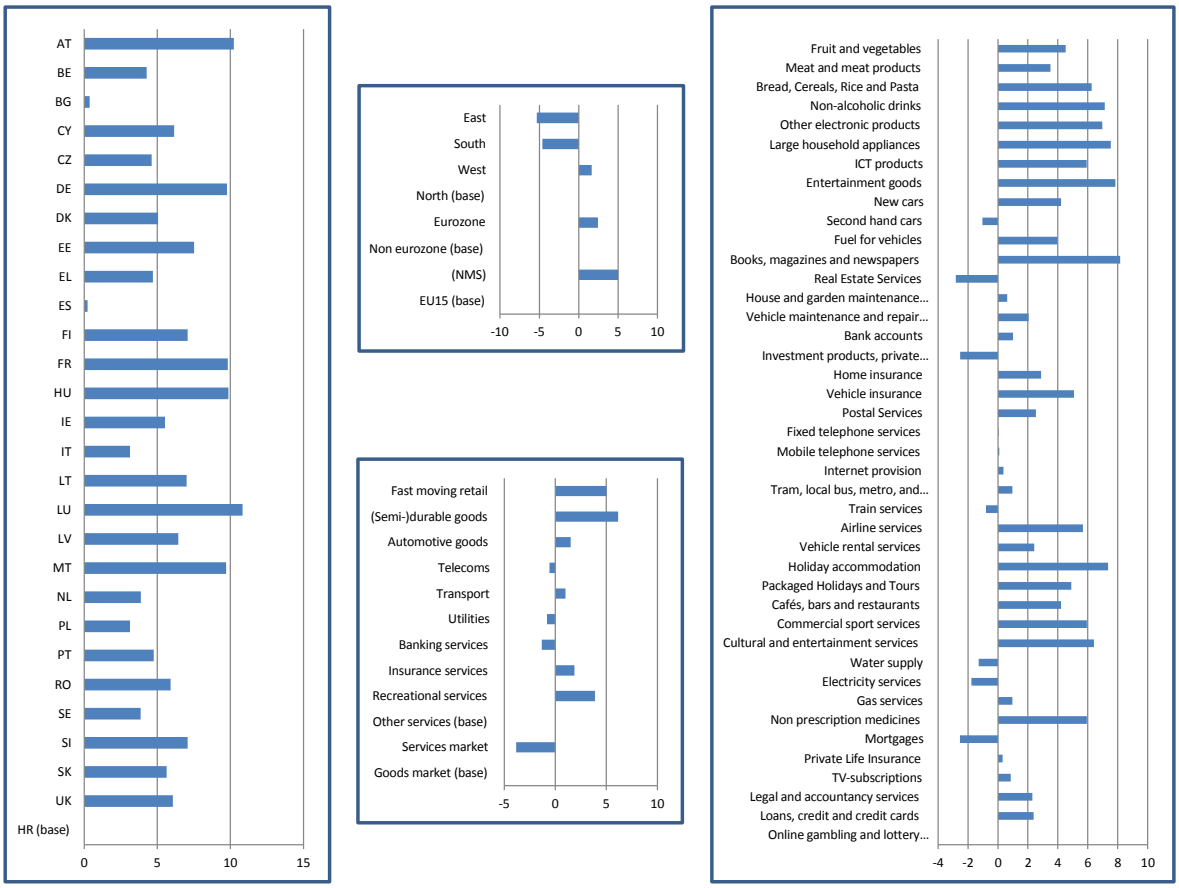
The MPI is a composite index which indicates how well a given market performs, according to the perceptions of the consumers. In the 2015 edition of the MMS, for each respondent the MPI has been calculated as a weighted average of the five main dimensions of market performance assessed with the survey. These five dimensions are comparability, trust, problems and detriment, expectations and choice. The weights used in the calculations correspond to the importance scores given by the individual respondents to each one of these components. Table 22 and Figure 8 present the results of the OLS regressions performed using (weighted) MPI as the dependent variable.

Table 22: Results of the multivariate analysis (OLS) on MPI

	Coef. (Std. Err.)	Pred. value	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)
Gender					
Man	0 (base)	79.17	0 (base)	0 (base)	0 (base)
Woman	1.322***	80.5	1.319***	1.343***	1.346***
	(0.068)		(0.069)	(0.069)	(0.069)
Age					
18-34	0 (base)	79.96	0 (base)	0 (base)	0 (base)
35-54	-0.38***	79.58	-0.518***	-0.351***	-0.507***
	(0.091)		(0.091)	(0.092)	(0.093)
55+	0.049	80.01	0.021	0.09	-0.086
	(0.114)		(0.114)	(0.115)	(0.116)
Education					
Low (ISCED 0-1-2)	0 (base)	80.89	0 (base)	0 (base)	0 (base)
Medium (ISCED 3-4)	-0.57***	80.32	-0.527***	-0.484***	-0.464***
	(0.113)		(0.11)	(0.114)	(0.115)
High (ISCED 5-6-7-8)	-2.155***	78.73	-2.565***	-2.08***	-2.067***
	(0.119)		(0.118)	(0.12)	(0.121)
Occupation					
Self-employed	0 (base)	78.69	0 (base)	0 (base)	0 (base)
Manager	0.904***	79.59	1.33***	0.848***	0.862***
	(0.174)		(0.174)	(0.175)	(0.177)
Other white collar	0.894***	79.58	1.634***	0.877***	0.94***
	(0.134)		(0.132)	(0.135)	(0.136)
Blue collar	1.152***	79.84	0.995***	1.08***	1.182***
	(0.158)		(0.158)	(0.159)	(0.161)
Student	1.451***	80.14	1.287***	1.534***	1.945***
	(0.187)		(0.188)	(0.188)	(0.19)
Houseperson and other	2.242***	80.93	2.086***	2.194***	2.26***
	(0.187)		(0.188)	(0.188)	(0.189)
Seeking a job	1.235***	79.92	0.767***	1.237***	1.414***
	(0.226)		(0.227)	(0.227)	(0.229)
Retired	1.947***	80.63	1.941***	1.998***	2.103***
	(0.163)		(0.164)	(0.164)	(0.165)
Internet usage					
Daily	2.415***	80.02	2.656***	2.376***	2.469***
	(0.735)		(0.751)	(0.742)	(0.747)
Weekly	1.153	78.75	1.719**	1.144	1.156
	(0.739)		(0.755)	(0.747)	(0.751)
Monthly	1.847**	79.45	2.564***	1.757**	1.837**
	(0.757)		(0.773)	(0.765)	(0.769)
Less than monthly	-0.644	76.96	0.058	-0.658	-0.575
	(0.806)		(0.821)	(0.813)	(0.818)
Hardly ever	2.133***	79.73	2.481***	2.107***	2.153***
	(0.789)		(0.803)	(0.796)	(0.802)
Never	2.843***	80.44	3.382***	2.798***	2.722***
	(0.748)		(0.764)	(0.755)	(0.76)
Don't know/no answer	0 (base)	77.6	0 (base)	0 (base)	0 (base)
Mother tongue					
Official language	0 (base)	79.86	0 (base)	0 (base)	0 (base)
Not an official language	-0.884***	78.98	-1.14***	-0.882***	-0.883***
	(0.192)		(0.189)	(0.194)	(0.196)
Income					
Very difficult	-4.156***	76.71	-4.172***	-4.212***	-4.316***
	(0.23)		(0.232)	(0.231)	(0.232)
Fairly difficult	-1.487***	79.37	-1.505***	-1.517***	-1.518***
	(0.196)		(0.198)	(0.197)	(0.197)
Fairly easy	-0.056	80.81	-0.243	-0.055	-0.038
	(0.191)		(0.193)	(0.192)	(0.193)
Very easy	-1.15***	79.71	-1.434***	-1.153***	-1.229***
	(0.208)		(0.21)	(0.209)	(0.21)
Don't know/no answer	0 (base)	80.86	0 (base)	0 (base)	0 (base)
Country dummies	yes		no	yes	yes
EU region dummies	no		yes	no	no
Eurozone dummy	no		yes	no	no
EU15_EU13 dummy	no		yes	no	no
Market dummies	yes		yes	no	no
Market cluster dummies	no		no	yes	no
Goods_services dummy	no		no	no	yes
Number of obs	544165		544165	544165	544165
F	340.165		271.306	462.104	474.353
Prob > F	0.000		0.000	0.000	0.000
R2	0.103		0.089	0.088	0.075

Note: *** significant at 1%, ** 5% and * 10%.

Figure 8: MPI: estimated effects (dummy variable coefficients) associated with country, country groupings, market and market groupings



When interpreting the results presented above, we may conclude for example that being a woman has a significantly positive impact on MPI scores. Conversely, a negative association with the MPI (i.e. significantly lower MPI scores) is found in the case of 35-54 year-olds, medium and higher educated respondents, and also for those whose mother tongue is not an official language. It is also particularly important the strong negative association found between the MPI and those who find it very difficult to make ends meet. When looking at differences per occupation category, housepersons and pensioners appear to have the strongest positive link with higher MPI scores, while the lowest seems to correspond to self-employed people. And with regard to internet users,

except from those using the internet less than once a month, all other categories of users are positively related to higher MPI scores.

Looking at the different geographical categories, higher MPI scores are associated with the Western region, Eurozone countries and New Member States. At individual country level, respondents from Croatia seem to be giving the lowest scores, all other things being equal. The opposite trend (i.e. significantly higher MPI scores) appears for respondents from Austria and Luxembourg.

With regard to markets and market groupings, services—and in particular clusters such as banking services, utilities and telecoms—tend to score significantly lower than goods markets. The strongest positive links to MPI scores correspond to (semi-)durable and fast moving retail markets, as for example books, magazines and newspapers, entertainment goods, large household appliances, non-alcoholic drinks and other electronic products. Finally, it is also worth noting that not all services markets display negative links to MPI scores. For example, significantly positive estimated coefficients have been calculated for holiday accommodation and cultural and entertainment services.

2.4.2 Results of the individual components of the MPI

2.4.2.1 Comparability

A dependent variable has been built based on question 'Q1' of the survey. This variable measures consumers' ability to compare products and services offered by different retailers and service suppliers, using a response scale that ranges from '0 - Very difficult' to '10 - Very easy'. Table 23 displays the results of the corresponding OLS models and the estimated coefficients associated with the socio-demographic covariates. Figure 9 below shows the estimated coefficients of the dummy

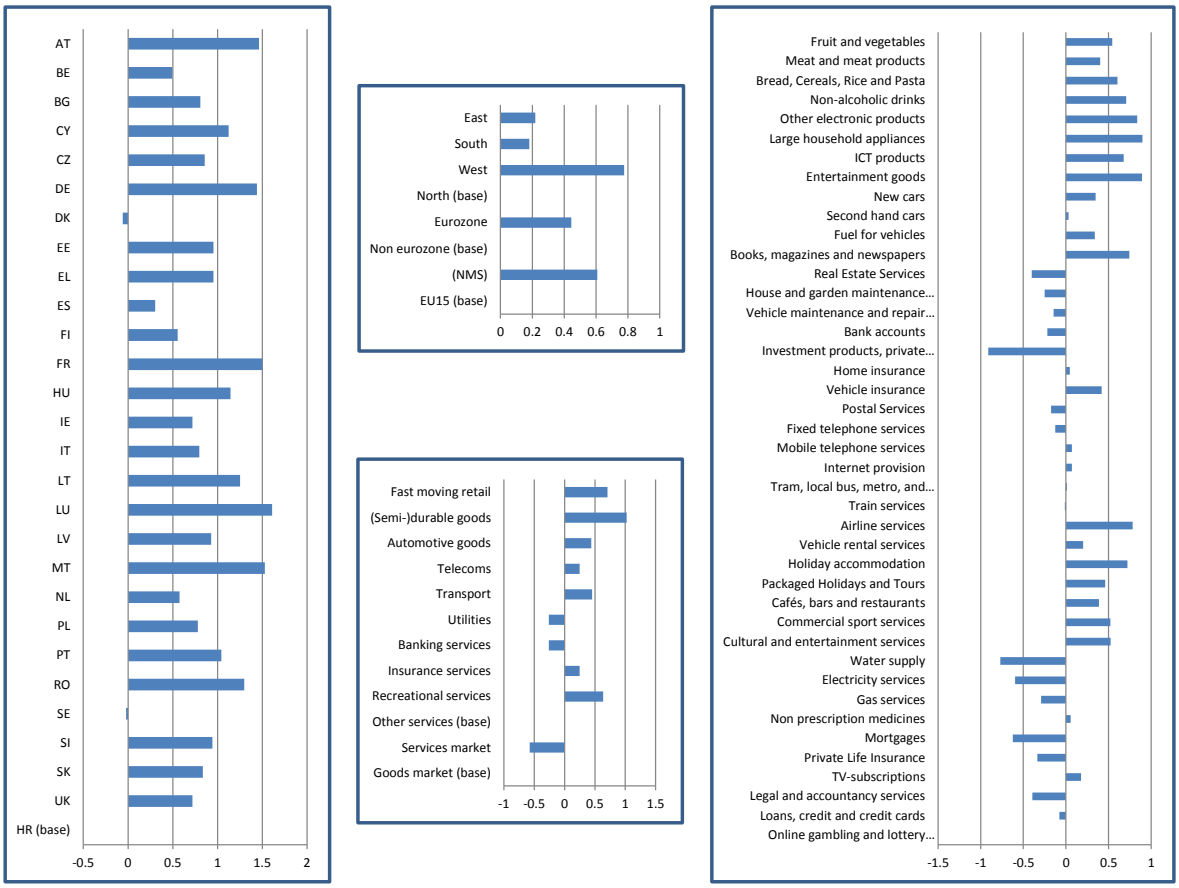
variables controlling for geographic and cultural differences at country (and country groupings) level, as well for the specific conditions encountered in the different markets (and market clusters) assessed in the survey.

Table 23: Results of the multivariate analysis (OLS) on Comparability

	Coef. (Std. Err.)	Pred. value	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)
Gender					
Man	0 (base)	7.4	0 (base)	0 (base)	0 (base)
Woman	0.131***	7.53	0.127***	0.13***	0.129***
	(0.011)		(0.011)	(0.011)	(0.011)
Age					
18-34	0 (base)	7.51	0 (base)	0 (base)	0 (base)
35-54	-0.069***	7.44	-0.093***	-0.072***	-0.102***
	(0.015)		(0.015)	(0.015)	(0.015)
55+	-0.058***	7.45	-0.057***	-0.06***	-0.094***
	(0.018)		(0.018)	(0.018)	(0.018)
Education					
Low (ISCED 0-1-2)	0 (base)	7.63	0 (base)	0 (base)	0 (base)
Medium (ISCED 3-4)	-0.076***	7.56	-0.058***	-0.068***	-0.065***
	(0.018)		(0.017)	(0.018)	(0.018)
High (ISCED 5-6-7-8)	-0.365***	7.27	-0.414***	-0.357***	-0.359***
	(0.019)		(0.019)	(0.019)	(0.019)
Occupation					
Self-employed	0 (base)	7.38	0 (base)	0 (base)	0 (base)
Manager	0.028	7.41	0.087***	0.025	0.025
	(0.028)		(0.028)	(0.028)	(0.028)
Other white collar	0.052**	7.43	0.179***	0.054**	0.062***
	(0.021)		(0.021)	(0.021)	(0.021)
Blue collar	0.14***	7.52	0.115***	0.135***	0.15***
	(0.024)		(0.024)	(0.024)	(0.025)
Student	-0.022	7.36	-0.051*	-0.014	0.062**
	(0.03)		(0.03)	(0.03)	(0.031)
Houseperson and other	0.204***	7.59	0.191***	0.201***	0.213***
	(0.029)		(0.029)	(0.029)	(0.029)
Seeking a job	0.075**	7.46	0.004	0.074**	0.107***
	(0.035)		(0.035)	(0.035)	(0.036)
Retired	0.151***	7.53	0.14***	0.154***	0.174***
	(0.026)		(0.026)	(0.026)	(0.026)
Internet usage					
Daily	0.328***	7.5	0.372***	0.328***	0.362***
	(0.119)		(0.121)	(0.12)	(0.12)
Weekly	0.118	7.29	0.22*	0.12	0.137
	(0.12)		(0.122)	(0.12)	(0.121)
Monthly	0.23*	7.41	0.356***	0.225*	0.251**
	(0.122)		(0.124)	(0.123)	(0.123)
Less than monthly	-0.139	7.04	0	-0.136	-0.112
	(0.131)		(0.133)	(0.131)	(0.132)
Hardly ever	0.177	7.35	0.239*	0.177	0.197
	(0.128)		(0.129)	(0.128)	(0.129)
Never	0.26**	7.44	0.349***	0.251**	0.241**
	(0.121)		(0.123)	(0.121)	(0.122)
Don't know/no answer	0 (base)	7.18	0 (base)	0 (base)	0 (base)
Mother tongue					
Official language	0 (base)	7.46	0 (base)	0 (base)	0 (base)
Not an official language	0.059**	7.52	-0.021	0.064**	0.068**
	(0.03)		(0.029)	(0.03)	(0.03)
Income					
Very difficult	-0.371***	7.23	-0.37***	-0.378***	-0.403***
	(0.035)		(0.036)	(0.035)	(0.035)
Fairly difficult	-0.174***	7.42	-0.176***	-0.177***	-0.184***
	(0.03)		(0.031)	(0.031)	(0.031)
Fairly easy	-0.055*	7.54	-0.083***	-0.055*	-0.061**
	(0.03)		(0.03)	(0.03)	(0.03)
Very easy	-0.16***	7.44	-0.194***	-0.159***	-0.181***
	(0.033)		(0.033)	(0.033)	(0.033)
Don't know/no answer	0 (base)	7.6	0 (base)	0 (base)	0 (base)
Country dummies	yes		no	yes	yes
EU region dummies	no		yes	no	no
Eurozone dummy	no		yes	no	no
EU15_EU13 dummy	no		yes	no	no
Market dummies	yes		yes	no	no
Market cluster dummies	no		no	yes	no
Goods_services dummy	no		no	no	yes
Number of obs	544165		544165	544165	544165
F	298.248		263.189	425.811	419.238
Prob > F	0.000		0.000	0.000	0.000
R2	0.074		0.062	0.065	0.051

Note: *** significant at 1%, ** 5% and * 10%.

Figure 9: Comparability: estimated effects (dummy variable coefficients) associated with country, country groupings, market and market groupings



According to the estimated coefficients from the models in Table 23, women tend to rate comparability higher than men. In terms of age and education level, there appears to be a negative relationship between older and more educated individuals and their comparability scores. All other things being equal, scores in comparability are significantly higher for blue collars, housepersons, pensioners and other white collars, as well as for people who use the internet either daily or never. Individuals whose mother tongue is not an official language also tend to be significantly associated with lower scores in comparability across the estimated models. The strongest significantly negative association with comparability scores (i.e. the lowest expected value) is found for those respondents who find it very difficult to make ends meet.

The analysis of country grouping variables indicates that comparability scores are significantly higher in Eurozone countries, New Member States and countries from the Western region. Looking at the dummies for individual countries, comparability scores appear to be the highest in Luxembourg, Malta, France and Germany, while the lowest in Denmark and Sweden.

Goods markets appear to be positively associated with higher scores in comparability. This association is particularly strong for those related to (semi-)durable goods, as for example large household appliances, entertainment goods and other electronic products. In general, the lowest scores correspond to services. This holds true in particular for banking services markets such as investment products, private pensions and securities, and mortgages, but also for utilities such as water supply and electricity services.

2.4.2.2 Trust

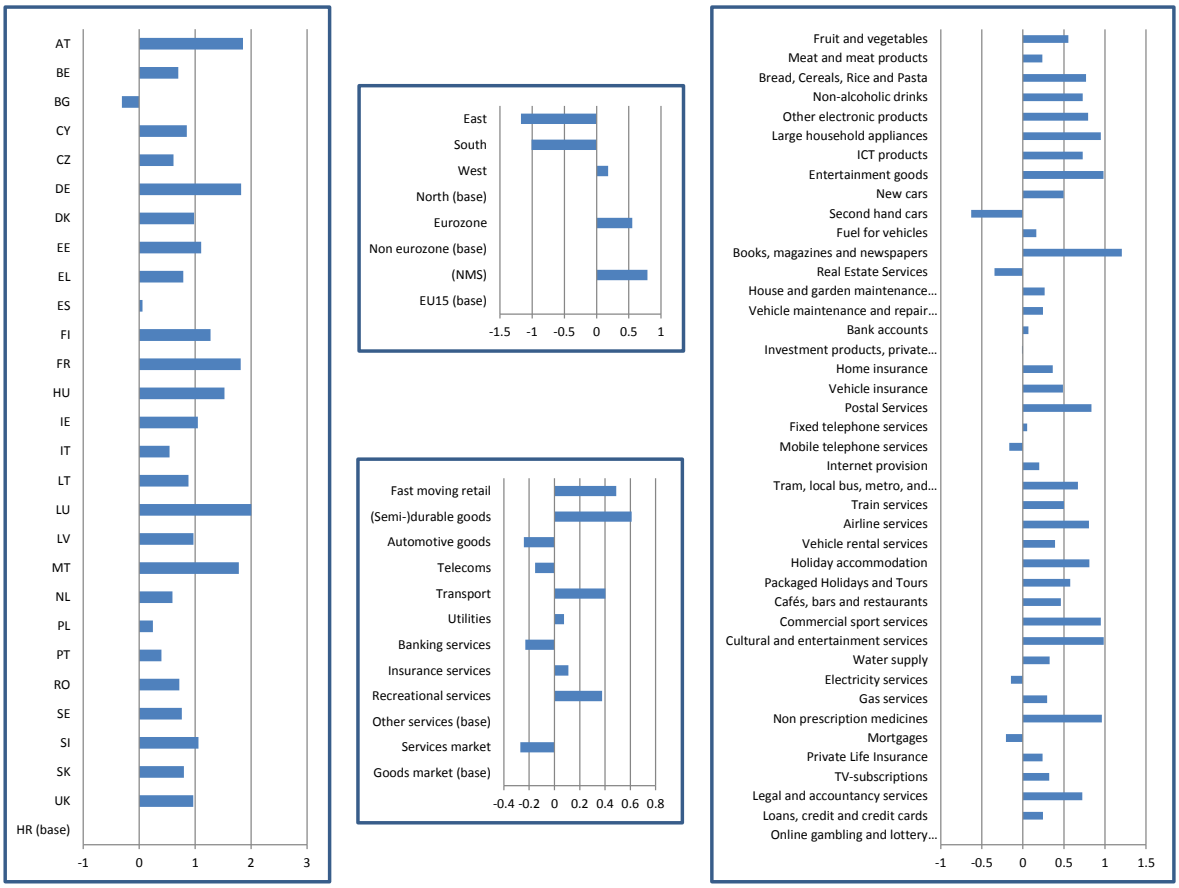
The trust component measures the extent to which consumers trust the suppliers/retailers to comply with consumer protection rules. A dependent variable has been built based on question 'Q2' of the survey, using a response scale that ranges from '0 - Very difficult' to '10 - Very easy'. Table 24 displays the results of the corresponding OLS models and the estimated coefficients associated with the socio-demographic covariates. Figure 10 below shows the estimated coefficients of the dummy variables controlling for geographic and cultural differences at country (and country groupings) level, as well for the specific conditions encountered in the different markets (and market clusters) assessed in the survey.

Table 24: Results of the multivariate analysis (OLS) on Trust

	Coef. (Std. Err.)	Pred. value	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)
Gender					
Man	0 (base)	7.14	0 (base)	0 (base)	0 (base)
Woman	0.214***	7.35	0.216***	0.22***	0.226***
	(0.01)		(0.01)	(0.01)	(0.011)
Age					
18-34	0 (base)	7.29	0 (base)	0 (base)	0 (base)
35-54	-0.081***	7.21	-0.105***	-0.074***	-0.099***
	(0.014)		(0.014)	(0.014)	(0.014)
55+	-0.041**	7.25	-0.037**	-0.035**	-0.061***
	(0.017)		(0.017)	(0.017)	(0.017)
Education					
Low (ISCED 0-1-2)	0 (base)	7.39	0 (base)	0 (base)	0 (base)
Medium (ISCED 3-4)	-0.098***	7.29	-0.068***	-0.083***	-0.08***
	(0.017)		(0.017)	(0.017)	(0.018)
High (ISCED 5-6-7-8)	-0.272***	7.12	-0.345***	-0.258***	-0.254***
	(0.018)		(0.018)	(0.018)	(0.018)
Occupation					
Self-employed	0 (base)	7.09	0 (base)	0 (base)	0 (base)
Manager	0.107***	7.2	0.182***	0.101***	0.095***
	(0.026)		(0.026)	(0.026)	(0.026)
Other white collar	0.121***	7.21	0.262***	0.115***	0.123***
	(0.02)		(0.02)	(0.02)	(0.02)
Blue collar	0.15***	7.24	0.119***	0.138***	0.151***
	(0.023)		(0.024)	(0.024)	(0.024)
Student	0.326***	7.42	0.292***	0.339***	0.411***
	(0.028)		(0.028)	(0.028)	(0.028)
Houseperson and other	0.263***	7.35	0.232***	0.251***	0.267***
	(0.028)		(0.028)	(0.028)	(0.028)
Seeking a job	0.211***	7.3	0.127***	0.209***	0.246***
	(0.034)		(0.034)	(0.034)	(0.035)
Retired	0.216***	7.31	0.209***	0.22***	0.239***
	(0.024)		(0.025)	(0.025)	(0.025)
Internet usage					
Daily	0.241**	7.25	0.284**	0.239**	0.238**
	(0.11)		(0.112)	(0.111)	(0.112)
Weekly	0.157	7.17	0.265**	0.156	0.145
	(0.11)		(0.113)	(0.112)	(0.112)
Monthly	0.229**	7.24	0.363***	0.215*	0.217*
	(0.113)		(0.116)	(0.115)	(0.115)
Less than monthly	-0.05	6.96	0.08	-0.051	-0.05
	(0.121)		(0.123)	(0.122)	(0.123)
Hardly ever	0.226*	7.24	0.279**	0.217*	0.221*
	(0.119)		(0.121)	(0.12)	(0.121)
Never	0.328***	7.34	0.408***	0.318***	0.318***
	(0.112)		(0.114)	(0.113)	(0.114)
Don't know/no answer	0 (base)	7.01	0 (base)	0 (base)	0 (base)
Mother tongue					
Official language	0 (base)	7.24	0 (base)	0 (base)	0 (base)
Not an official language	-0.021	7.22	-0.077***	-0.026	-0.023
	(0.029)		(0.028)	(0.029)	(0.029)
Income					
Very difficult	-0.511***	6.8	-0.532***	-0.525***	-0.531***
	(0.034)		(0.035)	(0.034)	(0.034)
Fairly difficult	-0.141***	7.17	-0.162***	-0.151***	-0.147***
	(0.029)		(0.03)	(0.029)	(0.029)
Fairly easy	0.071**	7.38	0.021	0.066**	0.069**
	(0.029)		(0.029)	(0.029)	(0.029)
Very easy	-0.083***	7.23	-0.146***	-0.087***	-0.097***
	(0.031)		(0.032)	(0.031)	(0.032)
Don't know/no answer	0 (base)	7.31	0 (base)	0 (base)	0 (base)
Country dummies	yes		no	yes	yes
EU region dummies	no		yes	no	no
Eurozone dummy	no		yes	no	no
EU15_EU13 dummy	no		yes	no	no
Market dummies	yes		yes	no	no
Market cluster dummies	no		no	yes	no
Goods_services dummy	no		no	no	yes
Number of obs	544165		544165	544165	544165
F	472.250		326.272	670.796	714.368
Prob > F	0.000		0.000	0.000	0.000
R2	0.118		0.097	0.104	0.092

Note: *** significant at 1%, ** 5% and * 10%.

Figure 10: Trust: estimated effects (dummy variable coefficients) associated with country, country groupings, market and market groupings



We observe from the model estimates that women and 18-34 year-olds assess more favourably trust in suppliers/providers. A negative association is found between higher levels of education and trust. Additionally, lower scores in the trust dimension are associated with self-employed respondents. In terms of internet usage, those who never use the internet assign highest scores to trust. All other things being equal, those who find it very difficult to make ends meet are the ones who rate trust the lowest. No consistently statistically significant relationship has been found between trust and speaking official vs. non-official languages across the estimated models.

In terms of geographical regions, on average lower scores in trust are being reported by residents in the Eastern and Southern regions. On the other hand, respondents from countries in the Eurozone area and in the New Member States tend to report higher scores in trust. At individual country level, Figure 10 indicates that higher scores in the trust dimension are most likely found among respondents from Austria, Germany, France, Luxembourg and Malta. Strong negative links have been found in the case of respondents from Bulgaria.

Services markets, and in particular the banking services market cluster, are usually associated with lower scores in trust. However, the strongest negative influence on trust scores is found in the automotive goods market cluster. Strong positive links with higher scores in trust have been found in the fast moving retail and in the (semi-)durable goods market clusters. In terms of the individual markets assessed, second hard cars and real estate services display the highest negative associations with trust ratings, while the highest positive estimated coefficients can be found for example in the books, magazines and newspapers market, as well as for entertainment goods and non-prescription medicines. Among the services markets, the best evaluated markets are cultural and entertainment services and commercial sport services.

2.4.2.3 Problems and detriment

The problems and detriment dimension is compounded by two different elements:

1. The problems component, which expresses the proportion of consumers who have experienced at least one problem with the service/product or the supplier/retailer in a given market.

2. The detriment component, which assesses the extent to which respondents have suffered financial loss or other detriment as a result of the problem experienced —from ‘0 - No or negligible detriment’ to ’10 - A very significant detriment’.

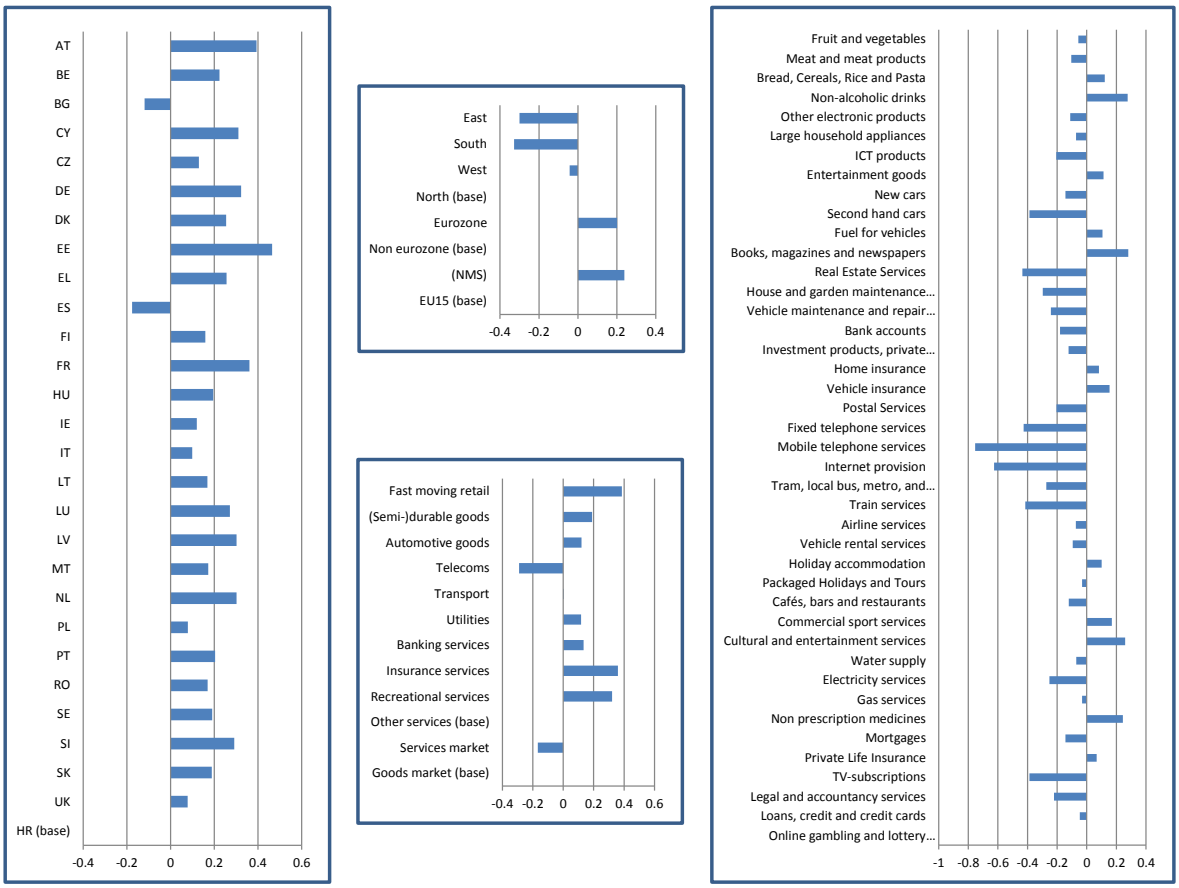
Both components are combined together to calculate the MPI aggregate score. As a result, in those cases where the respondent has not encountered a problem, a value of ‘10’ is assigned to the problems and detriment dimension. In those other cases where the respondent did encounter a problem, the corresponding value assigned to this dimension will be equal to ‘10’ minus the reported detriment. Table 25 and Figure 11 present the summary results of the regression models estimated for the combined problems and detriment dimension.

Table 25: Results of the multivariate analysis (OLS) on Problems and detriment

	Coef. (Std. Err.)	Pred. value	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)
Gender					
Man	0 (base)	9.426	0 (base)	0 (base)	0 (base)
Woman	0.037***	9.463	0.035***	0.037***	0.039***
	(0.009)		(0.009)	(0.009)	(0.009)
Age					
18-34	0 (base)	9.437	0 (base)	0 (base)	0 (base)
35-54	-0.011	9.426	-0.019	-0.009	-0.011
	(0.012)		(0.012)	(0.012)	(0.012)
55+	0.034**	9.471	0.029**	0.035**	0.034**
	(0.015)		(0.015)	(0.015)	(0.015)
Education					
Low (ISCED 0-1-2)	0 (base)	9.451	0 (base)	0 (base)	0 (base)
Medium (ISCED 3-4)	0.012	9.463	0.009	0.017	0.017
	(0.015)		(0.014)	(0.015)	(0.015)
High (ISCED 5-6-7-8)	-0.034**	9.417	-0.048***	-0.03*	-0.025
	(0.016)		(0.015)	(0.016)	(0.016)
Occupation					
Self-employed	0 (base)	9.357	0 (base)	0 (base)	0 (base)
Manager	0.02	9.378	0.03	0.022	0.031
	(0.022)		(0.022)	(0.022)	(0.023)
Other white collar	0.086***	9.443	0.119***	0.087***	0.094***
	(0.017)		(0.017)	(0.017)	(0.017)
Blue collar	0.03	9.387	0.02	0.027	0.034
	(0.021)		(0.021)	(0.021)	(0.021)
Student	0.133***	9.491	0.129***	0.133***	0.144***
	(0.025)		(0.025)	(0.025)	(0.025)
Houseperson and other	0.114***	9.471	0.113***	0.112***	0.108***
	(0.024)		(0.024)	(0.024)	(0.024)
Seeking a job	0.066**	9.424	0.04	0.063**	0.065**
	(0.03)		(0.03)	(0.03)	(0.03)
Retired	0.194***	9.551	0.201***	0.196***	0.194***
	(0.02)		(0.02)	(0.02)	(0.02)
Internet usage					
Daily	-0.105	9.422	-0.08	-0.105	-0.122
	(0.078)		(0.078)	(0.078)	(0.079)
Weekly	-0.045	9.482	-0.011	-0.045	-0.061
	(0.078)		(0.078)	(0.079)	(0.079)
Monthly	-0.124	9.403	-0.081	-0.128	-0.139*
	(0.082)		(0.082)	(0.082)	(0.083)
Less than monthly	-0.159*	9.368	-0.116	-0.161*	-0.171*
	(0.089)		(0.089)	(0.089)	(0.09)
Hardly ever	-0.025	9.502	0.004	-0.03	-0.044
	(0.085)		(0.085)	(0.085)	(0.086)
Never	0.093	9.62	0.131*	0.095	0.081
	(0.079)		(0.079)	(0.079)	(0.08)
Don't know/no answer	0 (base)	9.527	0 (base)	0 (base)	0 (base)
Mothter tongue					
Official language	0 (base)	9.449	0 (base)	0 (base)	0 (base)
Not an official language	-0.141***	9.308	-0.151***	-0.144***	-0.147***
	(0.027)		(0.027)	(0.027)	(0.027)
Income					
Very difficult	-0.335***	9.142	-0.311***	-0.335***	-0.334***
	(0.03)		(0.03)	(0.03)	(0.03)
Fairly difficult	-0.074***	9.403	-0.05**	-0.075***	-0.068***
	(0.025)		(0.025)	(0.025)	(0.025)
Fairly easy	0.047*	9.524	0.061**	0.048*	0.059**
	(0.025)		(0.025)	(0.025)	(0.025)
Very easy	0.006	9.483	0.024	0.006	0.016
	(0.026)		(0.026)	(0.026)	(0.026)
Don't know/no answer	0 (base)	9.477	0 (base)	0 (base)	0 (base)
Country dummies	yes		no	yes	yes
EU region dummies	no		yes	no	no
Eurozone dummy	no		yes	no	no
EU15_EU13 dummy	no		yes	no	no
Market dummies	yes		yes	no	no
Market cluster dummies	no		no	yes	no
Goods_services dummy	no		no	no	yes
Number of obs	544165		544165	544165	544165
F	72.419		72.780	88.645	79.269
Prob > F	0.000		0.000	0.000	0.000
R2	0.030		0.027	0.025	0.016

Note: *** significant at 1%, ** 5% and * 10%.

Figure 11: Problems and detriment: estimated effects (dummy variable coefficients) associated with country, country groupings, market and market groupings



The results above indicate that significantly higher scores in the problems and detriment dimension are found among women and respondents aged 55+. In terms of education levels and internet usage, the most consistent statistically significant associations correspond to the categories of higher educated respondents and less than monthly internet users. For both categories of respondents, significantly lower scores are usually found across the estimated models. As regards occupation categories, lower scores are linked to respondents who are self-employed, and also to managers and blue collars. Another interesting result is that the highest scores in terms of occupation categories correspond to pensioners. The lowest ratings in the problems and detriment dimension would be expected among those whose mother tongue is not an official language and

those who find it very difficult to make ends meet. On the contrary, a significantly positive relationship has been found between individuals who find it fairly easy to make ends meet and higher scores in the problems and detriment dimension.

Significant regional differences appear when problems and detriment are considered. The lowest scores are expected to be found in the Eastern and Southern regions, whilst ratings tend to be higher in Eurozone countries and New Member States. At individual country level, significantly lower scores are found in Bulgaria and Spain. Conversely, highest scores are linked to countries like Estonia, Austria and France.

Goods markets tend to outscore services markets. Lower ratings in problems and detriment are strongly associated to the telecoms market cluster. In terms of individual markets, mobile telephone services and internet provision take the lead of the lowest scoring markets. The most positive assessments of the problems and detriments dimension would be found instead in the non-alcoholic drinks, books, magazines and newspapers, cultural and entertainment services, and non-prescription medicines markets.

For the sake of completeness, the separate analyses of the two elements integrating the problems and detriment dimension are presented below. The two independent variables considered in the estimated models are as follows: i) a dichotomous dependent variable representing whether the individual has experienced a problem (‘1’) or not (‘0’) in a specific market, and ii) a second dependent variable rating from ‘0’ to ‘10’ the amount of detriment suffered as a result of having experienced a problem. The results from the dichotomous logit models analysing the problem dimension are presented in Table 26 and Figure 12. As indicated at the beginning of this section, Table 26 includes a specific column with the predicted probability of experiencing a problem related to each of the sociodemographic categories considered in the analyses. The results from the OLS models analysing the magnitude of the detriment experienced by the specific subsample of respondents who have encountered a problem in the market are shown in Table 27 and Figure 13.

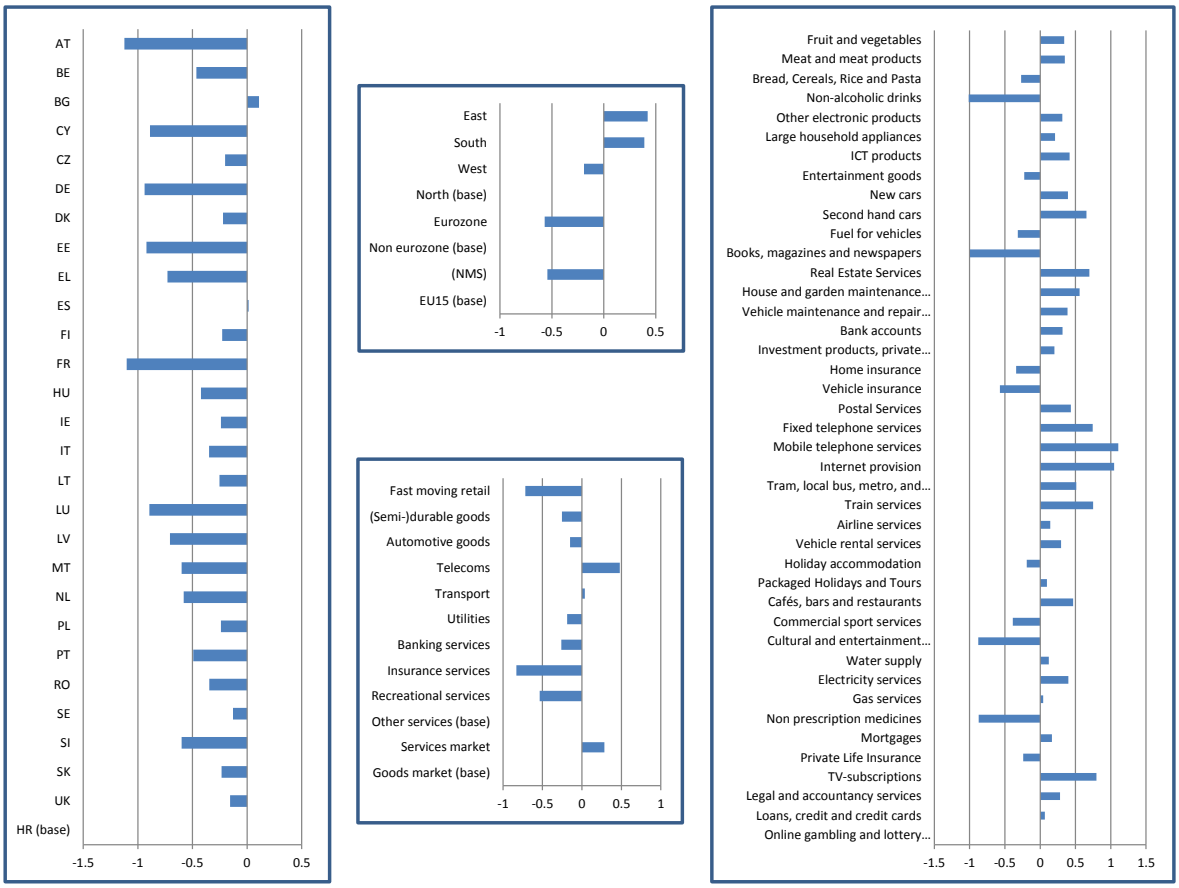
Results from the OLS models will be interpreted in a similar fashion as those from previous OLS regressions.

Table 26: Results of the multivariate analysis (logit) on Problems

	Coef. (Std. Err.)	Pred. probability	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)
Gender					
Man	0 (base)	10.2%	0 (base)	0 (base)	0 (base)
Woman	-0.111***	9.25%	-0.106***	-0.11***	-0.111***
	(0.016)		(0.016)	(0.016)	(0.016)
Age					
18-34	0 (base)	10.1%	0 (base)	0 (base)	0 (base)
35-54	-0.018	9.9%	0.002	-0.025	-0.022
	(0.02)		(0.02)	(0.02)	(0.02)
55+	-0.105***	9.2%	-0.103***	-0.109***	-0.106***
	(0.027)		(0.027)	(0.027)	(0.027)
Education					
Low (ISCED 0-1-2)	0 (base)	9.5%	0 (base)	0 (base)	0 (base)
Medium (ISCED 3-4)	-0.028	9.3%	-0.036	-0.036	-0.037
	(0.026)		(0.026)	(0.026)	(0.026)
High (ISCED 5-6-7-8)	0.092***	10.3%	0.124***	0.083***	0.068**
	(0.028)		(0.027)	(0.028)	(0.028)
Occupation					
Self-employed	0 (base)	10.9%	0 (base)	0 (base)	0 (base)
Manager	-0.017	10.7%	-0.042	-0.019	-0.039
	(0.035)		(0.034)	(0.034)	(0.034)
Other white collar	-0.144***	9.6%	-0.232***	-0.144***	-0.157***
	(0.026)		(0.026)	(0.026)	(0.026)
Blue collar	-0.042	10.5%	-0.018	-0.037	-0.048
	(0.03)		(0.03)	(0.03)	(0.03)
Student	-0.148***	9.6%	-0.133***	-0.144***	-0.153***
	(0.041)		(0.041)	(0.041)	(0.041)
Houseperson and other	-0.145***	9.6%	-0.132***	-0.14***	-0.127***
	(0.039)		(0.039)	(0.039)	(0.038)
Seeking a job	-0.089**	10.1%	-0.046	-0.082**	-0.078*
	(0.04)		(0.04)	(0.04)	(0.04)
Retired	-0.327***	8.2%	-0.323***	-0.328***	-0.319***
	(0.035)		(0.035)	(0.035)	(0.034)
Internet usage					
Daily	0.045	10.0%	0.01	0.051	0.078
	(0.15)		(0.149)	(0.15)	(0.15)
Weekly	-0.055	9.2%	-0.128	-0.048	-0.021
	(0.152)		(0.15)	(0.151)	(0.152)
Monthly	0.067	10.2%	-0.025	0.081	0.097
	(0.158)		(0.157)	(0.158)	(0.158)
Less than monthly	0.204	11.5%	0.106	0.215	0.236
	(0.17)		(0.169)	(0.17)	(0.17)
Hardly ever	-0.096	8.9%	-0.14	-0.078	-0.056
	(0.163)		(0.162)	(0.163)	(0.163)
Never	-0.289*	7.5%	-0.349**	-0.285*	-0.261*
	(0.153)		(0.152)	(0.153)	(0.153)
Don't know/no answer	0 (base)	9.6%	0 (base)	0 (base)	0 (base)
Mother tongue					
Official language	0 (base)	9.6%	0 (base)	0 (base)	0 (base)
Not an official language	0.234***	11.8%	0.288***	0.237***	0.243***
	(0.038)		(0.037)	(0.038)	(0.037)
Income					
Very difficult	0.434***	13.8%	0.414***	0.428***	0.416***
	(0.052)		(0.051)	(0.051)	(0.051)
Fairly difficult	0.075	10.2%	0.055	0.074	0.061
	(0.049)		(0.049)	(0.049)	(0.049)
Fairly easy	-0.124**	8.6%	-0.124***	-0.124**	-0.148***
	(0.049)		(0.048)	(0.049)	(0.048)
Very easy	-0.019	9.4%	-0.031	-0.017	-0.041
	(0.052)		(0.052)	(0.052)	(0.052)
Don't know/no answer	0 (base)	9.5%	0 (base)	0 (base)	0 (base)
Country dummies	yes		no	yes	yes
EU region dummies	no		yes	no	no
Eurozone dummy	no		yes	no	no
EU15_EU13 dummy	no		yes	no	no
Market dummies	yes		yes	no	no
Market cluster dummies	no		no	yes	no
Goods_services dummy	no		no	no	yes
Number of obs	544165		544165	544165	544165
chi2	8062		5910	7104	5548
Prob > chi2	0.000		0.000	0.000	0.000
Pseudo R2	0.059		0.053	0.048	0.031
Log likelihood	-181758		-182832	-183905	-187028

Note: *** significant at 1%, ** 5% and * 10%.

Figure 12: Problems: estimated effects (dummy variable coefficients) associated with country, country groupings, market and market groupings



According to the results presented in Table 26, women are less likely to declare having experienced a problem in the market. The same situation is found among older respondents (aged 55+) and those who never use the internet. Significantly lower probability of having experienced a problem has been consistently estimated for other white collars, students, housepersons and, more intensely, among retired persons. On the contrary, relative to their counterparts in their respective socio-demographic category, higher educated respondents and those who do not speak an official language are the ones more likely to report having experienced a problem in the market analysed. There is also a clear division among those who find it very difficult and those who find it fairly easy to

make ends meet, the former being more prone to report having experienced a problem while the latter being significantly less likely to declare having experienced problems.

When looking into differences in the occurrence of problems at regional level, results from Figure 12 indicate that problems are more likely to be reported by residents in Eastern and Southern countries. Conversely, residents in Eurozone countries and New Member States are less likely to report having experienced a problem. At individual country level, the highest probabilities for encountering problems are associated with Bulgaria, whilst the lowest are linked to countries like Austria, France, Germany, Estonia, Luxembourg and Cyprus.

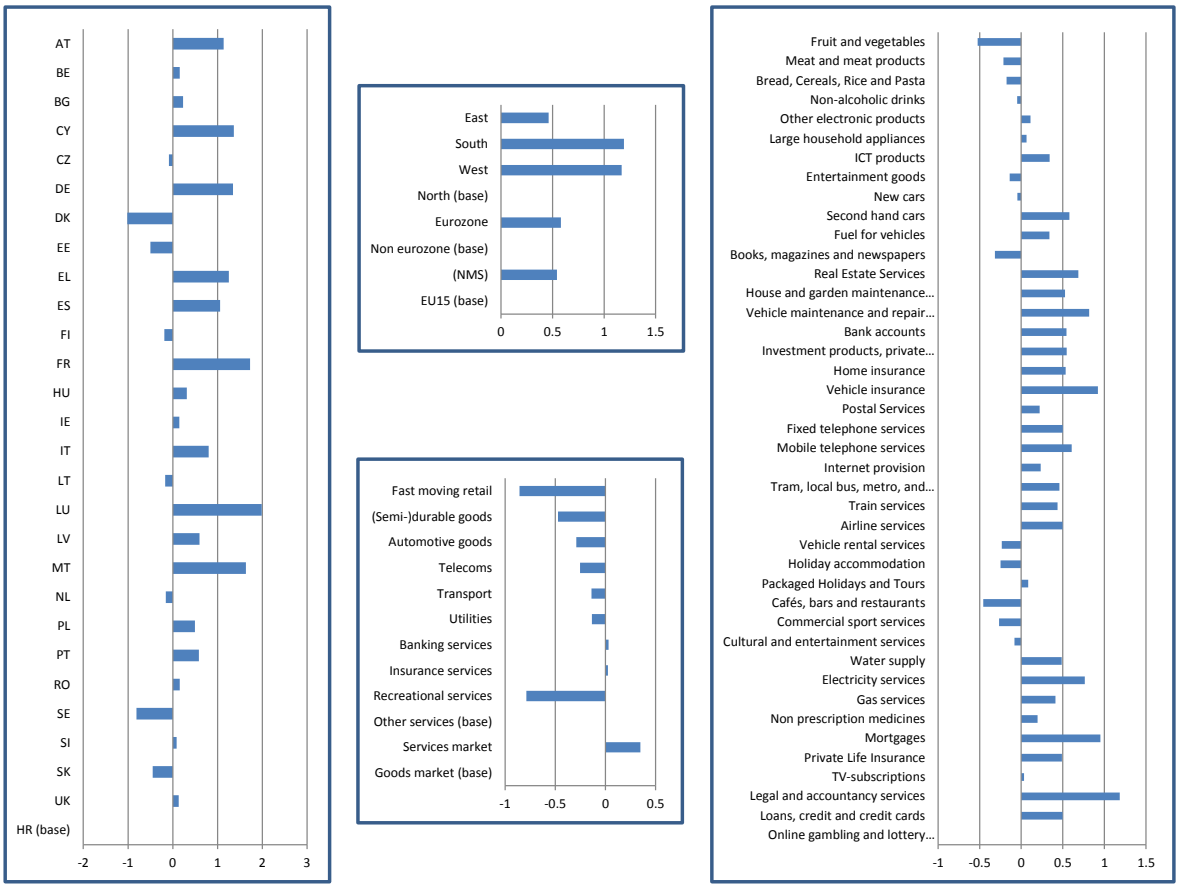
In general, problems are more likely to be encountered in services markets. However, a wide variety of situations can be found when looking at the different market clusters and individual markets. For example, lower probabilities of experiencing problems are related to the fast moving retail goods cluster, but also to the insurance services and recreational services market clusters. On the other hand, problems are more likely to happen in the telecoms market cluster. At individual market level, problems are less likely to occur in markets such as non-alcoholic drinks, books, magazines and newspapers, cultural and entertainment services, and non-prescription medicines. Conversely, all other things being equal, problems are more likely to be found in the mobile telephone services market and in the internet provision market.

Table 27: Results of the multivariate analysis (OLS) on Detriment

	Coef. (Std. Err.)	Pred. value	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)
Gender					
Man	0 (base)	5.64	0 (base)	0 (base)	0 (base)
Woman	0.163***	5.8	0.165***	0.165***	0.154***
	(0.04)		(0.04)	(0.04)	(0.04)
Age					
18-34	0 (base)	5.61	0 (base)	0 (base)	0 (base)
35-54	0.162***	5.77	0.167***	0.157***	0.164***
	(0.05)		(0.051)	(0.051)	(0.051)
55+	0.122*	5.73	0.182***	0.126*	0.14**
	(0.064)		(0.065)	(0.065)	(0.065)
Education					
Low (ISCED 0-1-2)	0 (base)	5.65	0 (base)	0 (base)	0 (base)
Medium (ISCED 3-4)	0.121*	5.77	0.146**	0.114*	0.102
	(0.066)		(0.065)	(0.067)	(0.067)
High (ISCED 5-6-7-8)	0.038	5.68	-0.037	0.025	0.019
	(0.07)		(0.069)	(0.07)	(0.071)
Occupation					
Self-employed	0 (base)	5.83	0 (base)	0 (base)	0 (base)
Manager	0.008	5.84	0.065	-0.006	-0.004
	(0.086)		(0.086)	(0.087)	(0.087)
Other white collar	-0.03	5.8	0.11*	-0.042	-0.056
	(0.067)		(0.066)	(0.067)	(0.067)
Blue collar	-0.093	5.74	-0.071	-0.104	-0.11
	(0.077)		(0.077)	(0.077)	(0.078)
Student	-0.375***	5.45	-0.405***	-0.41***	-0.462***
	(0.101)		(0.101)	(0.101)	(0.101)
Houseperson and other	-0.212**	5.62	-0.262**	-0.215**	-0.242**
	(0.103)		(0.103)	(0.103)	(0.104)
Seeking a job	-0.182*	5.65	-0.176*	-0.189*	-0.221**
	(0.105)		(0.105)	(0.105)	(0.107)
Retired	-0.33***	5.5	-0.403***	-0.341***	-0.364***
	(0.089)		(0.088)	(0.089)	(0.089)
Internet usage					
Daily	0.8*	5.77	0.773*	0.812*	0.779*
	(0.437)		(0.435)	(0.438)	(0.44)
Weekly	0.592	5.57	0.665	0.601	0.563
	(0.44)		(0.439)	(0.441)	(0.443)
Monthly	0.702	5.68	0.836*	0.736	0.693
	(0.452)		(0.45)	(0.453)	(0.455)
Less than monthly	0.328	5.3	0.448	0.324	0.292
	(0.471)		(0.471)	(0.472)	(0.475)
Hardly ever	0.644	5.62	0.634	0.67	0.618
	(0.474)		(0.473)	(0.475)	(0.478)
Never	0.352	5.33	0.336	0.368	0.323
	(0.448)		(0.446)	(0.449)	(0.451)
Don't know/no answer	0 (base)	4.97	0 (base)	0 (base)	0 (base)
Mother tongue					
Official language	0 (base)	5.71	0 (base)	0 (base)	0 (base)
Not an official language	0.051	5.76	-0.113	0.053	0.077
	(0.098)		(0.096)	(0.098)	(0.098)
Income					
Very difficult	0.656***	6.15	0.52***	0.669***	0.679***
	(0.136)		(0.135)	(0.138)	(0.139)
Fairly difficult	0.366***	5.86	0.24*	0.367***	0.381***
	(0.129)		(0.127)	(0.131)	(0.131)
Fairly easy	0.048	5.54	-0.065	0.037	0.043
	(0.129)		(0.127)	(0.13)	(0.131)
Very easy	-0.034	5.46	-0.089	-0.042	-0.03
	(0.135)		(0.134)	(0.137)	(0.137)
Don't know/no answer	0 (base)	5.49	0 (base)	0 (base)	0 (base)
Country dummies	yes		no	yes	yes
EU region dummies	no		yes	no	no
Eurozone dummy	no		yes	no	no
EU15_EU13 dummy	no		yes	no	no
Market dummies	yes		yes	no	no
Market cluster dummies	no		no	yes	no
Goods_services dummy	no		no	no	yes
Number of obs	54397		54397	54397	54397
F	44.726		37.279	64.665	70.522
Prob > F	0.000		0.000	0.000	0.000
R2	0.079		0.061	0.072	0.064

Note: *** significant at 1%, ** 5% and * 10%.

Figure 13: Detriment: estimated effects (dummy variable coefficients) associated with country, country groupings, market and market groupings



As regards the level of detriment suffered, in general higher levels of detriment are reported by female respondents. There seems to be also a significant relationship between age and detriment, with the older consumers (35-54 year-olds and respondents aged 55+) manifesting having experienced higher levels of detriment in the market. The same statistically significant link with higher levels of detriment is found for those respondents with secondary education. When looking at the different occupation categories, students, housepersons, jobseekers and retired persons present significantly negative coefficients, indicative that lower detriment scores are significantly associated with those specific categories. There is also a consistent link between individuals who use the internet on a daily basis and reporting comparatively higher levels of detriment. Similar results

are also found in the case of those respondents who find it very difficult or fairly difficult to make ends meet.

Significant regional differences have also been identified in the model. The highest detriment scores have been found on average in the Southern and Western regions, as well as in Eurozone countries and New Member States. At individual country level, reported detriment is comparatively higher in countries like Luxembourg, France, Malta, Cyprus, Germany, Greece, Austria or Spain, and conversely it is found to be lower for example in Denmark, Sweden, Estonia and Slovakia.

Higher detriment levels are more likely found in services markets, whereas lower detriment scores are in general more frequent in goods markets, in particular in the fast moving retail market cluster. However, an exception to this general rule would be the recreational services market cluster, which has been found to be significantly associated with significantly lower detriment scores. In terms of individual markets, higher detriment levels are usually found in legal and accountancy services, mortgages, vehicle insurance, vehicle maintenance and repair services, and electricity services. Lower detriment is expected to be found for example in the fruit and vegetables market, as well as in cafés, bars and restaurants.

2.4.2.4 Expectations

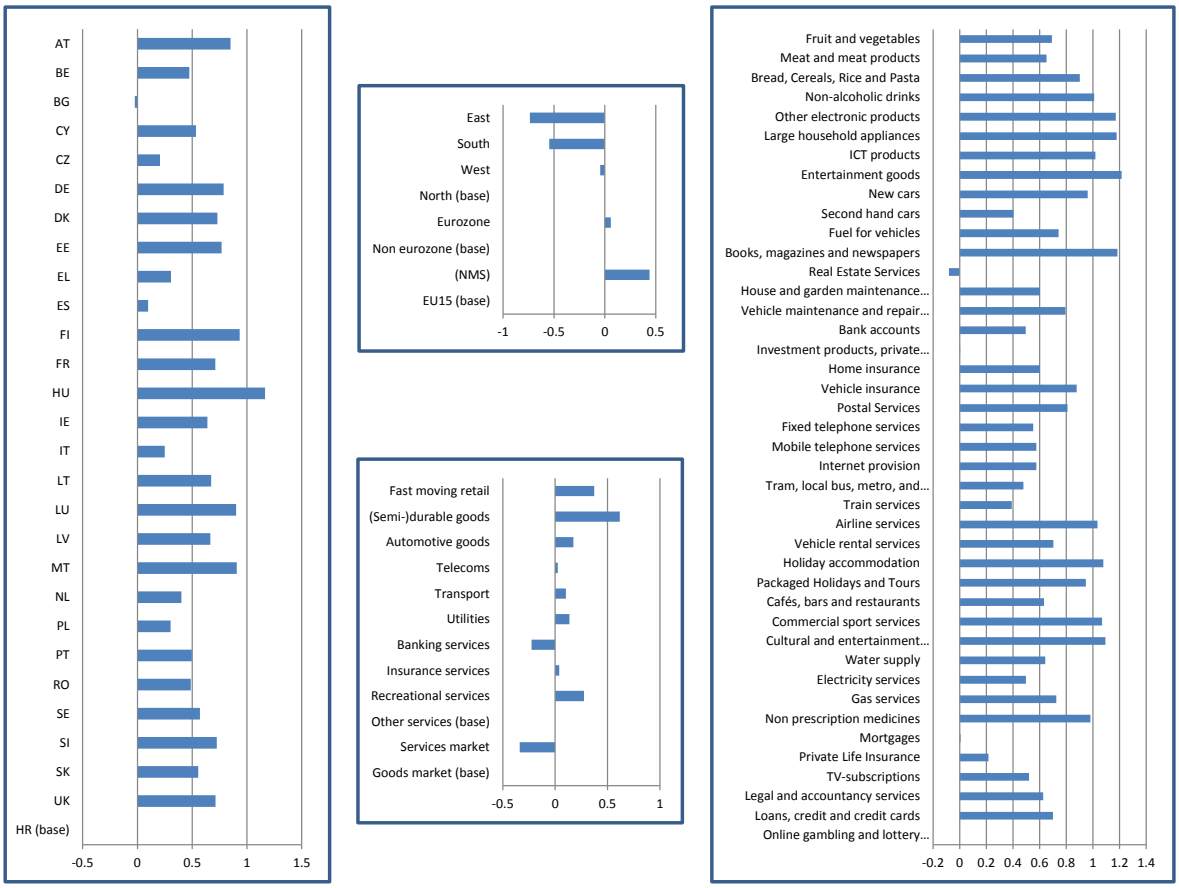
The expectations dimension measures the extent to which the market meets consumers' expectations. Based on question 'Q7', a dependent variable has been constructed and estimated in the models presented in Table 28. Figure 14 below shows the estimated coefficients of the dummy variables controlling for geographic and cultural differences at country (and country groupings) level, as well for the specific conditions encountered in the different markets (and market clusters) assessed in the survey.

Table 28: Results of the multivariate analysis (OLS) on Expectations

	Coef. (Std. Err.)	Pred. value	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)
Gender					
Man	0 (base)	7.79	0 (base)	0 (base)	0 (base)
Woman	0.143***	7.94	0.144***	0.148***	0.148***
	(0.01)		(0.01)	(0.01)	(0.01)
Age					
18-34	0 (base)	7.87	0 (base)	0 (base)	0 (base)
35-54	-0.033***	7.84	-0.04***	-0.028**	-0.042***
	(0.013)		(0.013)	(0.013)	(0.013)
55+	0.019	7.89	0.011	0.026	0.009
	(0.016)		(0.016)	(0.016)	(0.016)
Education					
Low (ISCED 0-1-2)	0 (base)	7.96	0 (base)	0 (base)	0 (base)
Medium (ISCED 3-4)	-0.062***	7.89	-0.068***	-0.052***	-0.05***
	(0.015)		(0.015)	(0.015)	(0.016)
High (ISCED 5-6-7-8)	-0.174***	7.78	-0.204***	-0.165***	-0.168***
	(0.016)		(0.016)	(0.016)	(0.016)
Occupation					
Self-employed	0 (base)	7.74	0 (base)	0 (base)	0 (base)
Manager	0.118***	7.86	0.155***	0.11***	0.105***
	(0.024)		(0.024)	(0.024)	(0.024)
Other white collar	0.089***	7.83	0.123***	0.088***	0.092***
	(0.019)		(0.018)	(0.019)	(0.019)
Blue collar	0.11***	7.85	0.104***	0.103***	0.111***
	(0.021)		(0.021)	(0.022)	(0.022)
Student	0.177***	7.92	0.169***	0.192***	0.229***
	(0.025)		(0.025)	(0.026)	(0.026)
Houseperson and other	0.258***	8	0.244***	0.257***	0.268***
	(0.025)		(0.025)	(0.025)	(0.025)
Seeking a job	0.103***	7.85	0.073**	0.107***	0.128***
	(0.03)		(0.03)	(0.03)	(0.031)
Retired	0.199***	7.94	0.205***	0.211***	0.225***
	(0.022)		(0.022)	(0.022)	(0.022)
Internet usage					
Daily	0.403***	7.89	0.41***	0.394***	0.398***
	(0.103)		(0.104)	(0.104)	(0.104)
Weekly	0.225**	7.72	0.246**	0.22**	0.218**
	(0.104)		(0.105)	(0.104)	(0.104)
Monthly	0.31***	7.8	0.339***	0.297***	0.299***
	(0.106)		(0.107)	(0.107)	(0.107)
Less than monthly	0.054	7.54	0.073	0.049	0.053
	(0.114)		(0.114)	(0.114)	(0.114)
Hardly ever	0.406***	7.9	0.426***	0.404***	0.409***
	(0.11)		(0.11)	(0.11)	(0.11)
Never	0.396***	7.89	0.436***	0.389***	0.391***
	(0.105)		(0.106)	(0.106)	(0.105)
Don't know/no answer	0 (base)	7.49	0 (base)	0 (base)	0 (base)
Mother tongue					
Official language	0 (base)	7.87	0 (base)	0 (base)	0 (base)
Not an official language	-0.167***	7.7	-0.156***	-0.168***	-0.168***
	(0.025)		(0.025)	(0.026)	(0.026)
Income					
Very difficult	-0.431***	7.55	-0.43***	-0.44***	-0.449***
	(0.031)		(0.031)	(0.032)	(0.031)
Fairly difficult	-0.153***	7.83	-0.153***	-0.157***	-0.16***
	(0.027)		(0.027)	(0.027)	(0.027)
Fairly easy	-0.017	7.96	-0.028	-0.016	-0.02
	(0.027)		(0.026)	(0.027)	(0.027)
Very easy	-0.157***	7.82	-0.185***	-0.159***	-0.171***
	(0.029)		(0.029)	(0.029)	(0.029)
Don't know/no answer	0 (base)	7.98	0 (base)	0 (base)	0 (base)
Country dummies	yes		no	yes	yes
EU region dummies	no		yes	no	no
Eurozone dummy	no		yes	no	no
EU15_EU13 dummy	no		yes	no	no
Market dummies	yes		yes	no	no
Market cluster dummies	no		no	yes	no
Goods_services dummy	no		no	no	yes
Number of obs	544165		544165	544165	544165
F	173.073		134.410	221.750	230.430
Prob > F	0.000		0.000	0.000	0.000
R2	0.053		0.047	0.038	0.033

Note: *** significant at 1%, ** 5% and * 10%.

Figure 14: Expectations: estimated effects (dummy variable coefficients) associated with country, country groupings, market and market groupings



According to the results above, women report higher scores in expectations. Within the different age groups, 35-54 year-olds are the ones who assign lower scores to that dimension. The relationship between education and expectation scores appears to be negative, with significantly negative coefficients estimated for respondents with a secondary or tertiary level of education. Across occupational categories, respondents who are self-employed are the ones expected to rate expectations the lowest. In terms of internet use, there is not a clear pattern, since highly positive significant coefficients –and accordingly, higher average estimated values for the dependent variable—can be found either for persons with an intense (daily) internet use or for respondents who hardly ever or never use the internet. Negative associations are present in the case of

respondents who do not speak an official language. As regards income, those who find it very difficult to make ends meet would be the ones assigning the lowest ratings on average to expectations.

When looking at potential geographical differences, on average respondents from Eastern and Southern regions tend to assign the lowest scores. Conversely, scores tend to be moderately higher in Eurozone countries. Furthermore, expectations ratings are significantly higher in New Member States than in EU15 countries. At individual country level, respondents from Hungary are more prone to assign higher scores to the expectations dimension. The lowest scores on average correspond to respondents from Bulgaria.

When analysing the results per groups of markets, lower scores are reported in the services markets—and, in particular, in the banking services cluster. On the other hand, respondents tend to assign higher scores to expectations in market clusters such as fast moving retail or (semi-) durable goods. More precisely, among the individual markets analysed in the survey, lower expectations scores associate with real estate services, mortgages, investment products, private pensions and securities, while the highest scores are more likely to be assigned by respondents to entertainment goods, books, magazines and newspapers, other electronic products and large household appliances.

2.4.2.5 Choice

The choice component ('Q8' in the questionnaire) measures the level of competition and the extent to which consumers are satisfied with the number of retailers of products/services to choose from. A dependent variable has been built based on the responses to question 'Q8', which range from '0 - Not satisfied at all' to '10 - Very satisfied'. Table 29 displays the results of the corresponding OLS

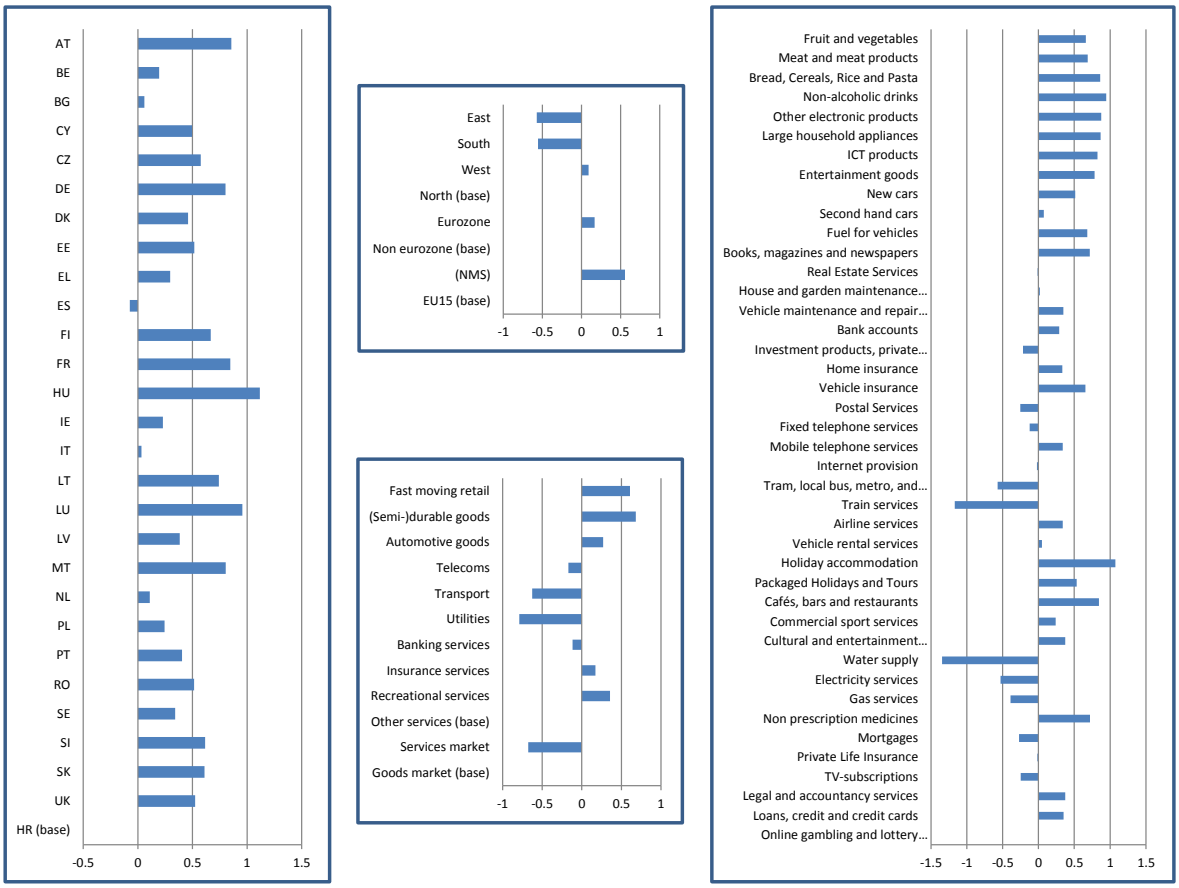
models and the estimated coefficients associated with the socio-demographic covariates. Figure 15 below shows the estimated coefficients of the dummy variables controlling for geographic and cultural differences at country (and country groupings) level, as well for the specific conditions encountered in the different markets (and market clusters) assessed in the survey.

Table 29: Results of the multivariate analysis (OLS) on Choice

	Coef. (Std. Err.)	Pred. value	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)
Gender					
Man	0 (base)	7.62	0 (base)	0 (base)	0 (base)
Woman	0.172***	7.79	0.173***	0.174***	0.166***
	(0.01)		(0.01)	(0.01)	(0.01)
Age					
18-34	0 (base)	7.69	0 (base)	0 (base)	0 (base)
35-54	-0.007	7.68	-0.02	-0.004	-0.013
	(0.014)		(0.014)	(0.014)	(0.014)
55+	0.043**	7.73	0.04**	0.05***	0.04**
	(0.017)		(0.017)	(0.017)	(0.017)
Education					
Low (ISCED 0-1-2)	0 (base)	7.84	0 (base)	0 (base)	0 (base)
Medium (ISCED 3-4)	-0.076***	7.76	-0.082***	-0.071***	-0.069***
	(0.016)		(0.016)	(0.016)	(0.016)
High (ISCED 5-6-7-8)	-0.278***	7.56	-0.327***	-0.273***	-0.268***
	(0.017)		(0.017)	(0.017)	(0.017)
Occupation					
Self-employed	0 (base)	7.6	0 (base)	0 (base)	0 (base)
Manager	0.13***	7.72	0.176***	0.12***	0.133***
	(0.025)		(0.025)	(0.026)	(0.026)
Other white collar	0.083***	7.68	0.156***	0.079***	0.084***
	(0.02)		(0.019)	(0.02)	(0.02)
Blue collar	0.146***	7.74	0.133***	0.135***	0.144***
	(0.023)		(0.023)	(0.023)	(0.023)
Student	0.079***	7.67	0.063**	0.081***	0.088***
	(0.028)		(0.028)	(0.028)	(0.029)
Houseperson and other	0.246***	7.84	0.221***	0.24***	0.232***
	(0.027)		(0.027)	(0.027)	(0.027)
Seeking a job	0.121***	7.72	0.085***	0.122***	0.111***
	(0.032)		(0.032)	(0.032)	(0.032)
Retired	0.137***	7.73	0.129***	0.137***	0.135***
	(0.024)		(0.024)	(0.024)	(0.024)
Internet usage					
Daily	0.388***	7.74	0.394***	0.383***	0.422***
	(0.097)		(0.098)	(0.097)	(0.1)
Weekly	0.178*	7.53	0.221**	0.181*	0.211**
	(0.098)		(0.098)	(0.098)	(0.1)
Monthly	0.308***	7.66	0.367***	0.301***	0.333***
	(0.1)		(0.101)	(0.101)	(0.103)
Less than monthly	-0.055	7.3	0.004	-0.053	-0.02
	(0.11)		(0.111)	(0.11)	(0.113)
Hardly ever	0.302***	7.65	0.321***	0.306***	0.321***
	(0.105)		(0.106)	(0.106)	(0.108)
Never	0.35***	7.7	0.387***	0.351***	0.329***
	(0.099)		(0.1)	(0.1)	(0.102)
Don't know/no answer	0 (base)	7.35	0 (base)	0 (base)	0 (base)
Mother tongue					
Official language	0 (base)	7.7	0 (base)	0 (base)	0 (base)
Not an official language	-0.062**	7.64	-0.095***	-0.054**	-0.06**
	(0.027)		(0.027)	(0.028)	(0.028)
Income					
Very difficult	-0.478***	7.4	-0.503***	-0.474***	-0.492***
	(0.032)		(0.032)	(0.032)	(0.033)
Fairly difficult	-0.22***	7.66	-0.245***	-0.215***	-0.216***
	(0.028)		(0.028)	(0.028)	(0.028)
Fairly easy	-0.087***	7.79	-0.128***	-0.078***	-0.074***
	(0.027)		(0.027)	(0.027)	(0.028)
Very easy	-0.213***	7.67	-0.265***	-0.203***	-0.206***
	(0.03)		(0.03)	(0.03)	(0.031)
Don't know/no answer	0 (base)	7.88	0 (base)	0 (base)	0 (base)
Country dummies	yes		no	yes	yes
EU region dummies	no		yes	no	no
Eurozone dummy	no		yes	no	no
EU15_EU13 dummy	no		yes	no	no
Market dummies	yes		yes	no	no
Market cluster dummies	no		no	yes	no
Goods_services dummy	no		no	no	yes
Number of obs	544165		544165	544165	544165
F	239.679		213.664	313.568	296.877
Prob > F	0.000		0.000	0.000	0.000
R2	0.089		0.080	0.071	0.050

Note: *** significant at 1%, ** 5% and * 10%.

Figure 15: Choice: estimated effects (dummy variable coefficients) associated with country, country groupings, market and market groupings



Once again, women are associated with higher scores in the dimension being assessed. Respondents aged 55+ also tend to assign significantly higher choice ratings. On the other hand, lower scores will be found on average among people with a secondary or tertiary level of education, among those who are self-employed, or among those who do not speak an official language. In terms of internet use, the strongest positive relationship is found among those who use the internet on a daily basis, but also among those who never use the internet. Finally, with respect to income categories, those respondents who find it very difficult to make ends meet are the ones associated with the lowest scores in the choice dimension.

In terms of geographic areas, the lowest scores are usually found in the Eastern and Southern regions. A positive effect on choice scores has been found for Eurozone countries. An even stronger positive link has been found among respondents residing in New Member States. All other things being equal, lower choice scores will be more likely among respondents from Spain. Conversely, the strongest positive association at individual country level has been estimated for Hungary.

Goods markets are likely to outscore services markets, with fast moving retail and (semi-)durable goods market clusters being associated with the highest choice scores. The strongest negative links with choice ratings have been estimated for transport and utilities market clusters. At individual market level, highly negative significant impacts can be found for example in the water supply and train services markets, while their positive counterparts (highly positive and significant effects) correspond to holiday accommodation and non-alcoholic drinks markets.

2.4.3 Other dimensions of market performance

2.4.3.1 Complaints behaviour

The complaints indicator captures the severity of the problem experienced. A typical consumer starts complaining to family and friends, and arrives at an official third party only if forced, due to a bad complaint handling process and if the problem is important enough to justify this decision (Van Roy et al. 2015). The results of the analysis of complaint behaviour shown in Table 30 and Figure 16 are based on a dependent variable which builds upon the answers given to questions 'Q 4.1', 'Q 4.2', 'Q 4.3', 'Q 4.4' and 'Q 4.5'. Scores have been defined and assigned to the dependent variable representing the severity of problem experienced in the same fashion as in previous releases of the CMS (i.e., the higher the score, the lower the severity of the problem experienced):

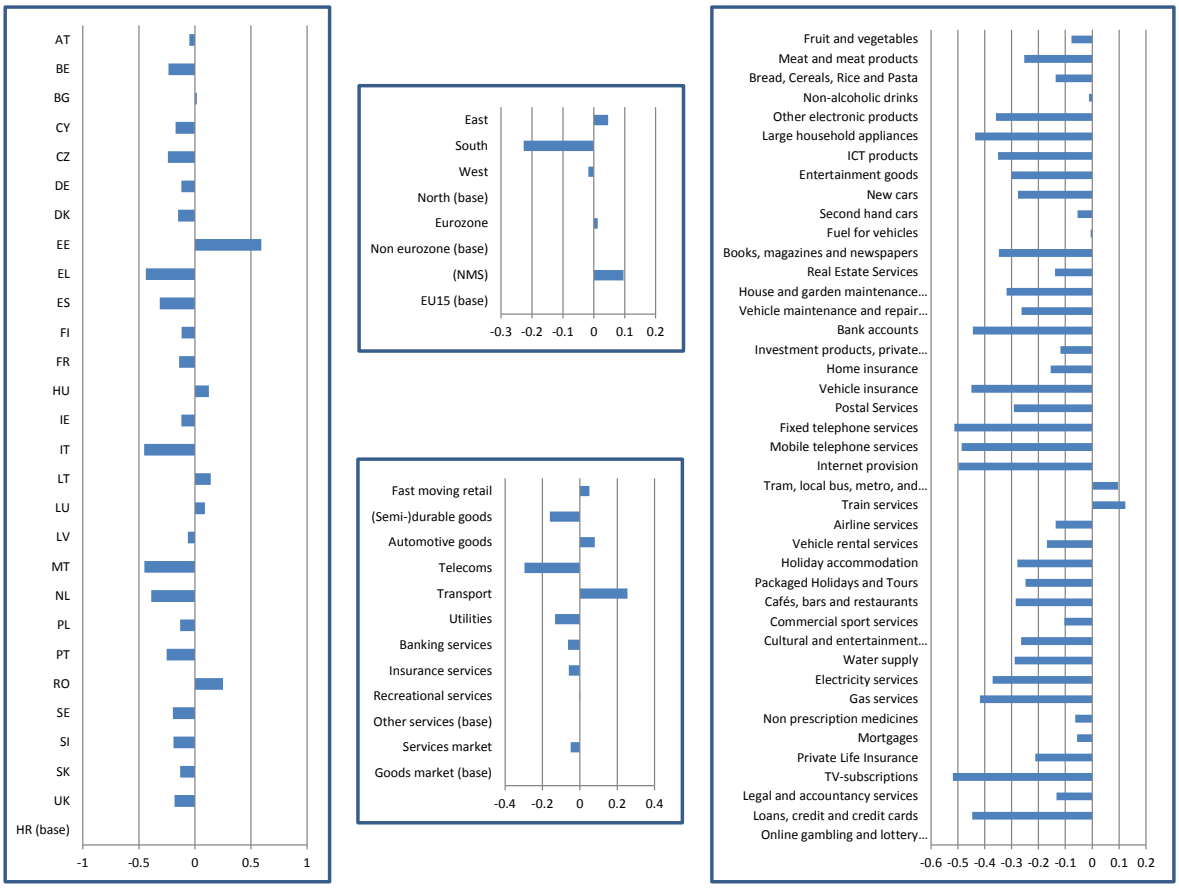
- ‘5’ if the respondent has not complained about the problems experienced.
- ‘3’ if the respondent complains to friends, family, relatives, etc.
- ‘2’ if the respondent complains to a retailer/provider or manufacturer.
- ‘0’ if the respondent complains to a third-party complaints body (public authorities, consumer organization, ombudsman, etc.).

Table 30: Results of the multivariate analysis (OLS) on severity of Complaints

	Coef. (Std. Err.)	Pred. value	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)
Gender					
Man	0 (base)	2.93	0 (base)	0 (base)	0 (base)
Woman	-0.033*	2.9	-0.035**	-0.033*	-0.03*
	(0.017)		(0.017)	(0.017)	(0.017)
Age					
18-34	0 (base)	2.92	0 (base)	0 (base)	0 (base)
35-54	-0.032	2.89	-0.025	-0.037*	-0.059***
	(0.022)		(0.022)	(0.022)	(0.022)
55+	0.032	2.95	0.036	0.029	0.002
	(0.03)		(0.03)	(0.03)	(0.03)
Education					
Low (ISCED 0-1-2)	0 (base)	2.97	0 (base)	0 (base)	0 (base)
Medium (ISCED 3-4)	-0.039	2.93	-0.041	-0.045	-0.04
	(0.028)		(0.028)	(0.028)	(0.028)
High (ISCED 5-6-7-8)	-0.087***	2.88	-0.087***	-0.092***	-0.073**
	(0.03)		(0.029)	(0.03)	(0.03)
Occupation					
Self-employed	0 (base)	2.9	0 (base)	0 (base)	0 (base)
Manager	-0.083**	2.82	-0.069*	-0.083**	-0.082**
	(0.036)		(0.036)	(0.036)	(0.037)
Other white collar	-0.008	2.89	0.017	-0.005	-0.013
	(0.029)		(0.028)	(0.029)	(0.029)
Blue collar	0.057*	2.96	0.075**	0.06*	0.05
	(0.032)		(0.032)	(0.032)	(0.032)
Student	0.082*	2.98	0.093**	0.089**	0.097**
	(0.044)		(0.044)	(0.044)	(0.044)
Houseperson and other	-0.01	2.89	-0.009	-0.012	-0.036
	(0.042)		(0.042)	(0.042)	(0.042)
Seeking a job	0.116***	3.01	0.14***	0.114***	0.097**
	(0.044)		(0.043)	(0.043)	(0.044)
Retired	0.041	2.94	0.048	0.038	0.024
	(0.037)		(0.037)	(0.037)	(0.038)
Internet usage					
Daily	-0.229	2.91	-0.236	-0.224	-0.188
	(0.185)		(0.186)	(0.181)	(0.186)
Weekly	-0.314*	2.82	-0.313*	-0.313*	-0.275
	(0.187)		(0.187)	(0.183)	(0.188)
Monthly	-0.104	3.03	-0.101	-0.09	-0.044
	(0.193)		(0.194)	(0.189)	(0.194)
Less than monthly	-0.029	3.11	-0.025	-0.028	0.009
	(0.206)		(0.207)	(0.202)	(0.208)
Hardly ever	-0.053	3.08	-0.043	-0.037	0.008
	(0.2)		(0.201)	(0.196)	(0.202)
Never	-0.06	3.07	-0.047	-0.062	-0.023
	(0.189)		(0.19)	(0.185)	(0.19)
Don't know/no answer	0 (base)	3.14	0 (base)	0 (base)	0 (base)
Mother tongue					
Official language	0 (base)	2.91	0 (base)	0 (base)	0 (base)
Not an official language	0.089**	3	0.1**	0.088**	0.096**
	(0.04)		(0.039)	(0.04)	(0.041)
Income					
Very difficult	0.049	2.89	0.02	0.052	0.033
	(0.053)		(0.053)	(0.054)	(0.055)
Fairly difficult	0.104**	2.94	0.076	0.107**	0.093*
	(0.05)		(0.049)	(0.051)	(0.052)
Fairly easy	0.05	2.89	0.02	0.048	0.043
	(0.049)		(0.049)	(0.05)	(0.051)
Very easy	0.118**	2.96	0.083	0.115**	0.108*
	(0.053)		(0.053)	(0.054)	(0.055)
Don't know/no answer	0 (base)	2.84	0 (base)	0 (base)	0 (base)
Country dummies	yes		no	yes	yes
EU region dummies	no		yes	no	no
Eurozone dummy	no		yes	no	no
EU15_EU13 dummy	no		yes	no	no
Market dummies	yes		yes	no	no
Market cluster dummies	no		no	yes	no
Goods_services dummy	no		no	no	yes
Number of obs	54397		54397	54397	54397
F	22.067		16.328	31.456	26.919
Prob > F	0.000		0.000	0.000	0.000
R2	0.050		0.042	0.043	0.028

Note: *** significant at 1%, ** 5% and * 10%.

Figure 16: Complaints: estimated effects (dummy variable coefficients) associated with country, country groupings, market and market groupings



According to the results from the OLS models in Table 30, complaints tend to be slightly more severe among women and individuals with a higher level of education. Whilst job seekers and students seem to be consistently significantly less willing to escalate in their complaint behaviour, the opposite appears to be true for managers. Respondents whose mother tongue is not an official language are associated with less severe complaints. With regards to income level and complaints attitude, there does not seem to be a clear pattern of behaviour: significantly less effort and time seem to be devoted to complaining by those who find it fairly difficult to make ends meet, but also by those who find very easy.

When regional differences among respondents are considered, there appears to be a strong significant link between more severe complaints and residing in Southern countries. New Member States are associated with less severe complaints. Lower propensity of severe complaints is especially connected to countries such as Estonia and Romania, while the opposite being true for countries such as Italy, Malta, Greece and Netherlands.

Complaints are moderately more severe in the services markets. In terms of specific market clusters and individual markets, more severe complaints tend to be reported in the (semi-)durable goods, telecoms and utilities market clusters, and more precisely in markets such as fixed and mobile telephone services, internet provision and TV-subscriptions. On the other hand, less severe complaints tend to occur in the transport market cluster, in particular in the train services and in tram, local bus, metro, and underground services.

2.4.3.2 Switching behaviour

The analysis of switching behaviour implies:

- first, to model the decision of whether to switch behaviour or not (question 'Q5' in the survey);
- second, to analyse the ease of switching in those cases where the respondent has actually switched provider (question 'Q6');
- and third, to analyse the reasons behind not having switched provider (question 'Q6b').

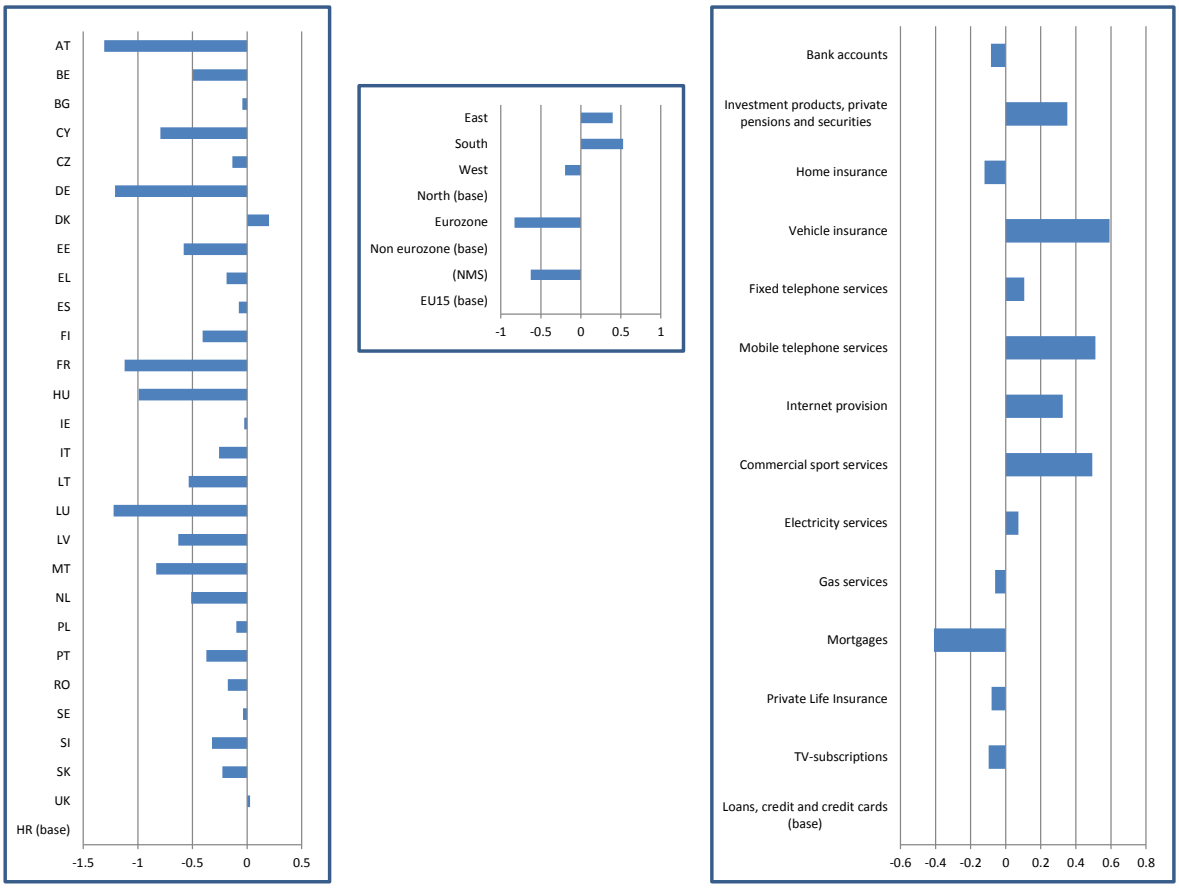
In what follows, we shall tackle these questions sequentially and independently. Accordingly, the results of the logit model dealing with the first of the research questions listed above are presented in Table 31 and Figure 17.

Table 31: Results of the multivariate analysis (logit) on Switching

	Coef. (Std. Err.)	Pred. probability	Coef. (Std. Err.)
Gender			
Man	0 (base)	11.2%	0 (base)
Woman	-0.062**	10.58%	-0.065**
	(0.026)		(0.026)
Age			
18-34	0 (base)	11.9%	0 (base)
35-54	-0.142***	10.5%	-0.126***
	(0.033)		(0.033)
55+	-0.145***	10.5%	-0.157***
	(0.044)		(0.044)
Education			
Low (ISCED 0-1-2)	0 (base)	11.6%	0 (base)
Medium (ISCED 3-4)	-0.11***	10.5%	-0.153***
	(0.042)		(0.041)
High (ISCED 5-6-7-8)	-0.053	11.0%	-0.008
	(0.044)		(0.043)
Occupation			
Self-employed	0 (base)	11.8%	0 (base)
Manager	0.034	12.1%	-0.003
	(0.058)		(0.058)
Other white collar	-0.061	11.2%	-0.149***
	(0.045)		(0.044)
Blue collar	-0.051	11.3%	-0.037
	(0.051)		(0.051)
Student	0.068	12.5%	0.082
	(0.073)		(0.073)
Houseperson and other	-0.139**	10.4%	-0.106*
	(0.063)		(0.062)
Seeking a job	-0.076	11.0%	-0.043
	(0.069)		(0.07)
Retired	-0.331***	8.8%	-0.312***
	(0.057)		(0.057)
Internet usage			
Daily	0.043	11.1%	0.006
	(0.25)		(0.251)
Weekly	0.084	11.5%	0.015
	(0.252)		(0.253)
Monthly	0.069	11.4%	0.005
	(0.263)		(0.263)
Less than monthly	0.019	10.9%	-0.041
	(0.285)		(0.285)
Hardly ever	-0.366	7.7%	-0.388
	(0.273)		(0.273)
Never	-0.298	8.2%	-0.354
	(0.254)		(0.255)
Don't know/no answer	0 (base)	10.7%	0 (base)
Mother tongue			
Official language	0 (base)	10.8%	0 (base)
Not an official language	0.162***	12.4%	0.24***
	(0.061)		(0.06)
Income			
Very difficult	0.068	11.9%	0.102
	(0.093)		(0.092)
Fairly difficult	-0.07	10.5%	-0.03
	(0.087)		(0.086)
Fairly easy	-0.049	10.7%	0.002
	(0.087)		(0.086)
Very easy	0.018	11.4%	0.054
	(0.092)		(0.09)
Don't know/no answer	0 (base)	11.2%	0 (base)
Country dummies	yes		no
EU region dummies	no		yes
Eurozone dummy	no		yes
EU15_EU13 dummy	no		yes
Market dummies	yes		yes
Market cluster dummies	no		no
Goods_services dummy	no		no
Number of obs	178589		178589
chi2	2676		1871
Prob > chi2	0.000		0.000
Pseudo R2	0.045		0.038
Log likelihood	-65846		-66327

Note: *** significant at 1%, ** 5% and * 10%.

Figure 17: Switching: estimated effects (dummy variable coefficients) associated with country, country groupings and markets



The statistically significant coefficients estimated for the models above suggest that women are less prone to switching providers than men. When compared to younger respondents, 35-54 year-olds and respondents aged 55+ are significantly more reluctant to switch provider. Individuals with a medium level of education, housepersons and pensioners are also significantly less likely to choose to switch provider. Conversely, those respondents whose mother tongue is not an official language are found to be significantly more prone to switch provider.

Higher switching rates are linked to Eastern and Southern regions, whilst significantly lower switching rates are related to Eurozone countries and New Member States. At country level, the

likelihood of switching is particularly high in Denmark. Conversely, respondents seem to be more reluctant to switch provider in countries like Austria, Luxembourg, Germany, France and Hungary. When looking at the individual markets for which the switching dimension has been defined and assessed, the likelihood of switching provider seems to be relatively lower in the case of mortgages, whilst significantly higher for instance in vehicle insurance, mobile telephone services and commercial sport services markets.

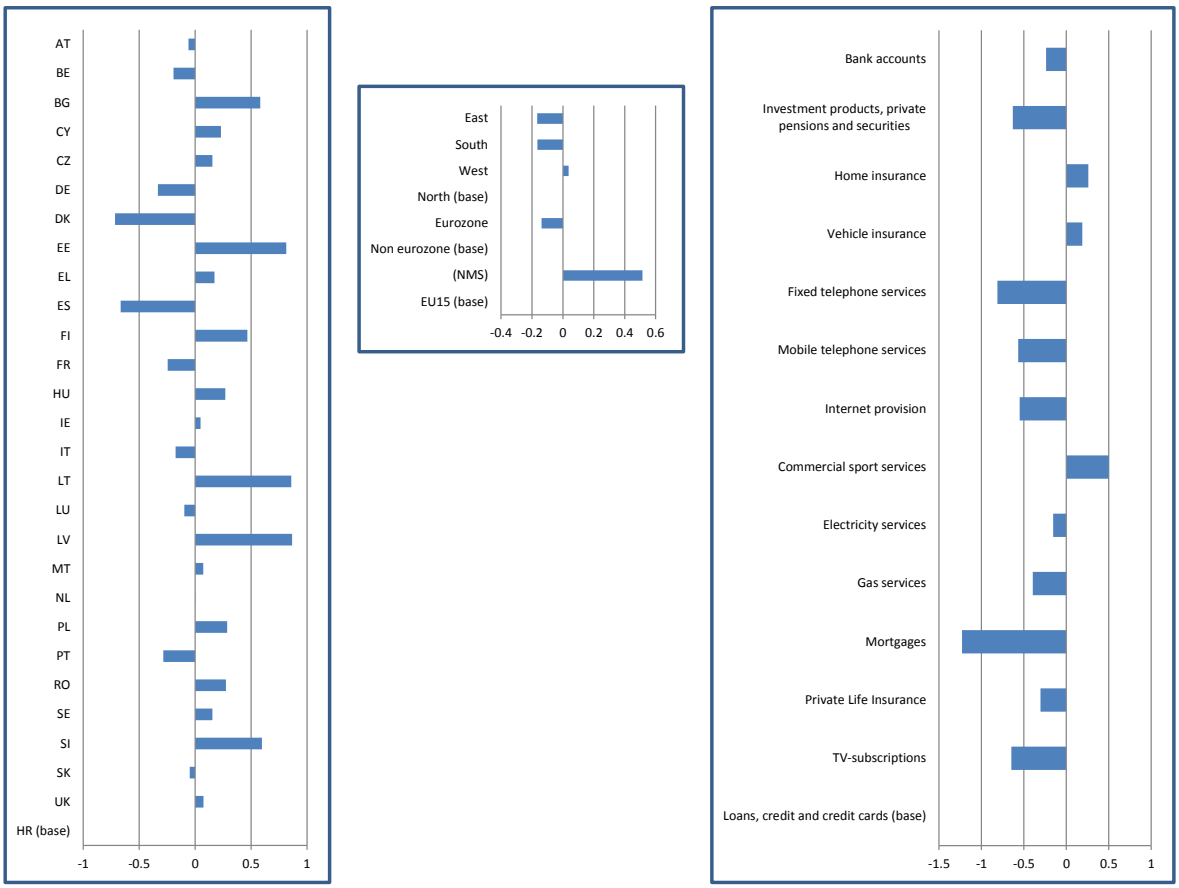
Secondly, in those cases where respondents have opted for switching provider, OLS models based on the answers given to the ease of switching question ('Q6') have been estimated. The results obtained for the dependent variable ranging from '0 - Very difficult' to '10 - Very easy' are shown in Table 32 and Figure 18.

Table 32: Results of the multivariate analysis (OLS) on Ease of switching

	Coef. (Std. Err.)	Pred. value	Coef. (Std. Err.)
Gender			
Man	0 (base)	7.69	0 (base)
Woman	0.017	7.71	0.009
	(0.06)		(0.06)
Age			
18-34	0 (base)	7.68	0 (base)
35-54	0.087	7.76	0.074
	(0.078)		(0.078)
55+	-0.049	7.63	-0.075
	(0.102)		(0.102)
Education			
Low (ISCED 0-1-2)	0 (base)	7.97	0 (base)
Medium (ISCED 3-4)	-0.231**	7.74	-0.235**
	(0.098)		(0.096)
High (ISCED 5-6-7-8)	-0.434***	7.54	-0.39***
	(0.102)		(0.1)
Occupation			
Self-employed	0 (base)	7.61	0 (base)
Manager	0.028	7.64	0.019
	(0.134)		(0.134)
Other white collar	0.096	7.71	0.094
	(0.102)		(0.101)
Blue collar	0.101	7.71	0.084
	(0.124)		(0.123)
Student	0.005	7.61	0
	(0.158)		(0.157)
Houseperson and other	0.238	7.85	0.255
	(0.156)		(0.155)
Seeking a job	0.16	7.77	0.098
	(0.169)		(0.17)
Retired	0.116	7.73	0.152
	(0.137)		(0.136)
Internet usage			
Daily	-0.444	7.7	-0.331
	(0.641)		(0.64)
Weekly	-0.464	7.68	-0.36
	(0.645)		(0.644)
Monthly	-0.709	7.43	-0.573
	(0.664)		(0.662)
Less than monthly	-0.766	7.38	-0.625
	(0.7)		(0.7)
Hardly ever	-0.169	7.97	-0.03
	(0.685)		(0.684)
Never	-0.274	7.87	-0.135
	(0.658)		(0.657)
Don't know/no answer	0 (base)	8.14	0 (base)
Mother tongue			
Official language	0 (base)	7.7	0 (base)
Not an official language	0.042	7.74	0.095
	(0.153)		(0.148)
Income			
Very difficult	-0.559**	7.24	-0.487*
	(0.258)		(0.255)
Fairly difficult	-0.159	7.64	-0.088
	(0.239)		(0.235)
Fairly easy	-0.004	7.8	0.04
	(0.237)		(0.233)
Very easy	0.085	7.89	0.111
	(0.244)		(0.241)
Don't know/no answer	0 (base)	7.8	0 (base)
Country dummies	yes		no
EU region dummies	no		yes
Eurozone dummy	no		yes
EU15_EU13 dummy	no		yes
Market dummies	yes		yes
Market cluster dummies	no		no
Goods_services dummy	no		no
Number of obs	19885		19885
F	13.623		9.967
Prob > F	0.000		0.000
R2	0.053		0.046

Note: *** significant at 1%, ** 5% and * 10%.

Figure 18: Ease of switching: estimated effects (dummy variable coefficients) associated with country, country groupings and markets



The first result to be highlighted is that the number of statistically significant coefficients found in the estimated models above is very small. The statistically significant coefficients are mainly related to education and income socio-demographic variables. More precisely, a significantly negative link has been found between ease of switching scores and those respondents with a secondary or tertiary level of education (i.e. scores for both education categories are significantly lower than the scores for the base category of lower educated individuals). Furthermore, a significantly negative impact on ease of switching scores has also been found among individuals who find it very difficult to make ends meet.

Regional aspects seem to be also influencing the results in the models above. For example, according to the results of the estimated models, respondents rate ease of switching statistically significantly higher in New Member States. The opposite result—i.e. lower scores on average being assigned to ease of switching—has been found in the Eastern and Southern regions, and also in Eurozone countries. At individual country level the situation is very diverse. In some countries there appears to be a strong positive link with higher scores for ease of switching (e.g. Estonia, Lithuania, Latvia, Bulgaria and Slovenia), but at the same time there are also countries in which the average effect on scores seems to be highly negative (e.g. Denmark, Germany, Spain, France and Portugal). With regards to individual markets, the strongest positive associations have been found for commercial sport services, home insurance and vehicle insurance markets, whilst the lowest scores tend to be expected for markets such as mortgages, investment products, private pensions and securities, and fixed telephone services, mobile telephone services, internet provision and TV-subscriptions.

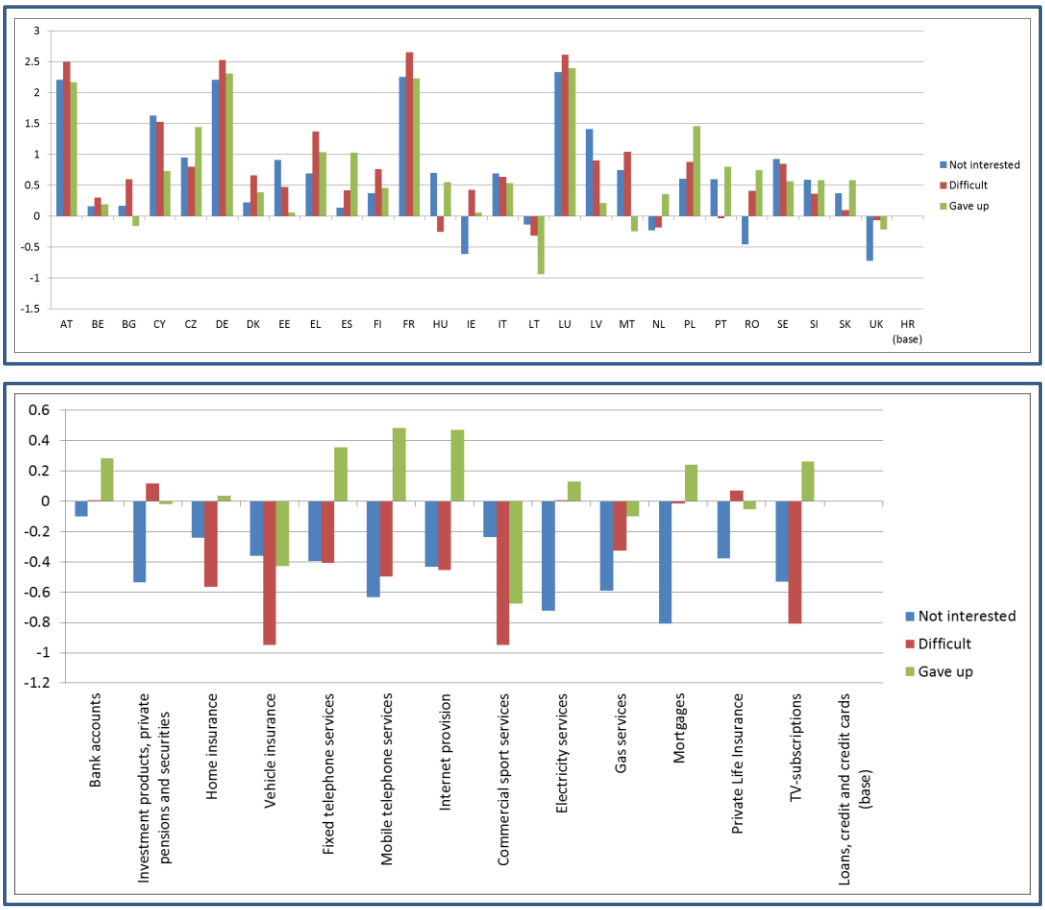
Thirdly, to analyse the reasons for not switching provider, a multinomial logistic regression model has been specified and estimated. As reflected in Table 33, not switching "For other reasons" has been designated as the base response category in that model. Accordingly, the estimated coefficients in the results table reflect the extent to which the explanatory variables influence the likelihood of respondents having motivations for not switching other than the base category. Motivations other than the base category included in the MMS 2015 are: "Because you are not interested in switching", "Because you thought it might be too difficult" or "You tried to switch but you gave up because of the obstacles you faced." Predicted probabilities—i.e. marginal effects—calculated for the nominal outcomes considered in the model also accompany the results presented in Table 33.

Table 33: Results of the multivariate analysis (multinomial logit) on Reasons for not switching

	"Not interested"		"Difficult"		"Gave up"		" Other reasons" (base)	
	Coef. (Std. Err.)	Pred. probability	Coef. (Std. Err.)	Pred. probability	Coef. (Std. Err.)	Pred. probability	Coef. (Std. Err.)	Pred. probability
Man	0 (base)	76.53%	0 (base)	6.17%	0 (base)	4.16%		13.14%
Woman	0.066*	77.03%	0.078*	6.29%	0.074	4.23%		12.45%
	(0.026)		(0.045)		(0.047)			
18-34	0 (base)	77.42%	0 (base)	6.89%	0 (base)	3.81%		11.88%
35-54	-0.117***	76.08%	-0.196***	6.25%	0.123*	4.72%		12.95%
	(0.038)		(0.062)		(0.066)			
55+	-0.117***	77.28%	-0.289***	5.81%	-0.136**	3.73%		13.18%
	(0.046)		(0.077)		(0.086)			
Low (ISCED 0-1-2)	0 (base)	77.26%	0 (base)	5.55%	0 (base)	4.52%		12.67%
Medium (ISCED 3-4)	0.019	77.58%	0.066	5.85%	-0.095	4.06%		12.52%
	(0.041)		(0.072)		(0.077)			
High (ISCED 5-6-7-8)	-0.066**	75.56%	0.196*	7.02%	-0.099	4.26%		13.16%
	(0.042)		(0.075)		(0.083)			
Self-employed	0 (base)	75.08%	0 (base)	6.97%	0 (base)	4.40%		13.56%
Manager	0.034	75.91%	-0.079	6.31%	0.041	4.48%		13.30%
	(0.06)		(0.1)		(0.107)			
Other white collar	0.172*	77.22%	0.098	6.68%	0.083	4.17%		11.94%
	(0.047)		(0.079)		(0.084)			
Blue collar	0.037	75.79%	-0.091	6.21%	0.109	4.77%		13.23%
	(0.052)		(0.092)		(0.095)			
Student	0.151*	79.55%	-0.533***	3.78%	0.02	4.13%		12.55%
	(0.086)		(0.154)		(0.159)			
Houseperson and other	0.146*	78.83%	-0.34***	4.55%	0.024	4.12%		12.49%
	(0.063)		(0.113)		(0.114)			
Seeking a job	0.124*	77.09%	-0.145	5.50%	0.217*	4.97%		12.44%
	(0.072)		(0.129)		(0.125)			
Retired	0.049	77.44%	-0.162**	5.86%	-0.274***	3.31%		13.40%
	(0.056)		(0.095)		(0.106)			
Daily	0.206	76.69%	0.697	5.87%	1.112	4.49%		12.94%
	(0.21)		(0.449)		(0.705)			
Weekly	0.303	76.41%	1.114*	8.02%	1.026	3.74%		11.83%
	(0.213)		(0.452)		(0.708)			
Monthly	0.152	75.81%	0.747	6.42%	1.036	4.33%		13.43%
	(0.225)		(0.465)		(0.717)			
Less than monthly	0.062	72.95%	1.106*	9.58%	0.759	3.45%		14.03%
	(0.253)		(0.496)		(0.743)			
Hardly ever	0.37	79.39%	0.8	5.75%	0.916	3.28%		11.58%
	(0.228)		(0.489)		(0.725)			
Never	0.258	78.53%	0.776*	6.20%	0.57	2.57%		12.70%
	(0.212)		(0.455)		(0.708)			
Don't know/no answer	0 (base)	78.44%	0 (base)	3.71%	0 (base)	1.87%		15.98%
Official language	0 (base)	76.92%	0 (base)	6.20%	0 (base)	4.19%		12.69%
Not an official language	-0.249***	73.33%	-0.05	7.16%	-0.145	4.39%		15.12%
	(0.064)	0.00%	(0.11)	0.00%	(0.126)	0.00%		
Very difficult	0.252*	72.91%	1.085*	6.84%	1.342*	5.61%		14.64%
	(0.082)		(0.178)		(0.193)			
Fairly difficult	0.408*	76.16%	1.058*	6.00%	1.226*	4.52%		13.32%
	(0.077)		(0.172)		(0.188)			
Fairly easy	0.591*	79.17%	1.192*	5.96%	0.986*	3.11%		11.76%
	(0.077)		(0.171)		(0.188)			
Very easy	0.484*	74.19%	1.403*	7.60%	1.639*	6.13%		12.09%
	(0.083)		(0.177)		(0.193)			
Don't know/no answer	0 (base)	75.83%	0 (base)	3.14%	0 (base)	1.98%		19.05%
Country dummies	yes							
EU region dummies	no							
Eurozone dummy	no							
EU15_EU13 dummy	no							
Market dummies	yes							
Market cluster dummies	no							
Goods_services dummy	no							
Number of obs	158704							
chi2	9938.91							
Prob > chi2	0.000							
Pseudo R2	0.0889							
Log likelihood	-125598							

Note: *** significant at 1%, ** 5% and * 10%.

Figure 19: Reasons for not switching: estimated effects (dummy variable coefficients) associated with countries and markets



The results above indicate that being a woman is associated with a moderate but significant increase in the relative odds of belonging to either the "not interested" or the "difficult" category of respondents. 35-54 year-olds and respondents aged 55+ seem to be associated with a lower likelihood of mentioning lack of interest or difficulties in switching. However, while 35-54 year-olds are associated with higher odds of giving up because of the obstacles faced, respondents aged 55+ are less likely to give up. Higher educated respondents and those whose mother tongue is not an official language are less likely to belong to the group of individuals who are not interested in switching, whilst not being interested is more likely to be the reason given for not switching by other white collar respondents, students, housepersons and job seekers. Higher education increases the

relative odds of thinking that it is too difficult to switch, together with not using the internet, or using the internet on a weekly or less than monthly basis. The likelihood of stating that it is too difficult to switch provider decreases significantly for students, housepersons and retired persons. With regards to those who tried to switch but gave up, job-seekers are more likely to belong to this group, while the opposite being true for pensioners. Finally, the likelihood of specifying some other reason for not switching—i.e. the likelihood of a respondent belonging to the base category group—decreases significantly for all those individuals who have decided to reveal the extent of their financial difficulty.

The relative odds of giving a motive for not switching other than the base seem to be heterogeneously distributed across countries (see Figure 19). When it comes to interpreting the results, no straightforward general pattern can be identified from the data. However, it is interesting to note that the relative odds of finding respondents who did not switch for reasons other than the base seem to be much lower in countries like Latvia and the United Kingdom, and conversely much higher in countries like Austria, Germany, France or Luxembourg. When looking at the situation in individual markets, giving up seems to be more likely to occur for fixed telephone services, mobile telephone services and internet provision markets. On the other hand, respondents seem to be less prone to consider that it might be too difficult to switch provider in the case of vehicle insurance, commercial sport services and TV-subscriptions. Also, respondents seem to be less likely to state that they are not interested in switching when it comes to electricity services and mortgages.

2.5. CONCLUDING REMARKS

The general objective of the analyses presented above is to explore the heterogeneity in consumer experiences in consumer markets. The results obtained show that socio-demographic characteristics shape consumer assessment of market performance. Regional and cross-country differences also

have a significant impact on the results. Furthermore, there is significant evidence that consumers are influenced by the specific conditions encountered in the different markets and assess their consumption experiences within them accordingly. The main trends identified in the MMS 2015 for the overall market performance assessed through the MPI are summarised below.

When looking at socio-demographic characteristics, the results of the multivariate analyses performed on the MPI scores suggest that women are statistically significantly more positive in their overall assessments than men. The middle age group (35-54 year-olds) is negatively associated with higher MPI scores. People with higher levels of education tend to give significantly more negative ratings overall. Ratings are significantly higher when respondents belong to the categories of housepersons and pensioners, and conversely seem to be the lowest when respondents are self-employed. Both those who never use the internet and those who use it very frequently (daily) give significantly more positive ratings. Those whose mother tongue is not an official language tend to be more negative in their overall market assessments. Furthermore, negative associations have also been found to be very intense for those consumers in a very difficult financial situation.

With regard to regional differences, MPI ratings are significantly lower in the Eastern and Southern regions, but conversely higher when considering Eurozone countries and New Member States. Additionally, when looking at the different markets, goods markets perform significantly better than services when assessed through the overall MPI scores. In general, performance is found to be significantly lower for services markets related to clusters such as banking, utilities and telecoms.

When interpreting the results obtained from the MMS 2015 across the individual components of the MPI (comparability, trust, problems and detriment, expectations and choices), some general trends can be identified with respect to the socio-demographic characteristics of the respondents. For example, women are more positive than men when assessing the five individual market performance dimensions. With regards to education, significantly lower scores tend to be associated with higher educated individuals. Additionally, the overall trend of highly negative market

assessments made by respondents who find it very difficult to make ends meet is also reflected at individual component level. However, despite the aforementioned common trends, it is important to note that significant associations and inferences made from the results might also differ heavily across the individual MPI components. For example, there is a significantly negative impact between those respondents whose mother tongue is not an official language and the dimensions of problems and detriment, expectations and choice. But conversely, the impact of not speaking an official language is expected to be significantly positive when considering the comparability dimension—and not statistically significant when considering the trust dimension. Differences across the individual market performance dimensions have also been found for the different age groups considered in the survey. More precisely, significant—and positive—associations with the problems and detriment and choice dimensions are a distinct feature of respondents aged 55+. In line with the previous result, it is also reassuring that a distinctly vulnerable group of consumers such as retired persons seems to be strongly associated with better ratings in the problems and detriment dimension. Furthermore, even though self-employed people usually appear as the lowest scoring occupation category, a wide variety of results and significant associations have been found for the different occupation categories across the individual performance dimensions. Finally, significantly higher scores tend to be associated with those who use the internet daily or never, except when it comes to assessing the problems and detriment dimension.

When regional differences are considered, lower scores for the individual dimensions of market performance are usually found in the Eastern and Southern regions. Estimation results also confirm that the scores for the individual market performance dimensions tend to be higher in Eurozone countries and New Member States. Additionally, the negative assessment of services remains stable across the individual market performance dimensions. On the other hand, the poorest performing markets may differ across dimensions. For example, scores on comparability are expected to be significantly lower in the banking and utilities clusters. Automotive goods and banking clusters are expected to be highly negatively associated with lower scores on trust. Problems and detriment

scores are expected to be significantly lower in the telecoms market cluster, and especially in the mobile telephone services and internet provision services markets. Strong and significantly negative associations with the expectations dimension have been found in the banking market cluster, whilst on the other hand the transport and utilities clusters have been found to be strongly associated with lower scores on choice.

Complaints and switching behaviour are the two additional dimensions of market performance assessed in the MMS 2015 but falling outside the realm of the MPI. Heterogeneity in the assessment of consumer markets has also been found with respect to both dimensions. For example, women, individuals with higher education and managers are more likely to escalate in their complaint behaviour after having experienced a problem in a market. Conversely, job seekers, students and those respondents who find it very easy or fairly difficult to make ends meet would be less keen to escalate in their complaint behaviour. Severe complaints appear to be significantly related to residents in Southern countries, as well as to semi-durable goods, telecoms and utilities market clusters. With regard to switching behaviour, switching is more likely found among younger (18-34) respondents and those who do not speak an official language, and less likely for housepersons, pensioners and those with a medium level of education. Switching behaviour is also more likely to be encountered in Eastern and Southern regions, whilst the opposite being true for Eurozone countries and New Member States. Additionally, the market of mortgages appears to be the one where consumers are least likely to switch suppliers.

CONCLUSIONS

Recently, the Consumers Directorate of DG Justice and Consumers commissioned the Joint Research Centre (JRC) to provide support for the conceptual and statistical revision of the Consumer Markets Scoreboard (CMS). The aim of the project undertaken was to update, refine and further enhance the methodological robustness of the CMS, as well as to review the multivariate analysis tools that can be used to analyse the results of market performance assessment as reported by the individual respondents to the Market Monitoring Survey (MMS). This final report presents the work performed by the JRC in the context of this cooperation.

The report is divided into two parts. The first one deals with the revision of the conceptual framework and with the assessment of the statistical soundness of the CMS. The main results from the first part of the report can be summarised as follows:

- From a theoretical perspective, the validation of the conceptual framework underlying the CMS and the Market Performance Indicator (MPI).
- From an empirical perspective, the confirmation of the balance and robustness of the statistical structure of the MPI.

The second part the report focuses on the empirical analysis of the micro-level data from the MMS 2015. Data from the individual respondents to this survey are analysed using different econometric tools. The econometric models specified and estimated take into account the specific nature of the dependent variables included in the models. Eventually, three different types of models have been estimated: multiple linear regression, logistic regression and multinomial logistic regression models. The explanatory variables in those models account for the heterogeneity of consumer characteristics, market specific conditions, and cross-country differences. The results of the estimated models shed light on potentially more problematic markets and reveal interesting associations useful for the future framing of policy measures. The main conclusion from the second

part of the report is that socio-demographic and regional characteristics do count in terms of market performance assessment. The previous result might be streamlined into a simple—but not always easy to tackle—policy recommendation: whenever feasible, policy measures addressing consumer markets should be tailored to different groups of consumers, and should respond to their specific needs.

REFERENCES

Anderson, E. W., Fornell, C., Lehmann, D. R. (1994) Customer satisfaction, market share, and profitability: findings from Sweden. The Journal of Marketing, 58(3): 53-66.

Anderson, E.W., Fornell, C. (2000) The consumer satisfaction index as a leading indicator. In T. Schwartz and D. Iacobucci (eds.) Handbook of services marketing and management, Sage Publications, Thousand Oaks (CA): 255-267.

Anderson, E.W., Fornell, C., Mazvancheryl, S.K. (2004) Customer satisfaction and shareholder value. Journal of Marketing, 68: 172-185.

Anderson, E.W., Fornell, C., Rust, R.T. (1997) Customer satisfaction, productivity, and profitability: differences between goods and services. Marketing Science, 16: 129-145.

Ariely, D., Loewenstein, G., Prelec, D. (2003) “Coherent arbitrariness”: Stable demand curves without stable preferences. Quarterly Journal of Economics, 118 (1 : 73-105.

Athanassopoulos, A. D. (2000) Customer satisfaction cues to support market segmentation and explain switching behavior. Journal of Business Research, 47(3): 191-207.

Bateman, I.J., Carson, R.T., Day, B., Hanemann, M., Hanley, N., Hett, T., Jones-Lee, M., Loomes, G., Mourato, S., Özdemiroglu, E., Pearce, D.W, Sugden, R., Swanson, J. (2002) Economic valuation with stated preference techniques: a manual. Edward Elgar, Cheltenham.

Bearden, W. O., Teel, J. E. (1983) Selected determinants of consumer satisfaction and complaint reports. Journal of Marketing Research, 20(1): 21-28.

Bernués, A., Olaizola, A., Corcoran, K. (2003) Extrinsic attributes of red meat as indicators of quality in Europe: an application for market segmentation. Food Quality and Preference, 14: 265-276.

Cadotte, E. R., Woodruff, R. B., Jenkins, R. L. (1987) Expectations and norms in models of consumer satisfaction. Journal of Marketing Research, 24: 305-314.

Consumer Futures (2013) Consumer conditions in the UK 2012.

Cronin Jr, J. J., Brady, M. K., Hult, G. T. M. (2000) Assessing the effects of quality, value, and customer satisfaction on consumer behavioral intentions in service environments. Journal of Retailing, 76(2): 193-218.

Danish Competition and Consumer Authority (2013) Danske forbrugerforhold 2011: Konkurrence- og Forbrugeranalyse.

Decanq, K., Lugo, M.A. (2013) Weights in multidimensional indices of well-being: An overview. Econometric Reviews, 32(1): 7-34.

Decanq, K., Schokkaert, E. (2013) Beyond GDP: Measuring social progress in Europe. KU Leuven Euroforum Paper n° 4, 46 pp.

Deng, Z., Lu, Y., Wei, K. K., Zhang, J. (2010) Understanding customer satisfaction and loyalty: An empirical study of mobile instant messages in China. International Journal of Information Management, 30(4): 289-300.

Edvardsson, B., Johnson, M.D., Gustafsson, A., Strandvik, T. (2000) The effects of satisfaction and loyalty on profits and growth: products versus services. Total Quality Management 11(7): 917-927.

Engel, J., Blackwell, R., Miniard, P. (1995) Consumer Behavior (8th ed.). The Dryden Press, Fort Worth.

European Commission (2013) Monitoring Consumer Markets in the European Union 2013 – Part I.

European Commission (2015) Monitoring Consumer Markets in the European Union 2015. Publications Office of the European Union, Luxembourg.

European Union (2013) Consumer Conditions Scoreboard: Consumers at home in the Single Market. 9th ed. –July 2013. Publications Office of the European Union, Luxembourg.

European Union (2014) Consumer Markets Scoreboard: Making markets work for consumers. 10th ed. -June 2014. Publications Office of the European Union, Luxembourg.

Fornell, C. (1992) A national consumer satisfaction barometer: The Swedish experience. Journal of Marketing, 56: 6-21.

Fornell, C. (2003) Boost stock performance nation's economy. *Quality Progress*, 35 (2): 25-31.

Fornell, C., Johnson, M.D., Anderson, E.W., Cha, J., Bryant, B.E. (1996) The American Customer Satisfaction Index: Nature, Purpose, and Findings. Journal of Marketing, 60: 7-18.

Fornell, C., Mithas, J.S., Morgeson, F.V. (2009) The economic and stasitical significance of stock returns on customer satisfaction (Review). Marketing Science, 28(5): 820-825.

Fornell, C., Mithas, S., Morgeson, F.V., Krishnan, M.S. (2006). Customer satisfaction and stock prices: high returns, low risk. Journal of Marketing, 70: 3-14.

Fornell, C., Rust, R.T., Dekimpe, M.G. (2010). The effect of customer satisfaction on consumer spending growth. Journal of Marketing Research, 47(1): 28-35.

Frank, B., Enkawa, T. (2008) How economic growth affects customer satisfaction. Asian Pacific Management Review, 13(2): 531-544.

Frank, B., Enkawa, T. (2009) Economic influences on perceived value, quality expectations and customer satisfaction. International Journal of Consumer Studies, 33(1): 72-82.

Gomez, M. I., McLaughlin, E. W., Wittink, D. R. (2004) Customer satisfaction and retail sales performance: an empirical investigation. Journal of Retailing, 80(4): 265-278.

Grigoroudis, E., Nikolopoulou, G., Zopounidis, C. (2008) Customer satisfaction barometers and economic development: An explorative ordinal regression analysis. Total Quality Management, 19(5): 441-460.

Grigoroudis, E., Siskos, Y. (2010) Consumer satisfaction evaluation: Methods for measuring and implementing service quality. Springer, New York.

Groeneveld, R.A., Meeden, G. (1984) Measuring skewness and kurtosis. The Statistician, 33: 391-399

Grunert, K.G. (1997) What's in a Steak? A Cross-Cultural Study on the Quality Perception of Beef. Food Quality and Preference, 8 (3): 157-73.

Hallowell, R. (1996) The relationships of customer satisfaction, customer loyalty, and profitability: an empirical study. International Journal of Service Industry Management, 7(4): 27-42.

Hardeman, S. (2014) Consumer Markets Scoreboard – Issue Paper. DDG.01, Unit of Econometrics & Applied Statistics, JRC, European Commission.

Inra and Deloitte (2005) Development of indicators on consumer satisfaction and pilot survey – Final Report. Project for the European Commission Directorate General on Helath and consumer Protection. Contract n° B5-1000/03/000382.

Ittner, C.D., Larcker, D.F. (1998) Are nonfinancial measures leading indicators of financial performance? An analysis of customer satisfaction. Journal of Accounting Research, 36: 1-35.

Johnson M.D., Fornell C. (1991) A framework for comparing customer satisfaction across individuals and product categories. Journal of Economic Psychology, 12 (2): 267-286.

Johnson, M.D., Gustafsson, A., Andreassen, T.W., Lervik, L., Cha, J. (2001) The evolution and future of national customer satisfaction index models. Journal of Economic Psychology, 22: 217-245.

Kahneman, D. (2003) Maps of bounded rationality: Psychology for Behavioral Economics. The American Economic Review 93(5): 1449-1475.

Kahneman, D., Tversky, A. (1979) Prospect Theory: An analysis of decision under risk. Econometrica, 47(2): 263-291.

LaBarbera, P.A., Mazursky, D. (1983) A longitudinal assessment of consumer satisfaction/dissatisfaction: the dynamic aspect of the cognitive process. Journal of Marketing Research, 20(4): 393-404.

Lambert, R.A. (1998) Customer satisfaction and financial performance: Discussion of Are nonfinancial measures leading indicators of financial performance? An analysis of customer satisfaction. Journal of Accounting Research, 36: 37-46.

Luce, R. D. (1959) Individual Choice Behavior: A Theoretical Analysis. Wiley, New York

Manski, C. F. (1977) The structure of random utility models. Theory and Decision, 8: 229-254

Marreiros, C., Ness, M. (2009) A conceptual framework of consumer food choice behaviour. CEFAGE-UE Working Paper, 2009/06.

McCollough, M. A., Berry, L. L., Yadav, M. S. (2000) An empirical investigation of customer satisfaction after service failure and recovery. Journal of Service Research, 3(2): 121-137.

McFadden, D. (1974) Conditional Logit Analysis of Qualitative Choice Behaviour. In Zarembka, P. (ed), Frontiers in Econometrics. Academic Press, New York.

OECD (2010) Consumer Policy Toolkit. OECD Publications, Paris.

OECD and EC JRC (2008) Handbook on Composite Indicators: Methodology and User Guide. OECD, Paris.

OFT (2011) Competition and growth. Office of Fair Trading, OFT1390 - November 2011.

Ogikubo, M., Schvaneveldt, S.J., Enkawa, T. (2009) An empirical study on antecedents of aggregate customer satisfaction: Cross country findings. Total Quality Management & Business Excellence, 20(1): 23-37.

Oliver, R. L. (1980) A cognitive model of the antecedents and consequences of satisfaction decisions. Journal of Marketing Research, 17(11): 460-469.

Oliver, R.L. (1977) Effect of expectation and disconfirmation on postexposure product evaluations: An alternative interpretation. Journal of Applied Psychology, 62 (4): 480-486.

Oliver, R.L. (1997) Satisfaction: A behavioral perspective on the customer. McGraw-Hill, New York.

Plott, C.R. (1996) Rational individual behaviour in markets and social choice processes: the discovered preference hypothesis. In: Arrow, K., Colombatto, E., Perlman, M., Schmidt, C. (Eds.), The Rational Foundations of Economic Behaviour. McMillan, London, pp. 225–250.

Poiesz, T.B.C., von Grumbkow, J. (1988) Economic well-being, job satisfaction, income evaluation and consumer satisfaction: An integrative attempt. In W.F. Van Raaij, G.M. Van Veldhoven, K.E. Warneryd (eds.) Handbook of economic psychology. Kluwer, Dordrecht, pp. 570-593.

Saisana, M. (2011) Statistical tests on the Global Innovation Index. In The Global Innovation Index 2011: Accelerating Growth and Development, edited by S. Dutta, 57-64. INSEAD.

Saisana, M., A. Saltelli, and S. Tarantola (2005) Uncertainty and Sensitivity Analysis Techniques as Tools for the Quality Assessment of Composite Indicators. Journal of the Royal Statistical Society A, 188: 307-323.

Saisana, M., B. D'Hombres, and A. Saltelli (2011) Rickety numbers: Volatility of university rankings and policy implications. Research Policy, 40: 165-177.

Saltelli, A., Funtowicz, S. (2014) When All Models Are Wrong. Computer Modeling, Issues in Science and Technology: 79-85.

Simon, H.A. (1955) A behavioural model of rational choice. The Quarterly Journal of Economics, 69(1): 99-118.

Simon, H.A. (1983) *Reason in human affairs*. Stanford University Press, Stanford (California).

Simon, J.L. (1974) Interpersonal welfare comparisons can be made – and used for redistribution decsions. Kyklos, 27: 63-98.

Steenkamp, J.B.E.M. (1997). Dynamics in consumer behaviour with respect to agricultural and food products. In B. Wierenga, A.van Tilburg, K. Grunert, J. B. E. M. Steenkamp, & M. Wedel (Eds.), Agricultural marketing and consumer behaviour in a changing world (pp. 143–188). Dordrecht: Kluwer Academic Publishers.

Steenkamp, J.B.E.M., Van Trijp, H. (1996) Quality Guidance: A Consumer-Based Approach to Food Quality Improvement Using Partial Least Squares. European Review of Agricultural Economics, 23 (2): 195-215.

Swedish Consumer Agency (2014) The Swedish Consumer Report 2014: Consumer Conditions in Sweden.

Szymanski, D. M., Henard, D. H. (2001) Customer satisfaction: a meta-analysis of the empirical evidence. Journal of the Academy of Marketing Science, 29(1): 16-35.

Van Bavel, R., Herrmann, B., Esposito, G., Proestakis, A. (2013). Applying behavioural sciences to EU policy-making: Policy Brief. Publications Office of the European Union, Luxembourg.

Van Roy V., Rossetti F., Piculescu V. (2015). Consumer conditions in the EU: Revised framework and empirical investigation. Final Report for the Consumers Directorate of DG Justice and Consumers. Publications Office of the European Union, Luxembourg.

Varian, H.R. (2010) Intermediate microeconomics: A modern approach (8th ed.). W.W. Norton & Company, N.Y.

Welsh M.P., Poe G.L. (1998) Elicitation Effects in Contingent Valuation: Comparisons to a Multiple Bounded Discrete Choice Approach. Journal of Environmental Economics and Management, 36: 170-185.

Witt, U. (2001) Learning to consume – A theory of wants and the growth of demand. Journal of Evolutionary Economics, 11: 23-36.

Yeung, M.C.H., Ennew, C.T. (2000) From consumer satisfaction to profitability. Journal of Strategic Marketing, 8(4): 313-326.

KJ-NA-27724-EN-N

JRC Mission

As the Commission's in-house science service, the Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.

Working in close cooperation with policy Directorates-General, the JRC addresses key societal challenges while stimulating innovation through developing new methods, tools and standards, and sharing its know-how with the Member States, the scientific community and international partners.

Serving society
Stimulating innovation
Supporting legislation

Publications Office

doi:10.2760/911696
ISBN 978-92-79-54721-8