



EUROPEAN COMMISSION

HEALTH AND CONSUMERS DIRECTORATE-GENERAL
Consumer Affairs

ENTERPRISE AND INDUSTRY DIRECTORATE-GENERAL
Industrial policy and Economic analysis

Functioning of the market for electric and electronic consumer goods

Report based on findings of:

- Study on "Comparing electric appliances prices across the European Community" by GfK Retail and Technology on behalf of the European Commission, Directorate General for Health and Consumers, 2009
- "Study on the Competitiveness of EU electrical and electronics goods markets with a focus on pricing and pricing strategies" by Ecorys on behalf of the European Commission, Directorate General for Enterprise and Industry, 2011

February 2012

Contents

1.	SUMMARY	4
2.	THE ROLE OF ELECTRICAL AND ELECTRONICS INDUSTRY	5
3.	PRODUCTION OF ELECTRICAL AND ELECTRONIC GOODS.....	5
3.1.	EU industrial competitiveness.....	5
3.2.	Electrical goods	6
3.3.	Electronics	7
3.4.	Environmental regulations	7
4.	FUNCTIONING OF THE MARKET	8
5.	IMPORTANCE OF THE MARKET FOR CONSUMERS	9
6.	FUNCTIONING OF THE SINGLE MARKET FOR THE ELECTRIC AND ELECTRONIC PRODUCTS FOR CONSUMERS	11
6.1.	Consumer satisfaction with the functioning of the market.....	11
6.2.	Problems experienced by consumers.....	16
6.3.	Differences in consumption patterns between countries.....	17
6.4.	Differences in price levels between countries	20
6.5.	Relation of prices to income.....	22
6.6.	Choice of comparable products across countries	23
6.7.	Convergence of prices across countries	25
6.8.	Link between prices and concentration in retail and production	27
7.	E-COMMERCE AND CROSS-BORDER SALES	28
7.1.	Choice of products online and offline	29
7.2.	Comparison of prices for online and offline sales channels and impact of online sales on price dispersion across countries.....	30
7.3.	Pan-EU products and possible microeconomic gains for consumers.....	31
7.4.	Internet potential and functioning of websites selling consumer electronics.....	32
8.	SUSTAINABILITY	32
8.1.	Energy efficiency information (online and offline) and regulatory environment.....	32
8.2.	Uptake of energy efficient products in the EU and across countries	33
8.3.	Relation between prices of particular energy classes and across countries	35
8.4.	Role of online sales in the sales of appliances with higher energy classes	35
9.	CONCLUSIONS	35
1.		

SUMMARY

This text draws largely on the "Study on the Competitiveness of EU electrical and electronics goods markets with a focus on pricing and pricing strategies", which was finalized for DG Enterprise and Industry in early 2011. The Study on the Competitiveness is based on outcomes of the study on "Comparing electric appliances prices across the European Community" carried out on behalf of the Directorate General for Health and Consumers in 2009.

The scope of both studies and the additional analysis presented in this paper was price differences between countries, differences in consumer choice of products in national markets and also prices and availability of products in the Internet sales. They do not address other important issues such as enforcement of guarantees, provision of after sale services, cost of transport and delivery or the actual possibility for consumers to order goods from foreign online traders.

EU consumers are fairly satisfied with functioning of the markets for electric and electronic goods in terms of choice of products or retailers. Purchases of these products account for 1.7% of household expenditure (around €400-500 per household in EU-27). Consumption patterns differ significantly across the EU. However, the average amount a consumer spends on a product is strongly correlated with the national average income.

The single market offers thousands of models to consumers but the actual offer and price range is very different across Member States. Consumers in some countries would be able to save up to 35% of the product price when buying products abroad. There is higher price convergence across countries where there is a higher share of pan-EU products (products that are broadly available across MS). Interestingly, a higher level of concentration of retailers is linked with a lower price level of electrical and electronic products. This could indicate the positive effects of economies of scale. However, in Denmark and Slovakia, retail concentration ratios and domestic price levels are both particularly high.

For product categories where the share of Internet as a sales channel is higher, the prices usually converge more across the EU. However, online sales are a small proportion of total sales. The vast majority of online sales are generated by products that are also present in traditional stores. When buying online in their country, consumers can pay on average some 5% less than offline. When consumers buy a pan-EU model online, they can save relatively more than when buying a local model.

Energy-labelling plays an important role in informing consumer purchases. The vast majority of refrigerators and washing machines sold represent a high energy efficiency class. At the same time, the share of sales of A+ products does not seem to be correlated with higher average income levels. Consumers pay up to 35% more for a refrigerator and up to 18% more for a washing machine with a higher energy class.

In terms of production, European firms are the leading global players in the electrical goods sector, with a stable revealed competitive advantage. EU value added in this sector increased between 2000 and 2008, in contrast to US and Japanese competitors. In the electronics goods sector, EU total output is lower than in both Japan and the US and EU output decreased between 2000 and 2008. Nevertheless, some of the countries that joined the EU recently have seen a steady increase in output in the electronics sector.

2. THE ROLE OF ELECTRICAL AND ELECTRONICS INDUSTRY

An analysis of consumer electronic and electrical goods was carried out in the *Study on the Competitiveness of EU electrical and electronics goods markets with a focus on pricing and pricing strategies*, which was finalized for DG Enterprise and Industry in early 2011.

Ten categories of consumer electronic and electrical goods have been analysed: the 4 first product categories belong to the electronics sector, whereas the other 6 would be categorized as electrical goods:

Electronic goods

- Flat screen televisions
- Digital cameras
- Media players
- PC notebooks

Electrical goods

- Refrigerators
- Washing machines
- Microwave ovens
- Vacuum cleaners
- Coffee makers
- Irons

The characteristics of those two sectors differ, not least as concerns product life cycles and replacement rates. The role of European industry is clearly different in the two sectors.

3. PRODUCTION OF ELECTRICAL AND ELECTRONIC GOODS

3.1. EU industrial competitiveness

The electrical and electronics goods industry is a major segment of the European economy, both in terms of production and retail sector. According to figures from 2008/2009 the employment in these sectors was over 4.3 Million, with a value added of more than 220 Billion € EU exports amounted to over 210 Billion € The picture is quite different between the electrical and electronic goods sectors as concerns the role of EU industry. EU industry has a strong position in the electrical goods sector, but less so in the sector for electronics goods.

Europe is the leading global player in the electrical goods sector. In contrast to US and Japanese competitors, EU value added in this sector increased between 2000 and 2008. In the electronics goods sector, however, EU total output is well behind both Japan and the US. Furthermore, European value added in the electronics sector decreased between 2000 and 2008. It may be noted that in terms of consumption, electronics products generally have higher sales per person (though more volatile), and higher growth predictions, than electrical goods.

A closer look at European comparative advantage indicates that at a global level EU Member States are the most important exporters for electrical and electronics goods combined (this includes intra EU trade). However, China has been catching up over the last decade, to reach the same level and may very soon overtake European exports in these sectors. In particular, an analysis of revealed comparative advantage¹ shows that for the two sectors combined, Europe has a comparative disadvantage, whereas China, Japan and, in particular, South Korea have clear revealed comparative advantages.

When the electrical goods sector is studied separately, however, the EU has a stable revealed competitive advantage. The EU has a relatively weaker position for electronic goods.

As concerns individual Member States, Germany and Italy have the largest market shares in terms of production, with Poland having an increasingly strong position for electrical goods. The market share of producers for electrical home appliances is rather regionalized, with most national markets showing a preference for one or two, usually domestic or neighbouring, manufacturers.

3.2. Electrical goods

As in many other sectors, the supply and value chain in electrical goods has been characterized by globalisation in the last few decades. For the electrical goods sector, such international shifts are driven mainly by cost and market access factors. In this sector, EU companies still tend to keep the more innovative elements of the value chain in Europe, with manufacturing of the final product shifting abroad. With more specialisation, it is increasingly the case that some specialised components are only found outside Europe, often in clusters developing on the emerging markets.

In addition, some emerging markets have value chains forming that do not at all include European (or other Western) producers, a development often driven by consumer preferences for local brands. This is part of a very recent trend of *emerging multinational enterprises*. Nevertheless, there is a clear pattern that particular European manufacturers dominate specific regions, typically their home country and a neighbouring market. The degree of market concentration varies between countries.

The electrical goods sector is less spectacularly innovative than the electronics sector. This makes the product cycle considerably shorter in the electrical goods sector. Early replacement is more seldom due to new innovative functionality features, but may relate

¹ Measured as the relative export share in a country's total exports divided by the relative share in the total exports of the rest of the world.

to innovative energy efficiency aspects. Government subsidies in the form of rebates for replacements could have an effect on replacement rates for electrical goods.

3.3. Electronics

The electronics industry, on the other hand, has a less hierarchical, more flexible (and less stable) innovation chain, with more of a two-way creativity relationship between multinationals and global suppliers. The electronics sector - at least parts of it, such as computing and imaging devices – may be characterised as more innovative, with more rapid change in product functionality, than the electrical goods sector. In this industry, the relationships usually change depending on the needs of the individual product development cycles. Manufacturers come and go, depending on product development.

Electronics usually show higher sales per person than electrical goods. Growth is generally higher in this sector, which is largely due to high replacement rates emanating from short innovation cycles. In particular, according to predictions from Euromonitor growth is expected to be higher in the electronics industry than for electrical goods over the next few years.

Innovative and fast-developing products (such as electronic goods) often require a more flexible value-chain. This is influenced by factors such as maturity of products, degree of standardisation, appropriability (IPR framework), complementarity between products, and length of life-cycle.

OEMs (Original Equipment Manufacturers) tend to play a larger role in the electronics sector than in the sector for electrical goods. Hence, not only production, but also some development and design often takes place in another country, and the product is then rebranded.

The more dynamic nature of the electronics sector is reflected in clear differences in market concentration between different product categories of electronic products, with only major global players, such as Sony, present across more than one of the product categories. Market concentration by a few actors is therefore a more obvious feature of the electronics sector. In contrast to the electrical goods sector, energy efficiency is not a driver for electronics products. Factors such as functionality and degree of innovation are more important. In this context, avoiding competition between standards is an important factor.

In the electronics sector, rapid innovations have brought with them a trend of partnerships between manufacturers, and sharing brands on the same package. This is largely due to the multi-functionality of new products.

3.4. Environmental regulations

Energy-labelling plays an important role in informing consumer purchases. The EuP Directive (Eco-design for Energy using Products) provides for voluntary agreements on energy-efficiency of electronics and electrical products. It establishes a framework under which manufacturers of energy-using products will, already at the design stage, have to reduce the energy consumption and negative environmental impacts that occur during the product's life cycle. Thus, the scope of the Directive is much wider than the WEEE or RoHS directives in that it requires eco-design to be an integral part of business practice and CE marking. The Directive is meant to be used in consistency with other EU policy tools such as labelling (Energy Label and Ecolabel), green public procurement and

targeted incentives to reach full effect. The effectiveness of the Ecodesign Directive and its implementing measures will be reviewed by the European Commission no later than 2012.

For electrical goods, environmental regulation and standards are also important drivers of consumer choice. In particular, products with a higher energy efficiency rating can be sold with a price premium. In addition to product safety regulations and standards, there are environmental regulations which have clear implications on the value chains. The major Eco-labelling tool for electronics goods is the Energy Star initiative, which has developed into a worldwide standard. For electrical goods, the ECO energy label is usually the benchmark for energy efficiency.

Other relevant environmental regulations include the WEEE Directive (Waste Electrical and Electronic Equipment, its recast is being currently discussed²), which means that producers are responsible for their products at the end of life. This may include recycling of some spare parts.

In addition, the RoHS Directive (Restriction of Hazardous Substances) restricts the use of mercury, lead and other hazardous substances in electrical and electronic devices. This is important for the value chain of production of electrical machinery products.

4. FUNCTIONING OF THE MARKET

The retail market decreased for both sectors around 2009, with the downturn setting in earlier in the sector for electrical goods, which decreased between 2007 and 2009. The electronics goods market turned did not turn negative until 2009.

The vast majority of sales is done in specialist retail stores, but the share of non-store retail increased over the period 2004-2009. This was particularly the case for electronics goods, where the share of non-store retail is higher, at around 10%. Of course, the majority of non-store retail is done over the Internet, which reached over 70% of non-store retail in 2009. As concerns grocery retail, its share is typically around 20% for electrical goods, and lower (around 10%) for electronics. The differences between Member states are considerable, with non-store sales channels representing around 1/3 of sales in the UK.

As to concentration on the retail market, there are clear differences between Member States. All in all, the retail market for the electrical and electronics sectors employ over half a Million people in the EU. Employment has remained fairly stable, though the number of retail companies decreased by almost 10% between 2004 and 2009.

Market concentration increased in most Member States over 2004-2009, together with the average scale of operations. It is not always multinational chains that have

² Proposal for a Directive of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE) (Recast) {SEC (2008) 2933} {SEC (2008) 2934}/ COM/2008/0810 final

contributed to increased concentration, but rather national or local retail chains in some Member States.

5. IMPORTANCE OF THE MARKET FOR CONSUMERS

The market for electric and electronic goods comprises numerous product categories, without which it would be hard to imagine the life of a contemporary EU consumer. Products range from appliances whose role is to facilitate the household maintenance (e.g. vacuum cleaners, irons, dishwashers or washing machines) and food storage or preparation of meals (refrigerators, freezers, microwave ovens, coffee machines or toasters) up to devices which are used for work or entertainment and leisure activities, such as PC notebooks, televisions, DVD players, cameras, media players or smart phones.

European households spend on average 1,7 % of their overall consumption on buying electric and electronic goods³. The shares differ for particular countries and for particular product markets. Usually, the share of household budget spent on large or small domestic appliances is slightly higher in the countries that joined the EU recently (EU12⁴, e.g. Malta, the Czech Republic, Latvia, Estonia, Cyprus), whereas households in the other countries (EU15⁵, e.g. Denmark, Finland, the Netherlands, Austria) tend to spend a higher proportion of their consumption on buying electronic and ICT goods. Table 1 presents the average shares of consumption spent on household appliances, electronic and ICT goods for the particular EU countries.

³ According to the COICOP classification, the following markets are taken into account: Large domestic appliances (Electronic cookers Fridges and freezers Washing machines Tumble dryers Dishwashers Space heaters Fixed heaters Vaccum cleaners Microwave ovens Sewing machines Portable heating appliances Other), Electronic goods (non ICT/recreational, such as DVD players-recorders VCRs TVs CD HI-FI media players non-portable CD, HI-FI, media players portable Radios Cameras Video cameras Photographic equipment CDs (blank) DVDs (blank) Audio and video tapes (blank) Other), ICT goods (such as Information Communication Technology Goods (ICT) Personal computers Self-built computers Computer accessories Printers and scanners Games consoles Portable Games players Computer software Computer software upgrades Laptops, notebooks and tablet PCs, PDA's and smart phones Mobile phone devices Fixed phone devices Moderns Decoders Other) and Small domestic appliances (such as Small domestic household appliances Food-processing appliances Coffee machines Irons Toasters Grills Other). The EU average includes estimates for the Member States for which the data was not available.

Data for 2005

⁴ EU12: Bulgaria, the Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Romania, Slovakia, Slovenia,

⁵ EU15: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, Spain, Sweden, the United Kingdom

Table 1

	Major domestic appliances	Small domestic appliances	Electronic and ICT goods
European Union (27 countries)	0,6%	0,1%	1,0%
Belgium	0,6%	0,1%	1,4%
Bulgaria	0,6%	0,1%	0,5%
Czech Republic	1,1%	0,2%	1,9%
Denmark	0,8%	0,1%	2,4%
Germany	0,5%	N/A	N/A
Estonia	1,0%	0,1%	1,4%
Ireland	0,5%	0,1%	1,4%
Greece	0,7%	0,0%	0,6%
Spain	0,7%	0,1%	1,0%
France	0,7%	0,1%	1,1%
Italy	0,3%	0,1%	0,8%
Cyprus	1,0%	0,1%	0,9%
Latvia	1,0%	0,1%	1,7%
Lithuania	0,8%	0,1%	1,1%
Luxembourg	0,7%	0,1%	1,2%
Hungary	0,8%	0,1%	1,2%
Malta	1,6%	0,5%	1,6%
Netherlands	0,5%	0,1%	2,1%
Austria	0,7%	0,2%	1,9%
Poland	0,7%	0,1%	0,9%
Portugal	0,6%	0,1%	0,9%
Romania	0,6%	0,1%	0,5%
Slovenia	1,0%	0,1%	0,9%
Slovakia	0,6%	0,1%	1,0%
Finland	0,8%	0,1%	2,0%
Sweden	0,8%	0,1%	1,8%
United Kingdom	0,6%	0,1%	1,5%

Source: Eurostat

Although the share of the budget spent on these goods is lower than for some other goods markets - for the food products (4% for meat and meat products, 2.5% for fruit and vegetables), for clothing and footwear (5.5%) or for fuels (over 3%)⁶ - the average expenditure on an individual product tends to be higher, thus there is a higher risk for consumers related to an individual purchase and the purchasing decision usually involves more preparation from the consumer side.

⁶ EUROSTAT data, estimates after the Consumer Markets Scoreboard, 4th edition, October 2010

6. FUNCTIONING OF THE SINGLE MARKET FOR THE ELECTRIC AND ELECTRONIC PRODUCTS FOR CONSUMERS

6.1. Consumer satisfaction with the functioning of the market

A recent Market Monitoring Survey, in which 51 consumer markets were evaluated by consumers and then ranked according to their Market Performance Indicator (MPI, a combined result based on replies to four key aspects) showed that the EU consumers are usually satisfied with the conditions they experience in the markets for the electric and electronic goods – Figure 1. Small and large domestic appliances markets received the highest scores (9th and 12th position in the ranking), the market for electronic goods such as DVDs, CDs, TVs, media players, cameras and other was placed 14th. The relatively worst result of the screening was achieved by the ICT goods market, which ranked 22nd of the 51 consumer markets⁷.

⁷ Consumer Markets Scoreboard, 6th edition, October 2011; data from the Market monitoring survey, carried out in 2011 by GfK Belgium on behalf of the European Commission on a representative sample of consumers across 27 Member States, who had recent experience in a particular market.

Market definitions:

Electronic goods (non ICT/recreational): DVD players/recorders, VCRs, TVs, CD, HI-FI, media players, non-portable CD, HI-FI, media players, portable Radios, Cameras, Video cameras, Photographic equipment, CDs (blank), DVDs (blank), Audio and video tapes (blank), Other;

Large domestic appliances: Electronic cookers, Fridges and freezers, Washing machines, Tumble dryers, Washer-dryers (combined), Dishwashers, Space heaters, Fixed heaters, Vacuum cleaners, Microwave ovens, Sewing machines, Portable heating appliances, Other;

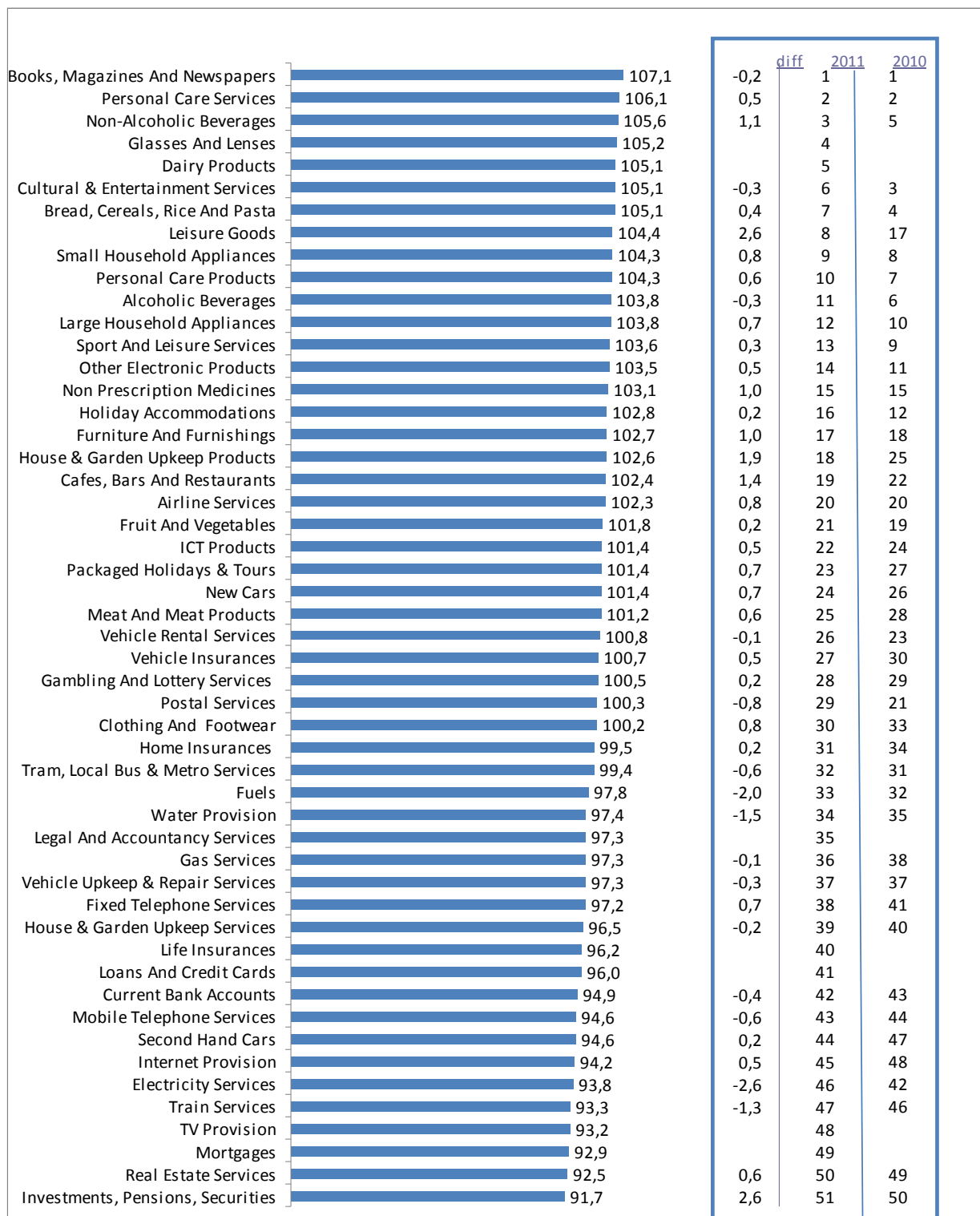
Small domestic appliances: Food-processing appliances, Coffee machines, Irons, Toasters, Grills, Other

ICT goods: personal computers, Self-built computers, Computer accessories, Printers and scanners, Games consoles, Portable Games players, Computer software, Computer software upgrades, Laptops, notebooks and tablet PCs, PDA's and smart phones, Mobile phone devices, Fixed phone devices, Modems, Decoders, Other

http://ec.europa.eu/consumers/consumer_research/editions/cms6_en.htm

Figure 1

Normalised MPI (Market Performance Indicator) EU27 level - ranking of 51 consumer markets



Source: Consumer Markets Scoreboard, 6th edition, October 2011

The MPI encompassed the perceived consumer ability to compare offers, the trust consumers have in the businesses' compliance with consumer legislation, the overall satisfaction of consumers, the frequency of problems consumer encounter in a particular market, and the frequency of lodging of a complaint. The market for electronic non-ICT

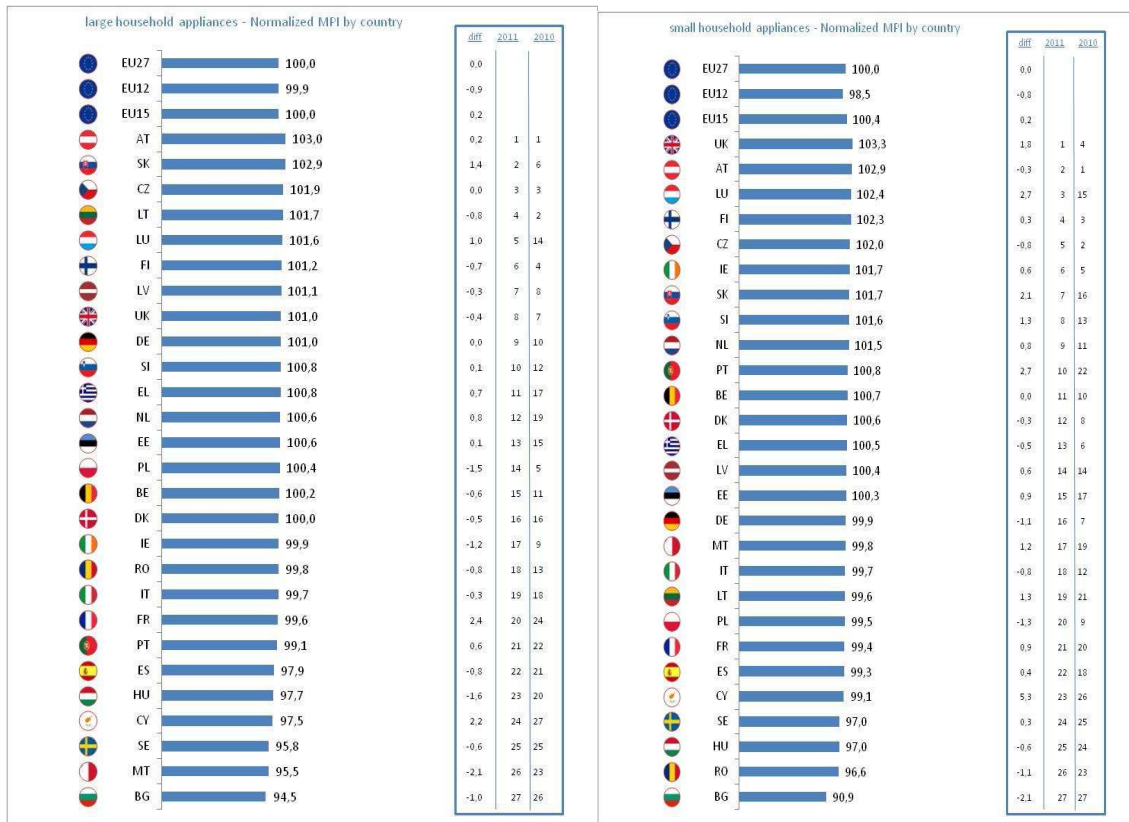
goods was perceived slightly worse in terms of comparability of products (which can indicate the relative complexity of these products) and in the small household appliances market consumers tended to complain less even if they encountered a problem (which could be linked to a low relative cost of purchasing of such a product). The lower score of the ICT goods market in particular resulted from a higher number of generally dissatisfied consumers.

The results achieved by each of the four markets differed slightly between the Member States. The figures below present the distribution of scores across the EU.

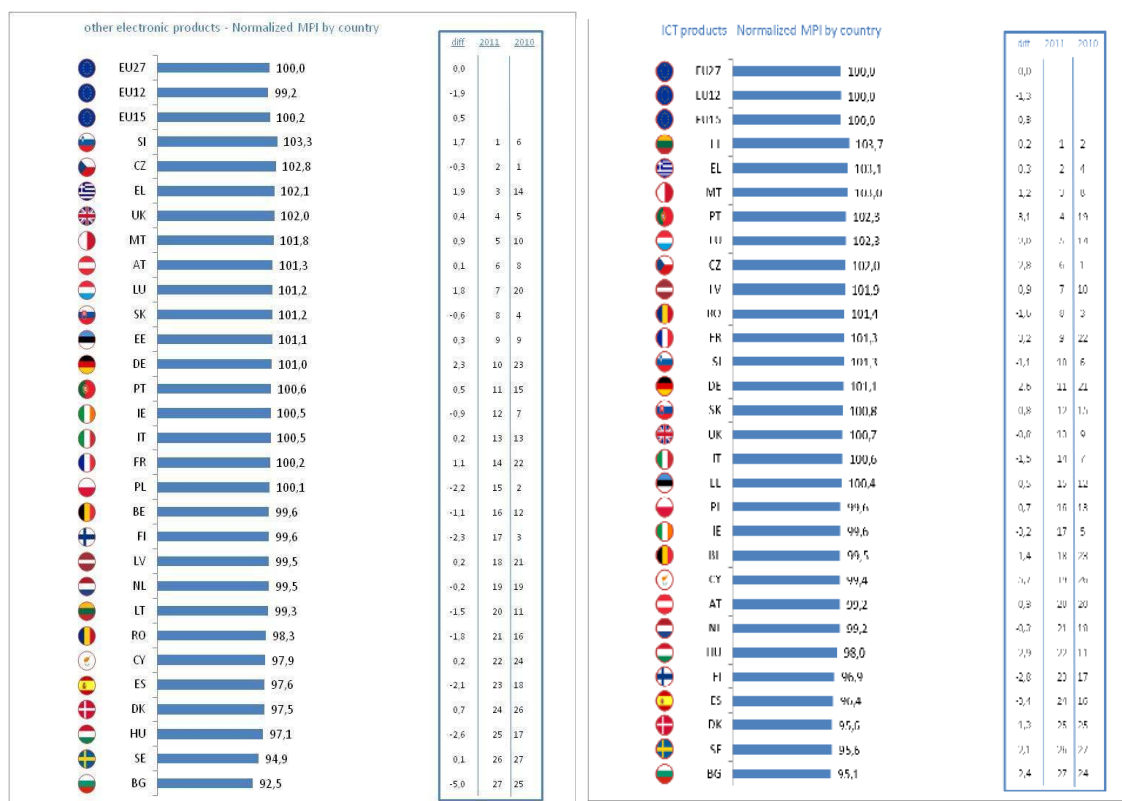
Figure 2

Normalised MPI (Market Performance Indicator) EU27 level

Large and small domestic appliances



Electronic and ICT goods



Source: *Monitoring consumer markets in the European Union, report, 2011*, http://ec.europa.eu/consumers/strategy/docs/EC_Market_Monitoring_2011_en.pdf

An earlier Commission study⁸ from 2009 focused on a wider range of aspects of consumer satisfaction and covered the markets for *Household electrical equipment* and *Entertainment and leisure goods*. The products covered were:

Household electrical equipment	
Refrigerator	Tumble dryer
Freezer	Electrical cleaning equipment
Cooker	Heater
Washing Machine	Vacuum cleaner
Dishwasher	Other small electrical appliance
Entertainment and leisure goods	
Flat screen TV	Home cinema equipment
Ordinary / other TV set	MP3 player
Video projector	Digital camera
Radio / hi-fi system	Digital camcorder
DVD player / recorder	

The results presented in the figures 3 and 4 show that the majority of EU consumers (70%) are satisfied with the functioning of the market for household electrical equipment

⁸ Consumer Satisfaction Survey, for the European Commission by IPSOS, 2009

and 77% are satisfied with the retailers in this market. Consumers in the countries that joined the EU recently tend to be slightly more satisfied than consumers in other countries, and the satisfaction with retailers ranged from 91% in Ireland to 64% in the Netherlands.

Figure 3

Overall consumer satisfaction with functioning of the market

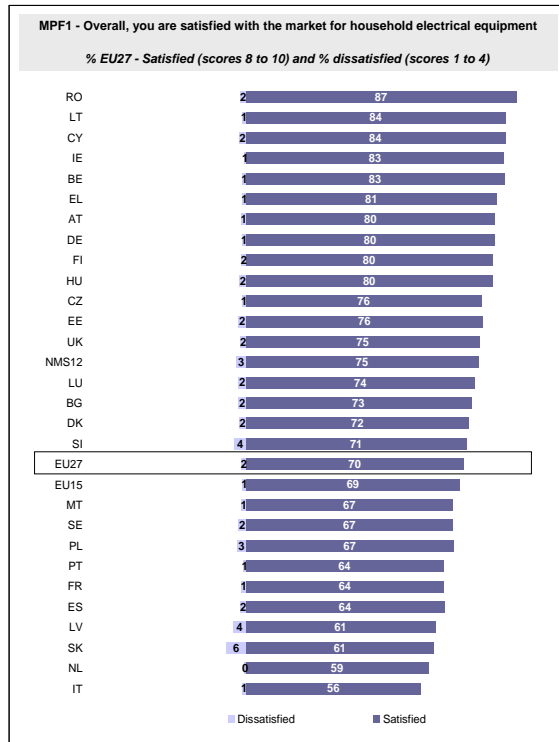
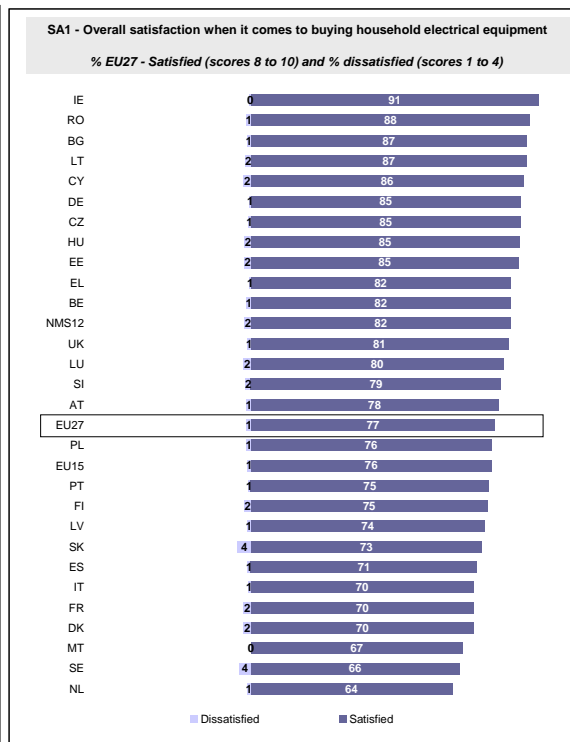


Figure 4

Consumer satisfaction with retailers in the market



Source: Consumer Satisfaction Survey, for the European Commission by IPSOS; "Household electrical equipment" market report; 2009

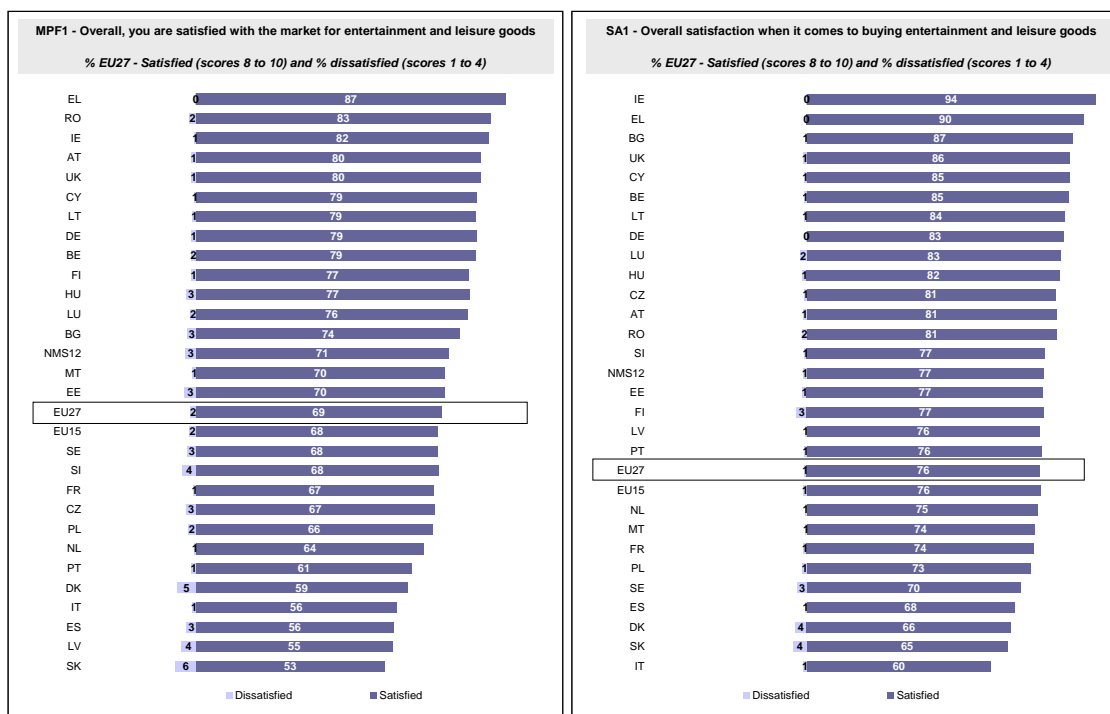
EU consumers were also satisfied with the functioning of the market for entertainment and leisure goods (69%) and with the retailers in this market (76%). Similarly to the household electrical equipment market, differences between Member States could be noticed (see figures 5 and 6) and the satisfaction with retailers ranged from 94% in Ireland to 60% in Italy. Usually, consumers in the countries that joined the EU recently were again slightly more satisfied.

Figure 5

Overall consumer satisfaction with functioning of the market

Figure 6

Consumer satisfaction with retailers in the market



Source: Consumer Satisfaction Survey, for the European Commission by IPSOS; "Entertainment and leisure goods" market report; 2009

6.2. Problems experienced by consumers

According to the Market Monitoring Survey, 10% of consumers had problems in the electronic goods market (from 4% in Greece to 17% in Romania and Bulgaria), 9% in the small (from 5% in Greece to 17% in Bulgaria) and 10% in the large household appliances market (from 5% in Greece to 22% in Malta). The market for ICT goods proved to be the most problematic – 13% of consumers reported having experienced problems with a product or a supplier (from 6% in France to 23% in Ireland and Sweden)⁹.

Between 80% (electronic goods) and 87% (ICT goods) of consumers who experienced problems complained about it, mainly to the retailer¹⁰.

The 2009 Consumer Satisfaction Survey looked more in-depth into consumer problems and revealed that for both household electrical equipment and entertainment and leisure goods markets the majority of problems concerned quality of the product, i.e. defective or damaged products (38% for the household electrical equipment market and 53% for the entertainment and leisure goods market). The next most common types of problems for the household electrical equipment referred to repair (25%) and delivery (23%). For the entertainment and leisure goods, delivery was the second most common problem

⁹ Consumer Market Monitoring Survey (2011); Dashboard with results; http://ec.europa.eu/consumers/strategy/dash3_en.htm

¹⁰ Monitoring consumer markets in the European Union, report, 2011, http://ec.europa.eu/consumers/strategy/docs/EC_Market_Monitoring_2011_en.pdf

(13%) and each of the following types: quality of the service, repairs and claims under guarantee, were reported by 10% of consumers¹¹.

6.3. Differences in consumption patterns between countries

An analysis of prices of electric and electronic goods revealed significant differences in consumer preferences across the Member States. The "Study of the Competitiveness of the EU electrical and electronic goods markets with a focus on pricing and pricing strategies" looked into prices (excluding VAT) of over 91 thousand individual models which were sold in 21 Member States¹² from March 2008 to February 2009. The data analysed covered 10 product categories: digital cameras, flat screen TVs, digital portable media players, refrigerators, microwave ovens, washing machines, coffee makers, irons, vacuum cleaners and mobile computers¹³. The products chosen for the analysis had to be comparable across countries and representative for the EU market. Due to product differentiation, only for digital cameras, flat screen TVs and digital portable media players was it possible to create a sample of individual comparable and representative products. For the other categories, the sample consisted of comparable and representative sub-categories (technical segments).

Average Selling Price is an indicator which reflects consumer preferences. It shows the average amount spent by consumers on a unit of a particular category in a country, thus reflecting the structure of sales for a product category in a country. The ASP Index presented in table 2 compares the ASP per category per country to the EU average (average for 21 MS). The index shows that, for example, consumers in Belgium spent 71% more on a microwave oven, or consumers in Poland spent 16% less on a flat screen TV than on average in the EU.

¹¹ Consumer Satisfaction Survey, for the European Commission by IPSOS; "Household electrical equipment" market report; 2009

Consumer Satisfaction Survey, for the European Commission by IPSOS; "Entertainment and leisure goods" market report; 2009

¹² AT, BE, BG, CZ, DE, DK, EL, ES, FI, FR, HU, IE, IT, NL, PL, PT, RO, SE, SI, SK, UK

The number of countries was limited due to data availability in the syndicated tracking of retail channel sales, performed by the GfK Retail and Technology

¹³ The underlying data is based on an extract from the syndicated tracking of retail channel sales, performed by the GfK Retail and Technology

Table 2

ASP Index (ex-VAT) by category and country

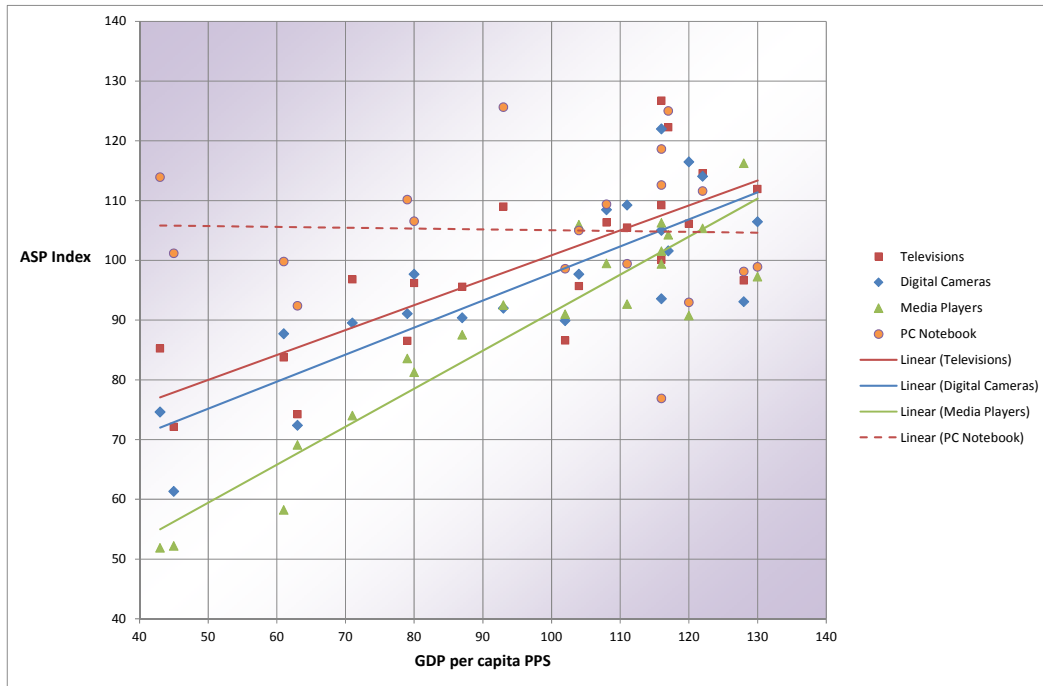
Country	Consumer electronics			IT	Major domestic appliances			Small domestic appliances			Mean
	Flat screen televisions	Digital cameras	Media players	PC notebooks	Fridges	Washing machines	Microwave ovens	Vacuum cleaners	Coffee makers	Irons	
Belgium	127	122	99	119	105	126	171	126	84	195	127
Denmark	122	102	104	125	125	127	141	151	86	113	120
Austria	115	114	105	112	91	109	92	122	183	134	118
Netherlands	112	106	97	99	89	122	121	120	117	144	113
Greece	109	92	93	126	132	151	109	80	71	122	108
France	106	108	99	109	111	100	111	109	69	131	105
Germany	109	105	102	113	107	109	95	98	121	96	105
Czech Rep.	96	98	81	107	87	93	81	89	207	106	104
Sweden	106	116	91	93	130	107	115	110	67	98	103
Slovakia	97	89	74		86	90	89	79	211	102	102
Ireland	97	93	116	98	102	97	95	152	67	88	100
Spain	96	98	106	105	127	96	92	95	97	86	100
Italy	87	90	91	99	103	101	122	87	124	71	97
Slovenia	96	90	88		94	92	93	102		117	96
Finland	105	109	93	99	107	104	86	113	44	89	95
Portugal	87	91	84	110	92	92	100	66	131	84	94
Poland	84	88	58	100	82	76	88	81	181	92	93
Gt. Britain	100	94	106	77	85	81	81	103	76	64	87
Bulgaria	85	75	52	114	68	66		50			73
Hungary	74	72	69	92	67	54	63	61	63	71	69
Romania	72	61	52	101	66	62	68	55	43	69	65
Summary statistics											
Min.	72	61	52	77	66	54	63	50	43	64	65
Max.	127	122	116	126	132	151	171	152	211	195	127
Ave.	99	96	89	105	98	98	101	98	107	104	99
Std. dev.	14.5	14.9	18.3	11.9	19.9	23.1	25.1	28.1	53.3	31.2	15.8
C.V.	14.6%	15.5%	20.6%	11.3%	20.4%	23.6%	24.9%	28.8%	49.6%	30.1%	16.0%
Correlation											
GDP per capita	0.76	0.78	0.86	-0.05	0.63	0.62	0.53	0.86	-0.35	0.30	0.64
GDP per capita PPS	0.78	0.82	0.94	-0.03	0.64	0.69	0.54	0.87	-0.20	0.39	0.74

Source: "Study on the Competitiveness of the EU electrical and electronic goods markets with a focus on pricing and pricing strategies", report by Ecorys, calculations based on GfK data, 2011

Except for mobile computers and coffee makers, the ASP is strongly positively correlated with the GDP per capita (figures 7, 8 and 9), which indicates that consumers in countries with a lower average income also spend less on an individual average electric or electronic product, whereas consumers in countries with a higher average income tend to spend more, i.e. they usually buy more expensive and sophisticated products or the same products are more expensive.

Figure 7

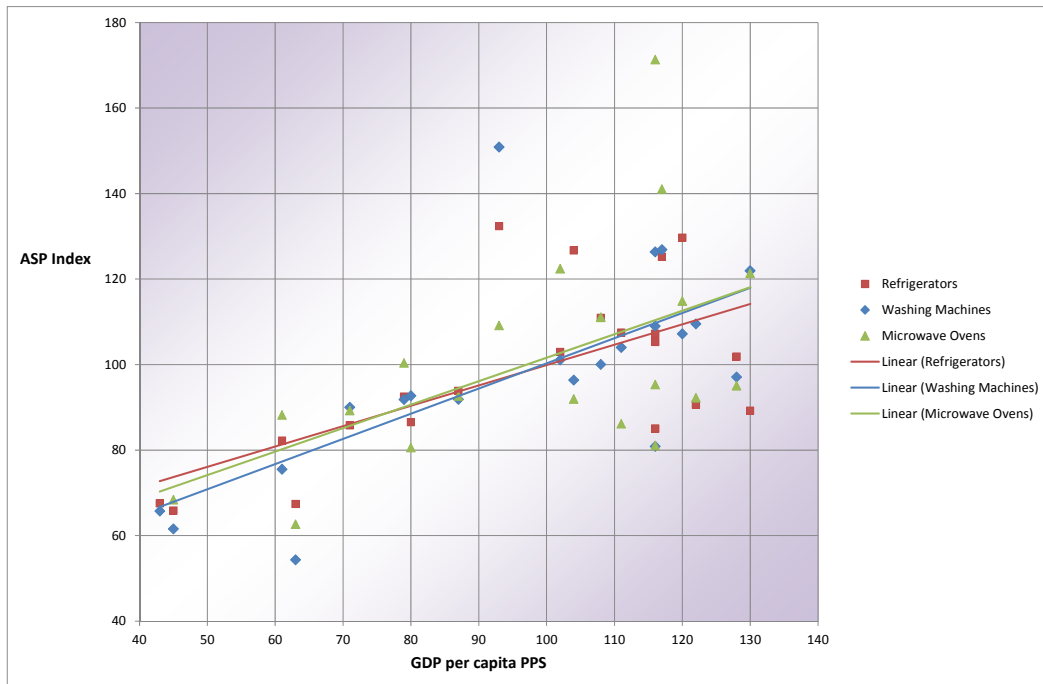
Consumer electronics and PCs: ASP related to GDP per capita in the Purchasing Power Standard (PPS)



Source: "Study on the Competitiveness of the EU electrical and electronic goods markets with a focus on pricing and pricing strategies", report by Ecorys, based on GfK data, 2011

Figure 8

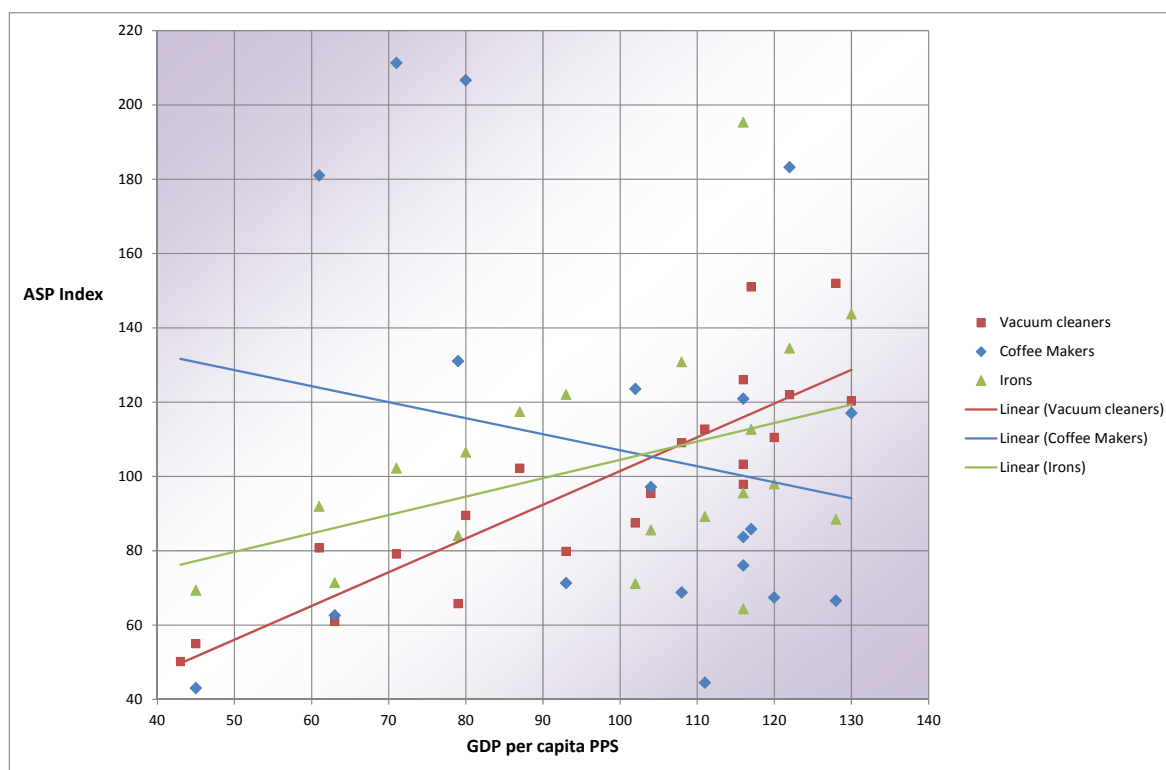
Major domestic appliances: ASP related to GDP per capita in the Purchasing Power Standard (PPS)



Source: "Study on the Competitiveness of the EU electrical and electronic goods markets with a focus on pricing and pricing strategies", report by Ecorys, based on GfK data, 2011

Figure 9

Small domestic appliances: ASP related to GDP per capita in the Purchasing Power Standard (PPS)



Source: "Study on the Competitiveness of the EU electrical and electronic goods markets with a focus on pricing and pricing strategies", report by Ecorys, based on GfK data, 2011

6.4. Differences in price levels between countries

The EU market for consumer electric and electronic goods seems to be rather fragmented in terms of consumer preferences and the sales structure seems to follow these preferences. Not only the average amount spent on a good from a particular category is different across countries. Often also the price of an individual identical model or of a particular sub-category is not the same across borders.

The "Study of the Competitiveness of the EU electrical and electronic goods markets with a focus on pricing and pricing strategies", analysed prices of individual products or sub-categories, with a focus on convergence of price levels across the EU. The Average Unit Price (AUP) of a product is the EU price for this product calculated as an arithmetic mean, thus not weighted by the product's corresponding share in total sales (number of units sold). Then the AUP Index for an individual product for each country is calculated, relative to the EU AUP for this product. Finally, for each category of products in each country an AUP Index is calculated as an arithmetic mean, thus again not weighted by products' shares in total sales. This indicator measures to what extent the level of prices for a particular category in each country is higher or lower than the EU average level of prices for this category. The results are presented in table 3, which shows that in some countries the AUP Indices tend to be consistently above or below the EU level.

Table 3

AUP Index (excluding VAT) by category and country

Country	Consumer electronics			IT	Major domestic appliances			Small domestic appliances			Mean
	Flat screen televisions	Digital cameras	Media players	PC notebooks	Fridges	Washing machines	Microwave ovens	Vacuum cleaners	Coffee makers	Irons	
Denmark	115	106	110	112	132	110	125	131	113	129	118
Finland	104	103	108	107	117	101	115	110	104	121	109
Slovakia	106	106	121		93	112	103	104	120	112	108
Greece	106	107	110	111	109	124	92	100	110	99	107
Belgium	104	107	101	102	105	109	111	116	111	101	107
Czech Rep.	105	103	117	109	95	106	96	105	117	113	106
Slovenia	102	104	102		106	99	103	104		107	103
Austria	104	99	104	104	115	103	104	107	89	93	102
Sweden	98	100	89	95	119	95	111	100	99	116	102
Italy	98	105	97	96	103	115	108	103	94	93	101
Spain	103	102	102	97	105	111	100	97	96	96	101
France	99	98	102	97	103	100	104	107	94	94	100
Germany	101	94	103	101	105	102	96	99	103	93	100
Netherlands	100	100	99	96	100	100	98	105	98	98	99
Ireland	94	103	99	93	92	91	93	106	100	96	97
Portugal	97	103	90	97	91	106	92	95	83	85	94
Poland	93	92	89	99	84	91	91	94	104	98	93
Hungary	94	93	113	101	79	79	80	82	87	91	90
Gt. Britain	90	88	84	81	94	84	89	92	95	86	88
Bulgaria	93	93	82	105	71	79		76			86
Romania	89	96	75	99	73	77	84	68	81	81	82
Summary statistics											
Min.	89	88	75	81	71	77	80	68	81	81	82
Max.	115	107	121	112	132	124	125	131	120	129	118
Ave.	100	100	100	100	100	100	100	100	100	100	100
Std. dev.	6.2	5.5	11.8	7.2	15.1	12.5	10.9	13.4	11.0	12.5	8.6
C.V.	6.3%	5.5%	11.8%	7.2%	15.2%	12.6%	11.0%	13.4%	11.0%	12.5%	8.6%
Correlation											
GDP per capita	0.31	0.14	0.07	-0.23	0.76	0.25	0.59	0.66	0.08	0.28	0.44
GDP per capita PPS	0.38	0.24	0.23	-0.23	0.75	0.40	0.54	0.71	0.15	0.24	0.51
<i>Statistically above EU average (5% significance level)</i>											
<i>Statistically below EU average (5% significance level)</i>											
<i>Source: "Study on the Competitiveness of the EU electrical and electronic goods markets with a focus on pricing and pricing strategies", report by Ecorys, calculations based on GfK data, 2011</i>											

Based on the Average Unit Price Index, the countries can be grouped in three classes:

- 1) High price countries:
 - All AUP Indices are above the EU average: Denmark, Finland and Belgium
 - Majority of the AUP Indices are above the EU average: Greece, Slovakia, Czech Republic, and Austria
- 2) Intermediate price countries:

- Majority of the AUP Indices are not statistically different from the EU average: France, Germany, Spain and the Netherlands
- 3) Low price countries:
- All AUP Indices are below the EU average: the United Kingdom and Romania
 - Majority of the AUP Indices are below the EU average: Bulgaria, Hungary, Poland and Portugal.

It is important to note that the results are not directly influenced by the size of the national markets as they are not weighted by the total sales in each country.

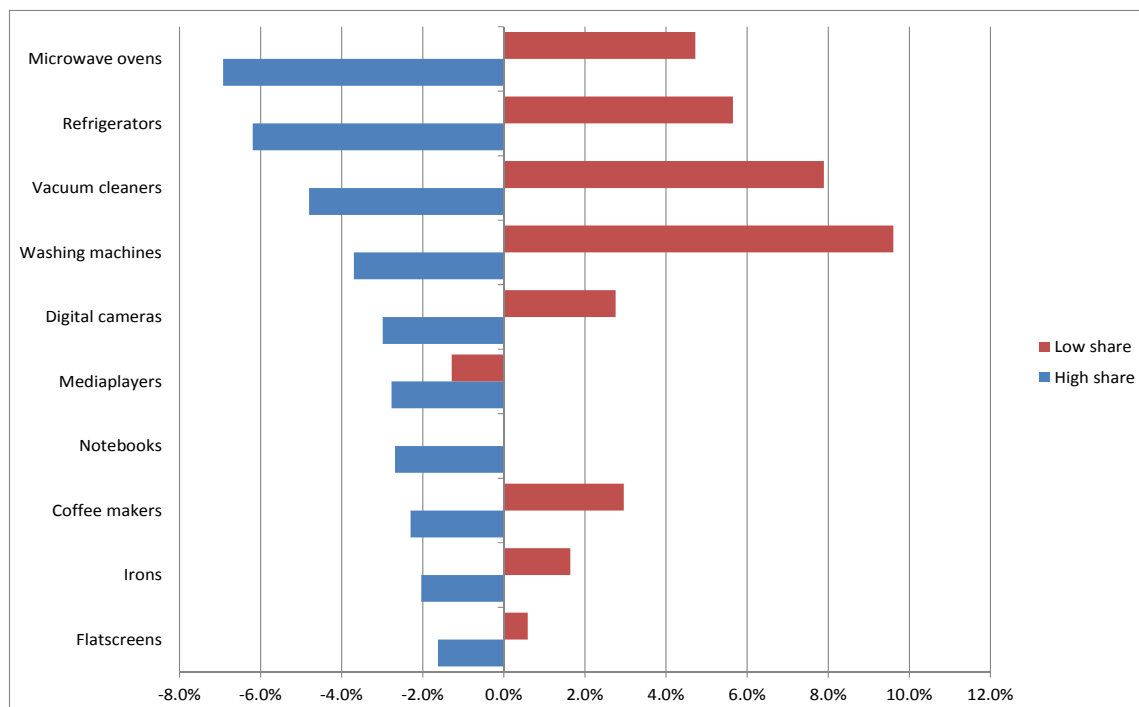
6.5. Relation of prices to income

The differences in national price levels (AUP) seem to be less correlated with income levels (measured in the GDP per capita) than the differences in the ASP levels (described in section 6.3). The strongest positive correlation can be observed for refrigerators, vacuum cleaners and microwave ovens. This means that the price levels in a particular country are not a simple outcome of the purchasing power of consumers in that country or, going further, of the underlying costs in a national market.

When the shares of particular products in national sales, thus the national consumption patterns, are taken into account, the differences in prices can be mitigated to some extent. Relative prices (compared to the EU average) are found to be typically lower for products or sub-categories which have a higher share in the national market than in the EU, thus consumers seem to benefit from lower relative prices of products which are more commonly purchased in their country. This is in particular relevant for the larger household appliances, such as microwave ovens, washing machines or refrigerators but also for vacuum cleaners (figure 10). For example, prices of refrigerators that are more commonly sold in a country in comparison to the EU market can be around 6% lower than EU average price for all refrigerators.

Figure 10

Average difference between AUP indices for high and low market share products (or sub-categories) compared to overall AUP index



Source: "Study on the Competitiveness of the EU electrical and electronic goods markets with a focus on pricing and pricing strategies", report by Ecorys, calculations based on GfK data, 2011

6.6. Choice of comparable products across countries

The 2009 Consumer Satisfaction Survey looked into consumer satisfaction with aspects of choice in household electrical equipment and entertainment and leisure goods. Consumers who bought household electrical equipment were more satisfied with choice of goods at different prices and different qualities, as well as with the retailers' offer of innovative products (respectively 71%, 71% and 72% for the EU27 average) than with choice of products that would be environment-friendly (59%). Consumers satisfaction with the choice in the entertainment and leisure goods market was similar: on the average around 70% of the EU consumers were satisfied with the choice of goods at different prices and different qualities, as well as with the choice of technologically advanced products, whereas 52% were satisfied with the retailers' offer of products produced in an environmentally friendly way. Typically, the choice of products was evaluated better by consumers in the countries that joined the EU recently. This could be explained by different experiences and expectations of consumers across the EU¹⁴.

The fact that the GfK data analysed in the Study on Competitiveness contained information on prices of 91 thousand individual models sold across Europe, including 21

¹⁴ IPSOS Consumer Satisfaction Survey; "Household electrical equipment" market report; 2009

IPSOS Consumer Satisfaction Survey; "Entertainment and leisure goods" market report; 2009

thousand PC notebooks and 17 thousand refrigerators indicates itself the vast number of products offered by the EU market. Thus, actually, consumers might even be overwhelmed by this choice. The analysis of data also shows that the offer varies significantly between countries, which may suggest on one hand that producers or retailers try to respond to different national consumer preferences but on the other hand it contributes to the fragmentation of the Single Market. Also the consumer ability to compare products in such a complex market might be limited, which may indirectly lead to taking sub-optimal purchasing decisions or impede cross-border shopping. Although consumers were satisfied with their ability to compare prices and quality of products at a retailer (66%-72%), cross-border comparability of products was found much more problematic: almost 40% were dissatisfied and only around 20% said they could easily compare prices and quality of household appliances or entertainment and leisure goods between national and foreign retailers¹⁵.

In order to find out to what extent comparable products are available to consumers across countries, the price analysis in the Study on Competitiveness looked into the occurrence of identical models across national markets. The results show that only for digital still cameras and portable media players was it possible to identify products that were sold in all 21 countries analysed (pan-EU products) and which accounted for 47% and 52% of units sold for these categories respectively – table 4. In the case of flat screen TVs it was possible to extract a sample of products that were sold in most of the countries analysed and which covered 36% of the units sold. For the other categories, it was impossible to construct a sample of products that would be identical across the countries and also representative for the EU market in terms of number of units sold. This already shows that the EU market is more fragmented for the electric than for the electronic goods, where still a substantial share of sales is generated by models available in all or most of the countries¹⁶. For the needs of the analysis, the categories where a sample of pan-EU products could not be extracted were divided into sub-categories (technical segments), which then could be compared across countries. The sub-categories comprise products that have specified technical characteristics.

Table 4

Overview of characteristics of representative products and sub-categories

Category	Retained sample of representative products or sub-categories	Number of products or sub-categories retained	Share of the market covered by selection group (% of units sold)
Digital Still Cameras	Products sold in all countries	111	47%
Flatscreen TVs	Products sold in	256	36%

¹⁵ Ibidem

¹⁶ Based on the GfK data, digital cameras has the highest market share (79% of units sold) of models sold in all or most of the countries covered by the database; for portable media players the share is 59% and for flat screen televisions 36%. For large domestic appliances (refrigerators, washing machines and microwave ovens) the share models sold in all or most countries is less than 1% of units sold. For small domestic appliances (vacuum cleaners, irons and coffee makers) and notebook computers the shares are between 3% and 9%.

	most countries		
Digital Portable Media Players	Products sold in all countries	62	52%
Refrigerators	Sub-categories sold in most countries	43	48%
Microwave Ovens	Sub-categories sold in most countries	44	48%
Washing Machines	Sub-categories sold in all countries	24	39%
Coffee Makers	Sub-categories sold in all countries	33	66%
Irons	Sub-categories sold in all countries	16	32%
Vacuum Cleaners	Sub-categories sold in all countries	22	47%
Mobile Computers	Sub-categories sold in all countries	84	81%

Source: "Study on the Competitiveness of the EU electrical and electronic goods markets with a focus on pricing and pricing strategies", report by Ecorys, calculations based on GfK data, 2011

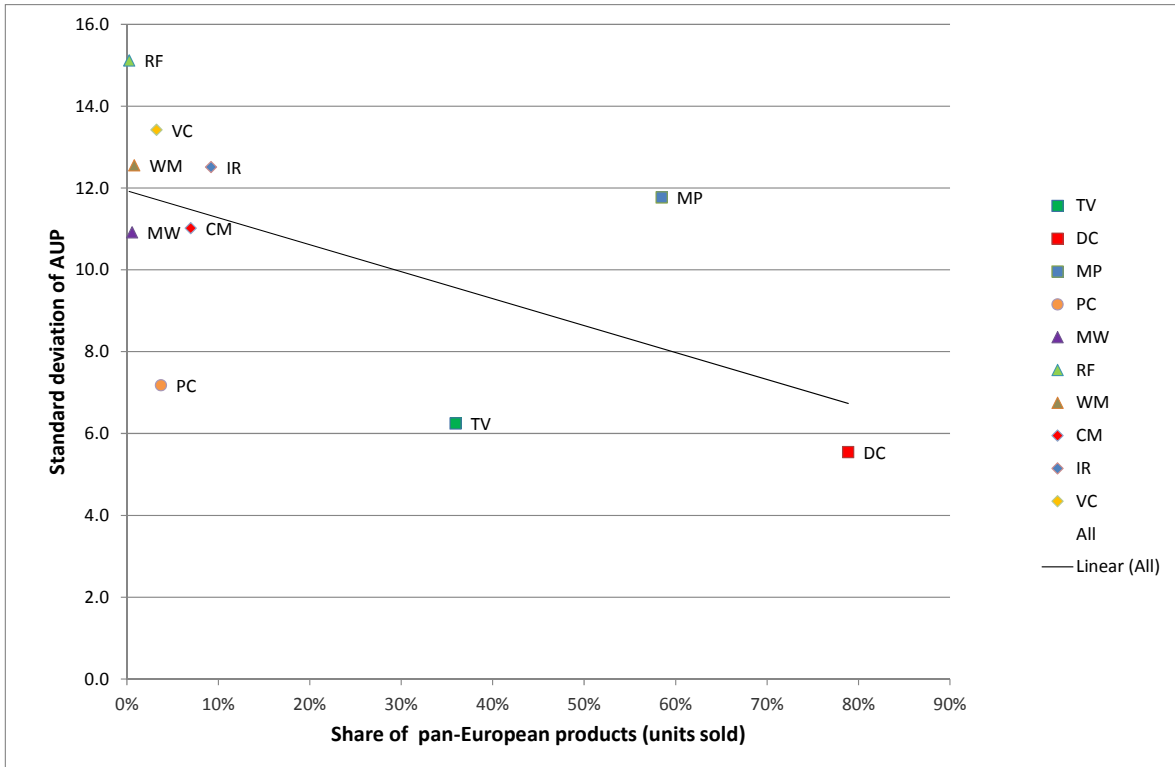
6.7. Convergence of prices across countries

Across product categories, a higher variation of prices across countries is observed for electric goods than for consumer electronics. This might be linked to the fact that electric appliances are still to a great extent produced in the EU for local/national markets and consumers seem to prefer local products, whereas the electronic goods are usually imported to Europe.

It is important to note here that for the majority of the 10 categories, the price analysis takes into account the prevalence of pan-EU sub-categories, which is precisely due to lack of pan-EU individual models. The prevalence of pan-EU models seems to have an impact on the level of dispersion of prices across the countries analysed. Generally, for the categories where pan-EU models or sub-categories have a higher share in the number of units sold, the level of prices measured as the Average Unit Price Index converges more across countries – figures 11 and 12. Thus availability of identical or highly comparable products to consumers is a factor that strengthens the integration of the Single Market in terms of price levels.

Figure 11

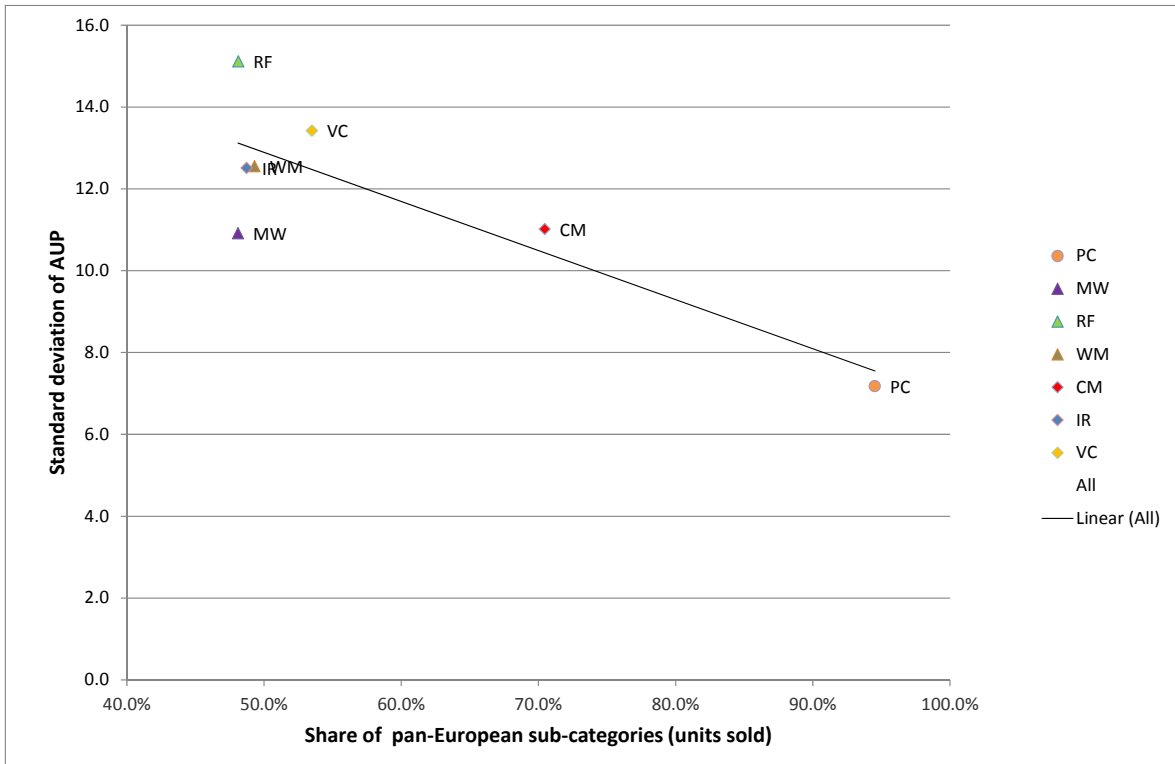
Correspondence between market share of pan-European products and dispersion of AUP indices



Source: "Study on the Competitiveness of the EU electrical and electronic goods markets with a focus on pricing and pricing strategies", report by Ecorys, calculations based on GfK data, 2011

Figure 12

Correspondence between market share of pan-European sub-categories and dispersion of AUP indices



Source: "Study on the Competitiveness of the EU electrical and electronic goods markets with a focus on pricing and pricing strategies", report by Ecorys, calculations based on GfK data, 2011

The results however do not indicate whether the actual prevalence of pan-EU products in particular categories within particular Member States leads to weaker price dispersion for a category within a national market. Only for washing machines and coffee makers a higher share of pan-EU products seems to go in hand with less dispersed prices within particular countries. Neither can it be observed that the prevalence of pan-EU products would have an impact on the country price levels for particular categories. Analysis of data for digital cameras and vacuum cleaners suggests that prices (measured in the AUP Index) may actually be higher in countries where pan-EU products account for a higher share of units sold.

6.8. Link between prices and concentration in retail and production

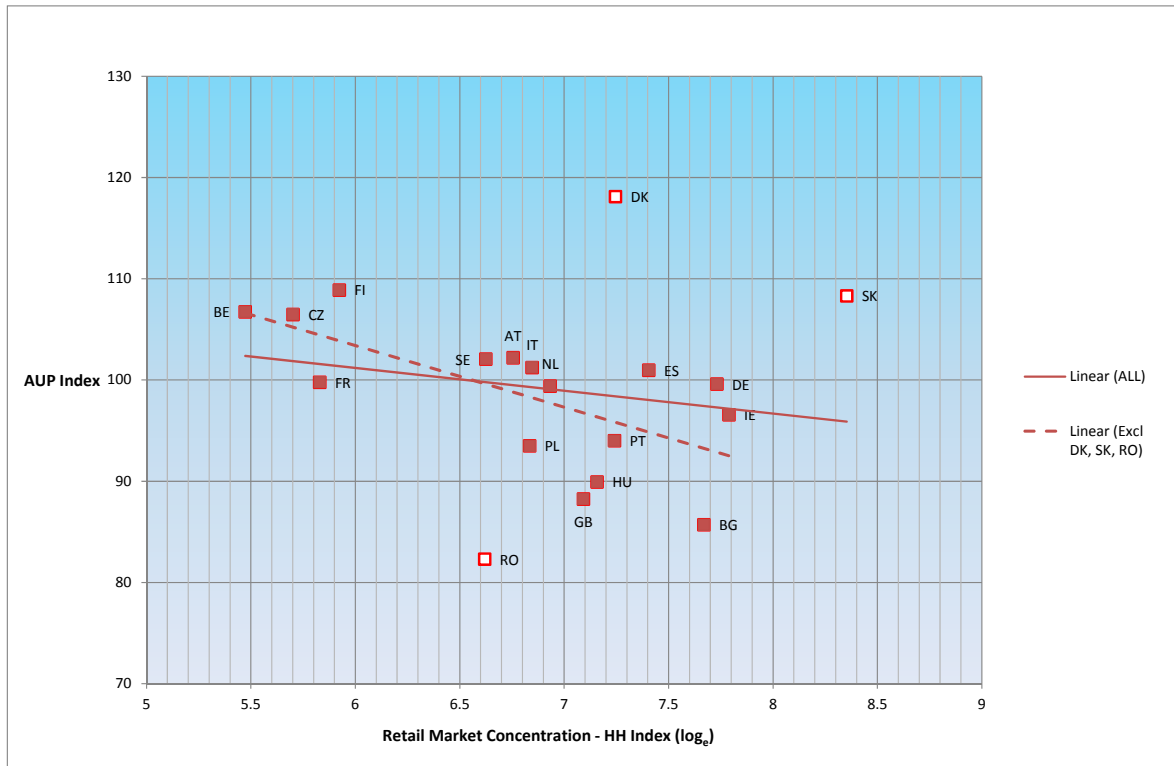
The structure of the retail market of electric and electronic appliances varies between countries, however a general trend of growing concentration can be observed (as described in the Study on the Competitiveness of the EU electrical and electronic goods markets). Although the concentration level is not a direct measure of the functioning of competition in a given market, these two issues can be often related. Higher concentration often also means bigger companies, which can benefit from economies of scale and higher efficiency.

As regards retail, a higher Herfindahl index¹⁷ seems to be strongly linked to lower Average Unit Price Index across all countries analysed except Denmark (where the AUP Index is high), Romania (where the AUP Index is low) and Slovakia (where the concentration in the retail market is the highest – figure 13).

Figure 13

Correspondence between retail market structure (C4 H Index) and mean AUPI by country

¹⁷ The approximate Herfindahl indices are based on the market shares of the top 4 retail groups in the electronics appliance and specialist retailers market. The data used relate to 2009 market positions



Source: "Study on the Competitiveness of the EU electrical and electronic goods markets with a focus on pricing and pricing strategies", report by Ecorys, calculations based on GfK data, 2011

Similarly to the relationship between the retail market concentration and level of prices, also the average retail firm size measured by the number of persons employed is negatively correlated with the level of prices, however this relation is weaker.

Generally, data suggests that retailers with higher market shares benefit from economies of scale or/and companies that employ a higher number of persons achieve some efficiency gains. Also a higher concentration might mean stronger competition in the national retail markets. All of these factors might contribute to lower average prices for consumers. A further analysis does not show however any meaningful correlation between the concentration of producers of electric and electronic goods or of brand owners and the level of prices in EU countries.

7. E-COMMERCE AND CROSS-BORDER SALES

According to recent survey data¹⁸, 46% of consumers shopped online in the EU Single Market, compared to 37% in 2010 and 33% in 2008. The internet is the most popular distance sales channel. Despite the positive development in e-commerce use by

¹⁸ Flash EB 332: "Cross-border trade and consumer protection", TNS Opinion & Social at the request of Directorate-General for Health and Consumers; to be published

consumers, the proportion of retailers using e-commerce (selling products via the internet) dropped between 2010 and 2011, from 53% to 41%¹⁹.

Whilst e-commerce is becoming more widespread, the cross-border part is not developing as quickly as the domestic one. The number of consumers shopping cross-border over the internet was stable between 2008 and 2010, around 7%, however increased in 2011 to 10%. Majority of retailers (65%) only sell to consumers in their own country (74% in 2010), however, more retailers were selling cross-border in 2011 than in 2010 (27% vs. 21%). In 2011, consumers reported making cross-border purchases worth on average €381, compared to €653 in 2010 and €785 in 2009. An increasing number of consumers feel confident about shopping cross-border.

Nevertheless, a mystery shopping survey carried out by the Commission in 2009 revealed that in 6 out of 10 cases consumers could not finalise their purchase when trying to order a good from an online trader located in another EU country. In comparison to books, films and music or clothes, it was for electrical household appliances and electronic equipment where placing a successful cross-border order was most difficult²⁰.

Electronic equipment is most popular amongst product categories bought online – it accounted for 18% of consumers' last purchases in comparison to clothes, shoes and jewellery (17%) or books (10%). Electric household appliances constitute 6% of online purchases²¹.

7.1. Choice of products online and offline

In general, online sales seem to play a complementary role to offline sales. The models available on the Internet are most often the more popular models in the brick and mortar shops – over 95% of models available online are also present offline. There is a group of models that are rather exclusive for online sales (e.g. some niche products), but these are responsible for only a small proportion of sales.

As mentioned in section 6.6, the Study on Competitiveness shows that much more products are available in the brick-and-mortar stores than on the Internet. However, from a perspective of an individual consumer, who can have access to only a limited number of local shops in his or her range of convenient shopping, the access to online shops is much wider, even at a country-level, not to mention cross-border purchases. This also means access to a much wider choice of products that can be purchased. A recently finalised study on the functioning of the e-commerce in the EU showed that the choice of

¹⁹ Flash EB 331: "Business attitudes towards cross-border trade and consumer protection ", TNS Opinion & Social at the request of Directorate-General for Health and Consumers; to be published

²⁰ Mystery Shopping Evaluation of Cross-Border E-Commerce in the EU, Conducted on behalf of the European Commission, 2009; http://ec.europa.eu/consumers/consumer_research/market_studies/docs/mystery_shopping_eval_en.pdf

²¹ "Consumer market study on the functioning of e-commerce and Internet marketing and selling techniques in the retail of goods", conducted by Civic Consulting on behalf of the European Commission; 2011 ;

products for some product categories for an individual consumer can be twice as broad online than offline when shopping domestically, e.g. for mobile phones or portable media players. If consumers shop online across the EU they can have up to 16 times more products to choose from²².

7.2. Comparison of prices for online and offline sales channels and impact of online sales on price dispersion across countries

Possibility of finding cheaper products online is the most important reason for consumers to buy products online, before the possibility to save time. The perceived easiness to compare prices online is the third reason²³.

Within national markets, prices for particular models analysed in the Study on the Competitiveness of the EU electrical and electronic goods markets were on average significantly lower online than offline. Excluding delivery costs²⁴, a typical saving for individual models from buying online would be 5% of the online price. Then, if the structure of online sales is taken into account, thus the price data is weighted by the sales, it can be noticed that the difference in prices can be greater as the actual online sales are dominated by products significantly cheaper online than offline. However, there is a substantial number of models which are more expensive online than offline.

Online prices seem to be less differentiated than offline prices. Generally, for the product categories for which the Internet sales represent a higher share of units sold, the average prices converge more across countries. This might be partly explained by the fact that online sales are more prevalent for the electronic than for the electrical goods, and the electronic goods are on average to a larger extent more homogeneous in terms of identical models available across countries than the electrical goods, where usually models differ a lot across local markets. The online sales seem however to play a role in

²² "Consumer market study on the functioning of e-commerce and Internet marketing and selling techniques in the retail of goods", conducted by Civic Consulting on behalf of the European Commission; 2011
http://ec.europa.eu/consumers/consumer_research/market_studies/e_commerce_study_en.htm

This estimation does not cover the whole retail market. In the whole retail market there is more choice offline, since there are far more businesses selling offline than online. However, a consumer is not likely to visit or have information from all online and offline shops before making a purchase. A consumer is more likely to make a limited number of visits to online and offline shops

²³ "Consumer market study on the functioning of e-commerce and Internet marketing and selling techniques in the retail of goods", conducted by Civic Consulting on behalf of the European Commission; 2011;
http://ec.europa.eu/consumers/consumer_research/market_studies/e_commerce_study_en.htm

²⁴ The delivery costs for electronic goods might range from 2 EUR to over 30 EUR, depending on the country and also on the size of the parcel and delivery conditions; "Consumer market study on the functioning of e-commerce and Internet marketing and selling techniques in the retail of goods", conducted by Civic Consulting on behalf of the European Commission; 2011

increasing the across country price convergence also for the "pan-European" models²⁵. Prices of these are more differentiated offline than online.

There is however no strong or systematic evidence that a higher share of Internet sales leads to a higher convergence of prices between online and offline markets within a country, which might suggest that at this stage of the development of different sales channels, the fact that prices are often lower online does not make the offline sellers inclined to decrease their prices.

The online market for the electric and electronic goods is not at the same stage of development across countries and across product categories. The Study on Competitiveness data analysis for online sales of six product categories²⁶ and six countries²⁷ shows that 18% of notebooks, whereas only 3% of irons are sold online in the EU6. Usually, these shares are the highest in the UK and the lowest in Italy and Poland.

7.3. Pan-EU products and possible microeconomic gains for consumers

The Study on Competitiveness has revealed that if consumers could hypothetically compare the prices across the EU and buy products in the country where they would find the cheapest offer, they would often be able to save money. For example, given that the VAT rate is the same across Member States, a German or a Dutch consumer could save on average over 150 EUR when buying a flat screen TV in a shop in a country with the lowest prices for TVs, and a French consumer could save over 120 EUR when buying a notebook offline and up to 110 EUR when buying a refrigerator online in a country with the lowest prices for relevant products²⁸. In percentage terms, the most significant savings could potentially be obtained by German, French and Dutch consumers buying an MP3 media player offline (they would pay respectively 35%, 24% and 23% less than the average price in their home country). VAT rates for the products analysed range from 17.5% to 22% across the six countries.

Savings for consumers buying online within their country might slightly differ depending on whether the product is a local one or is available across the countries analysed (pan-EU product)²⁹. Although the situation might still be different for particular product categories or countries, the overall tendency indicates that if consumers buy online a pan-EU model they can save on average ca. 3pp. more than when buying a local one. However, as mentioned before, the share of pan-EU models in sales is still low for

²⁵ "Pan-European" in the analysis of the Internet sales is actually limited to 6 countries: FR, DE, UK, IT, NL, PL

²⁶ 6 product categories: notebooks, MP3 players, digital cameras, flat screen TVs, refrigerators and irons

²⁷ The countries included in the analysis of the online and offline sales are: FR, DE, UK, IT, NL, PL. For other countries the data was not available.

²⁸ This comparison is performed for a limited number of countries: Germany, France, the Netherlands, Italy, Poland and the United Kingdom, and for products available across these 6 countries within the following product categories: flat screen TVs, digital cameras, MP3 media players, PC notebooks, refrigerators and irons.

²⁹ Again, the number of countries is limited to the six mentioned earlier.

appliances such as refrigerators and irons. Such models are more common among televisions, digital cameras and media players.

7.4. Internet potential and functioning of websites selling consumer electronics

In terms of choice of products available to consumers as well as differences in prices, there is a significant potential for the development of online sales in many Member States. There are however still a number of obstacles that consumers face while buying on the Internet. The study of the functioning of e-commerce in the EU shows that many consumers still want to see the product before they buy it or they want to take it home immediately. These concerns are rather hard to address by the e-traders at the moment, although this might change with a further development of the technology. A substantial number of consumers is also afraid of unfair or fraudulent commercial practices³⁰.

An "EU sweep"³¹ carried out in 2009 targeted websites selling electronic goods, such as mobile phones, digital cameras and personal music players. It revealed that only 44% of websites checked actually complied with EU laws. A second phase of the investigation conducted in 2010 showed a significant improvement of the situation as 84% of websites checked for breach of EU consumer rules were functioning properly. The problems identified included misleading information on consumer rights, incorrect prices and missing contact details of the trader.

8. SUSTAINABILITY

8.1. Energy efficiency information (online and offline) and regulatory environment

Producers of household equipment, in particular of larger electrical appliances, are obliged to provide consumers with information about the energy consumption of the product.

A recent update of the EU legislation (Directive on the indication by labelling and standard product information of the consumption of energy and other resources by

³⁰ "Consumer market study on the functioning of e-commerce and Internet marketing and selling techniques in the retail of goods", conducted by Civic Consulting on behalf of the European Commission; 2011;
http://ec.europa.eu/consumers/consumer_research/market_studies/e_commerce_study_en.htm

³¹ An "EU sweep" is a joint EU investigation and enforcement action to check for compliance with consumer laws on a particular market in order to see where consumer rights are being compromised or denied.

http://ec.europa.eu/consumers/enforcement/sweep/electronic_goods/index_en.htm

energy-related products)³² regards the range of products covered (e.g. by including televisions) and the scope of the information provided, by including the average annual electricity and water consumption for washing machines or dishwashers or volume of the appliance for refrigerators. It also presents the design of the updated energy class labels. The provisions of the directive oblige the producer to supply a label on a product and the trader to always pass the information on the energy efficiency of the appliance to the consumer, regardless of sales channel used. Thus such information has to be available also to consumers purchasing such products online.

8.2. Uptake of energy efficient products in the EU and across countries

The information on the energy usage of electrical or electronic goods is gaining on significance for consumer purchasing decisions. The energy class labels, which refer mainly to large electrical appliances, provide consumers with an easy to access and understand information with which they should be able to compare different products on offer. On the other hand, it is an incentive for producers, who want to remain competitive, to develop and offer products with a higher energy class.

The Study on the Competitiveness of EU electrical and electronics goods markets with a focus on pricing and pricing strategies looked into the energy classes of refrigerators and washing machines which were sold in the EU in 2008 – figure 14. The analysis showed that the uptake of higher energy class appliances is very high in the EU: generally over 90% belong to high energy efficiency classes (A and A+). The share of sales of A+ products does not seem to be correlated with higher average income levels. Such products are also common in the countries that joined the EU recently, e.g. class A+ refrigerators represent over 40% of units sold in Slovakia, Poland and the Czech Republic, and A+ washing machines account for 60% of units sold in Slovakia and Romania, and over 50 % in Slovenia, Poland and the Czech Republic. A relatively high uptake (from 3% to 9% of units sold) of products with the highest energy class (A++) could be observed in Germany, Austria, the Netherlands, Finland, Sweden, Denmark and Belgium.

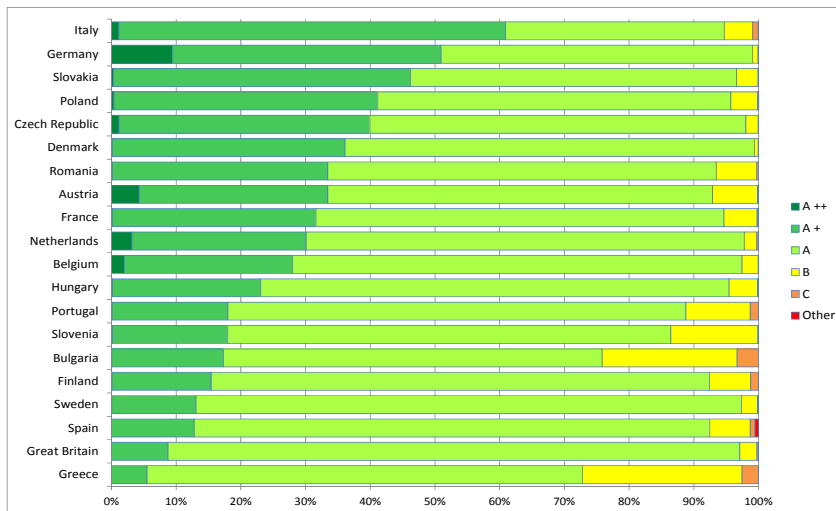
Figure 14

Share of sales (units sold) by energy efficiency factor

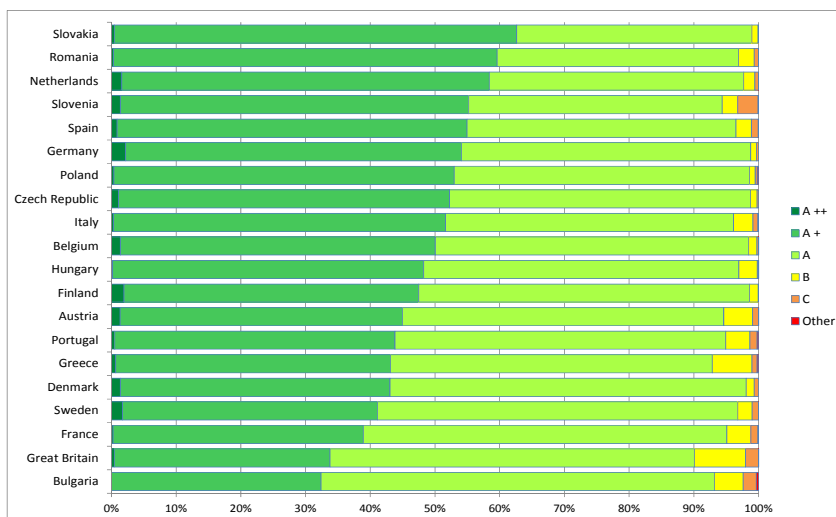
Refrigerators

³² Directive 2010/30/EU of the European Parliament and of the Council of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products

http://ec.europa.eu/energy/efficiency/labelling/labelling_en.htm



Washing machines



Source: "Study on the Competitiveness of the EU electrical and electronic goods markets with a focus on pricing and pricing strategies", report by Ecorys, calculations based on GfK data, 2011

The dominance of energy efficient appliances on the market is a clear success from the energy policy perspective. The producers compete on this factor. However, with over 90% of the market belonging to two energy classes (A and A+), the comparison for consumers is becoming more difficult. This challenge will be partly addressed by introduction of another class – A+++. Also the additional information on the annual usage of energy or water should help consumer to estimate the running costs of an appliance. What could probably be even more helpful here, would be the actual costs presented in money terms together with the energy class, which could inform consumers when their potential investment in a higher energy class product will pay off by saving on the energy or water bills. The technological development will probably still require in some future a further revision of the way the energy efficiency is labelled.

8.3. Relation between prices of particular energy classes and across countries

Comparison of prices for the particular energy classes across countries shows that class A refrigerators are on average most expensive in Denmark, Sweden, Finland, Belgium and Austria, whereas in the UK, Portugal and the countries that joined the EU in and after 2004 the average unit price indices for these products appear to be below the EU average. This generally reflects the overall pattern of relative prices across countries. As regards washing machines, the countries which stand out in terms of relatively high prices of products of classes A and A+ are Denmark and the southern Member States – Italy, Greece and Spain.

For refrigerators, in countries where the price difference between A+ and A is smaller, the market share of products of class A+ is higher. For washing machines, a contrary relation can be observed. Generally, A+ refrigerators are from 10% to 35% more expensive than A models, and for washing machines the price might be up to 18% higher. The difference in energy consumption is respectively 20% and 10% for these two product categories.

8.4. Role of online sales in the sales of appliances with higher energy classes

For both, refrigerators and washing machines the Internet generates only a modest share of sales – e.g. 8% for refrigerators in the EU⁶³³. Additionally, not for all products sold online the information on the energy class was available. With regard to these limitations, the analysis shows that consumers tend to purchase A+ and A++ products to a similar extent online and offline. Only in Germany a clearly higher proportion of sales of higher energy class refrigerators is accounted for in online shops, and in Poland and the Czech Republic proportionally more higher energy class washing machines are sold on the Internet.

9. CONCLUSIONS

- Continued monitoring competition in these markets is important both for the businesses as well as for consumers as an increased competition at the national or EU level can lead to potential savings for consumers.
- Improved consumer information can help consumers make better choices. The Commission will work closely with product testing and other organisations providing information on product quality comparisons/price/best value for money, to see how to make results more available and comparable across the EU. Also, it will engage closely with information intermediaries in order to: a) ensure that they respect EU

³³ As mentioned before, this comparison is performed for a limited number of countries: Germany, France, the Netherlands, Italy, Poland and the United Kingdom, and for products available across these 6 countries.

consumer legislation, and b) encourage them to include cross-border offers on price and quality in a way that unlocks the potential of the Single Market³⁴.

- Further development of online sales can help consumers to obtain savings and have access to an additional choice of products, including offers from online retailers from abroad.
- Resource efficiency should be further promoted, taking into account the role of the energy efficiency factor in competition, as well as consumer needs and preferences.
- Clarity and user-friendliness of energy efficiency information should be promoted, including energy class labels in online sales. This requires monitoring compliance of online traders with the requirement to provide consumers with information on the energy class and also resource efficiency of a product in their Internet offers.

³⁴ Commission Communication A coherent framework for building trust in the Digital Single Market for e-commerce and online services, January 2012;
http://ec.europa.eu/consumers/consumer_research/market_studies/docs/communication_digital_single_market_ecommerce_en.pdf

Glossary

Market for electrical consumer goods	Comprises sales of products which belong to both: the market for small household appliances (Food-processing appliances, Coffee machines, Irons, Toasters, Grills, Other) and to the market for large domestic appliances (Electronic cookers, Fridges and freezers, Washing machines, Tumble dryers, Washer-dryers (combined), Dishwashers, Space heaters, Fixed heaters, Vacuum cleaners, Microwave ovens, Sewing machines, Portable heating appliances, Other)
Market for electronic consumer goods	Comprises sales of products which belong to both the market for ICT (Personal computers, Self-built computers, Computer accessories, Printers and scanners, Games consoles, Portable Games players, Computer software, Computer software upgrades, Laptops, notebooks and tablet PCs, PDA's and smart phones, Mobile phone devices, Fixed phone devices, Modems, Decoders, Other) and the market for non-ICT (DVD players-recorders, VCRs, TVs, CD, HI-FI, media players, non- portable CD, HI-FI, media players, portable Radios, Cameras, Video cameras, Photographic equipment, CDs (blank), DVDs (blank), Audio and video tapes (blank), Other)
Category of products	A group of products with a similar practical purpose (e.g. vacuum cleaners, TVsets)
Sub-category of products / technical segment	Within a category of products, a group of comparable products with substantially similar technical specifications (e.g. TV sets with a 32' LCD screen)
Product / model	A unique individual branded product/stock keeping unit (SKU) that has been given a unique marketing name and/or a product number by the manufacturer; is strictly comparable