The future of the European Energy Label

Heinzle & Wüstenhagen (2010): "Disimproving the European Energy Label's value for consumers? Results of a consumer survey" (work in progress)

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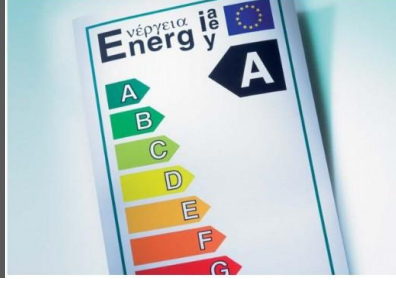
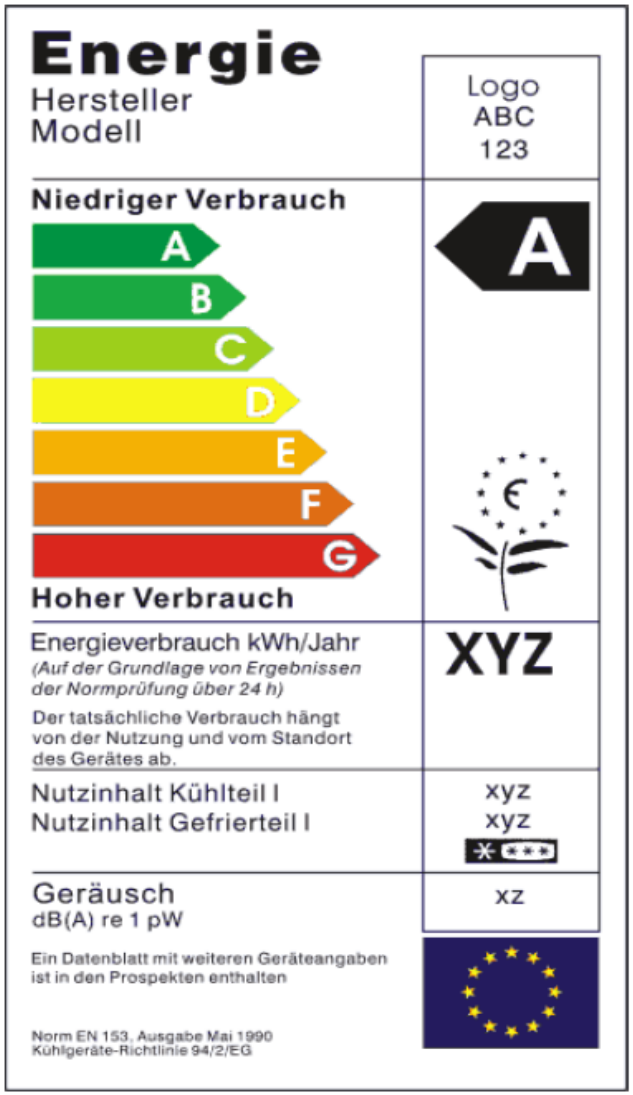
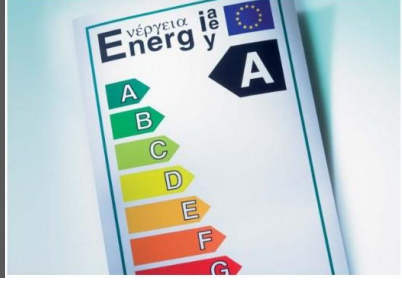
Background information on the European Energy Label





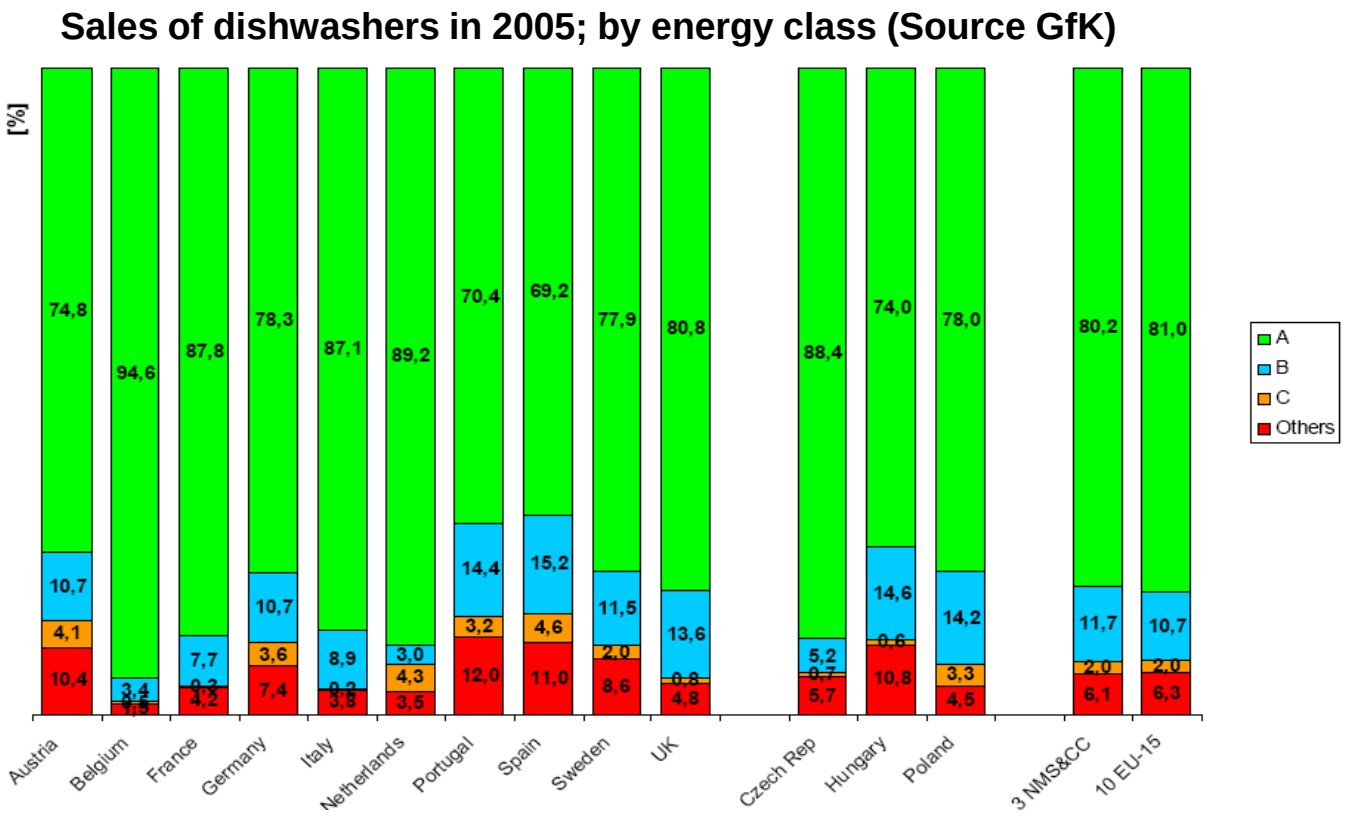
- The 92/75/EEC "Energy Labelling Directive for Household Appliances", adopted in 1992, requires retailers to display a compulsory label for different kinds of appliance categories
- Energy efficiency was rated in terms of a set of energy efficiency classes: from A to G

Development of the market

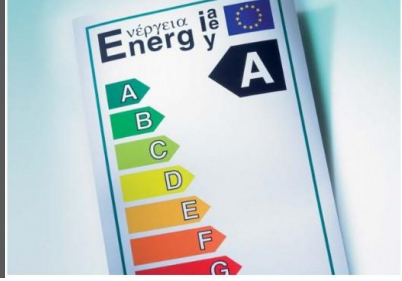


- By fostering innovation, more and more energy-efficient products were developed so that for many product categories, the highest class of the scale has already been achieved or even surpassed

- Nowadays hardly any appliances with an energy label below D are sold on the market

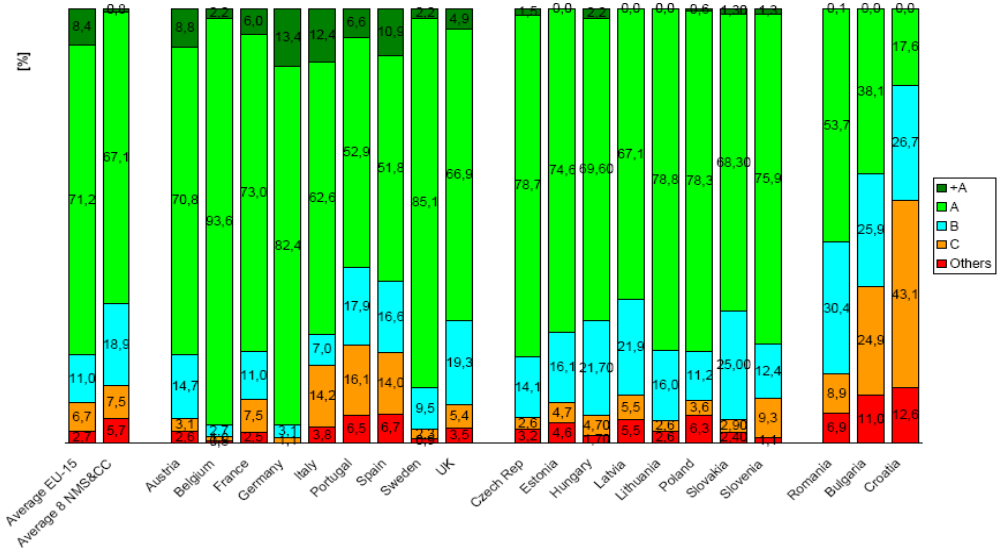


Enlargement of the scale –
The European Energy Label as a victim of its own success

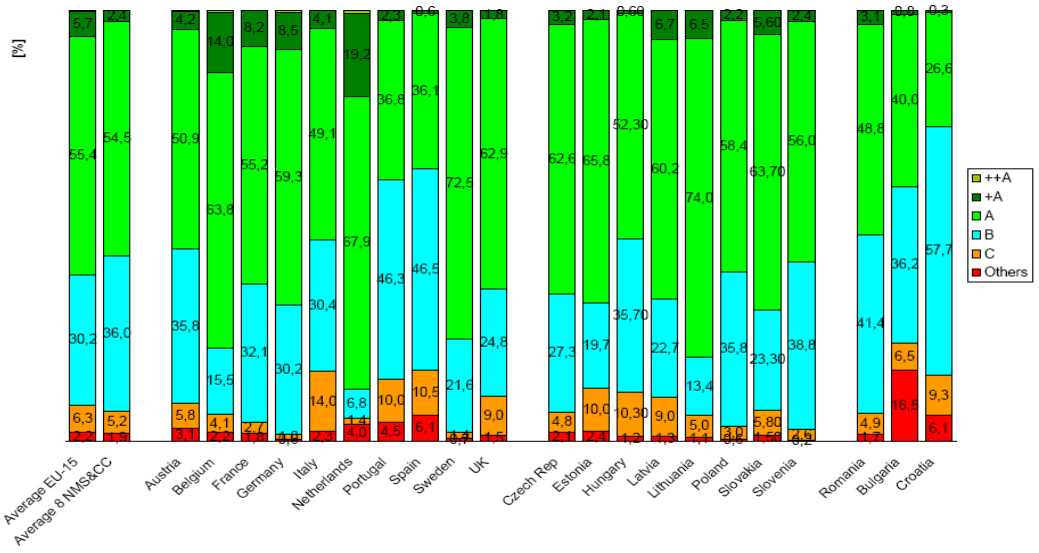


- In 2003, the entire scaling system was expanded to include new energy efficiency categories on top of class A (A+ for washing machines, A+ and A++ for refrigerators and freezers)
- Scheme was regarded as only an interim arrangement until a comprehensive revision of the energy labeling classes had taken place

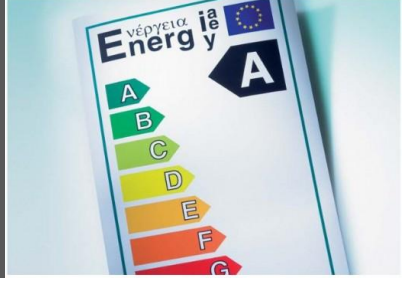
Sales of washing machines in 2005; by energy class (Source GfK)



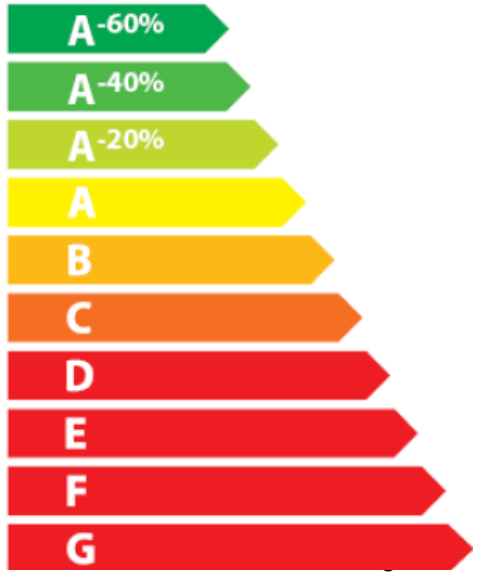
Sales of refrigerators in 2005; by energy class (Source GfK)



Update of the scale – Introduction of new "A" classes vs. closed



- In Spring 2009, the Commission proposed the introduction of new "A" classes such as A-20%, A-40% and A-60% on top of class A. However, the Parliament rejected in May 2009 the proposal to introduce these additional classes
- The main feature of that system was that the energy efficiency class of a particular appliance would remain unchanged over time → no need to attach an updated sticker on the appliances
- Opponents: label would prove less effective in meeting its objectives and question would still remain unanswered of what would happen in the long term (A-100% not possible)



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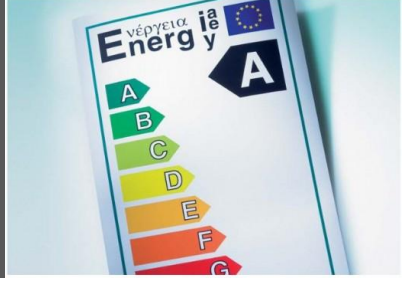
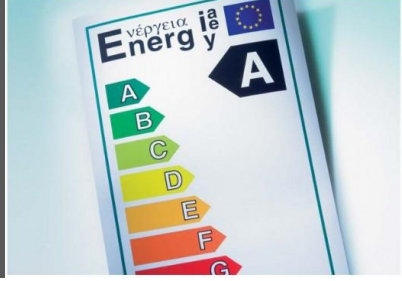
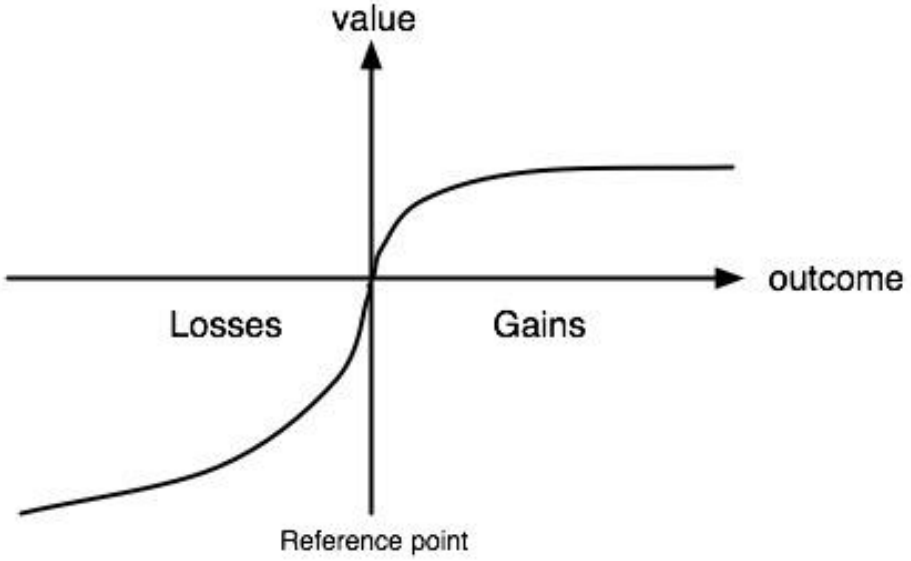


- After months of negotiations, a compromise proposal finally reached an agreement with members of the European Parliament and the European Commission.
- The layout of the energy efficiency label will allow for up to three new energy classes but will still limit the total number of classes to 7
- Environmental and consumer groups criticize this proposal heavily but support the retention of a simple, closed A-G energy label, provided that a dynamic system would be implemented
- Industry feared complex re-labelling requirement for manufacturers and retailers and confusion in the market while the old "A-G" labels coexisted with new, revised "A-G" labels
- Parliament has finally approved the new layout in May 2010

Theoretical reference framework: Prospect Theory and Adaptation-level theory

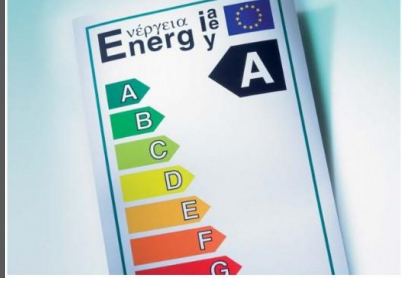


- According to prospect theory (Kahneman and Tversky, 1979) consumers evaluate outcomes with regard to a reference point
- Adaptation-level theory (Helson, 1948, 1964, 1971) supports the role of such a reference point
- The theory postulates that the effect of a stimulus depends on the relation of that stimulus to preceding stimuli which have created an adaptation level (e.g. salary)

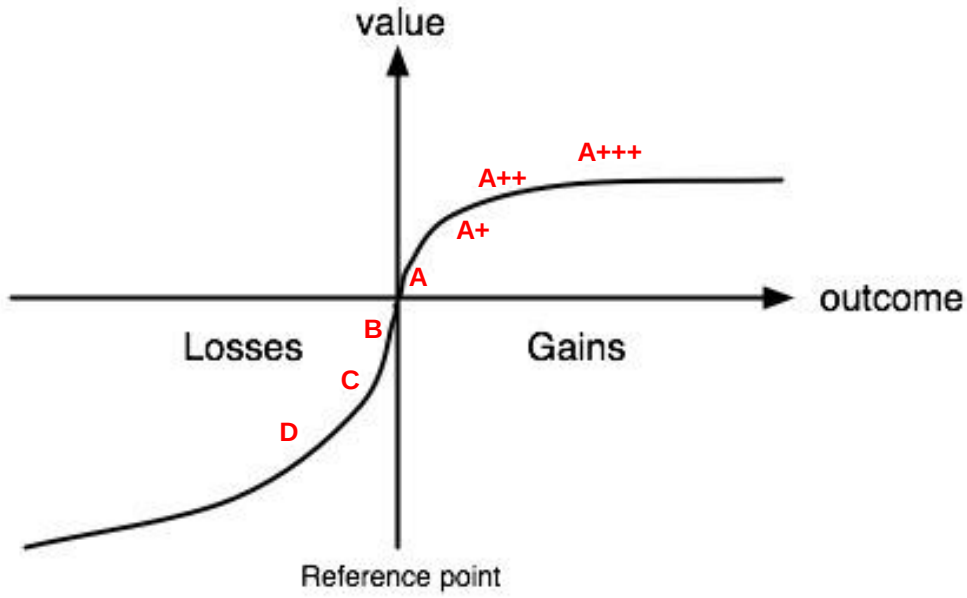


- Reference point has been over 15 years the best product category "A" and has been deeply anchored in people's heads
- The function is sharply linked at the reference point, and loss-averse – steeper for losses than for gains by a factor of about 2 – 2.5 (Kahneman et al., 1991; Tversky and Kahneman, 1992).

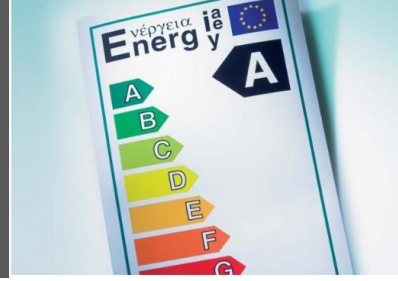
Theoretical reference framework: Prospect Theory and Adaptation-level theory



- **Hypothesis:** *The relationship between energy efficiency class and price that consumers are willing to pay is steeper for losses (B,C,D) than for gains (A+, A++, A+++) by a factor about 2 – 2.5*



Methodology: Discrete Choice Experiments



The European Union is planning to introduce a new label for televisions, which will look like the following:

The colour "green" stands for low energy consumption, the colour "red" stands for very high-consuming energy appliances.

If these were your only options, which would you choose?
Choose by clicking one of the buttons below:

Brand	Philips	Samsung	Sony	TCM von Tchibo
Equipment version	High-Tech***	Medium**	Medium**	Simple*
Energy efficiency class	A+++	A++	A+	A
Price	949€	799€	649€	499€
	○	○	○	○

Equipment version:
* Simple: HD-Ready, 1xHDMI, Response time 8, contrast ratio 5000:1
** Medium: HD-Ready, 2xHDMI, USB, response time 6, contrast ratio 10000:1
*** High-Tech: Full-HD, 4xHDMI, PC connection, USB, response time 4, contrast ratio 50000:1

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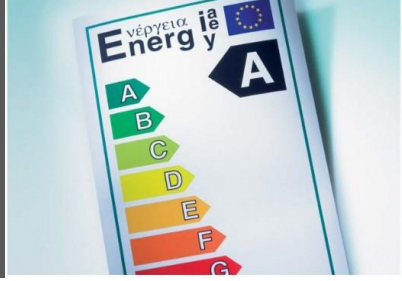
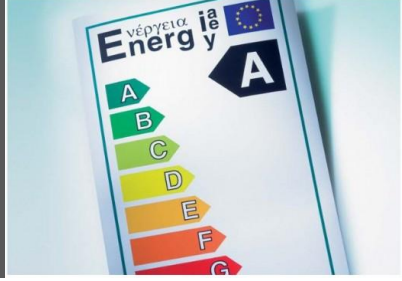
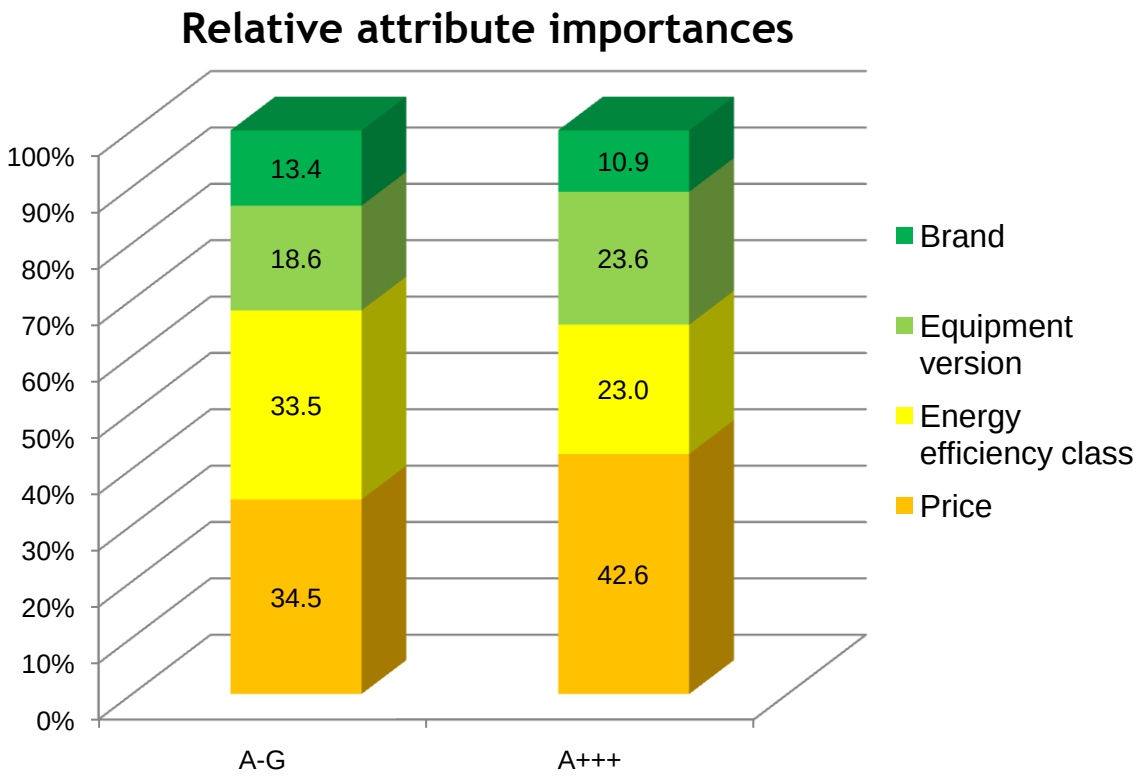
Discrete Choice Design



- Respondents were split up into two different samples, which only differed regard to the presentation format of the label
- Differences in the preference structure between the two subgroups could be traced back to the different label versions
- Series of 12 choice tasks with four different television alternatives
- Study is based on 2244 choice observations in Germany, based on 12 choices each of 187 respondents (recruited by GfK)
- Looking at socio-demographic characteristics of the two samples, they are largely consistent

Results (Importances)

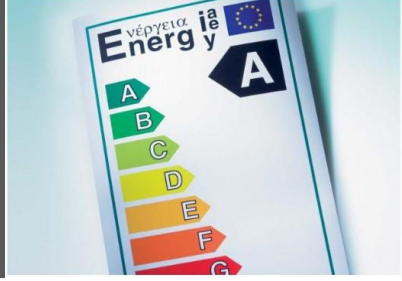


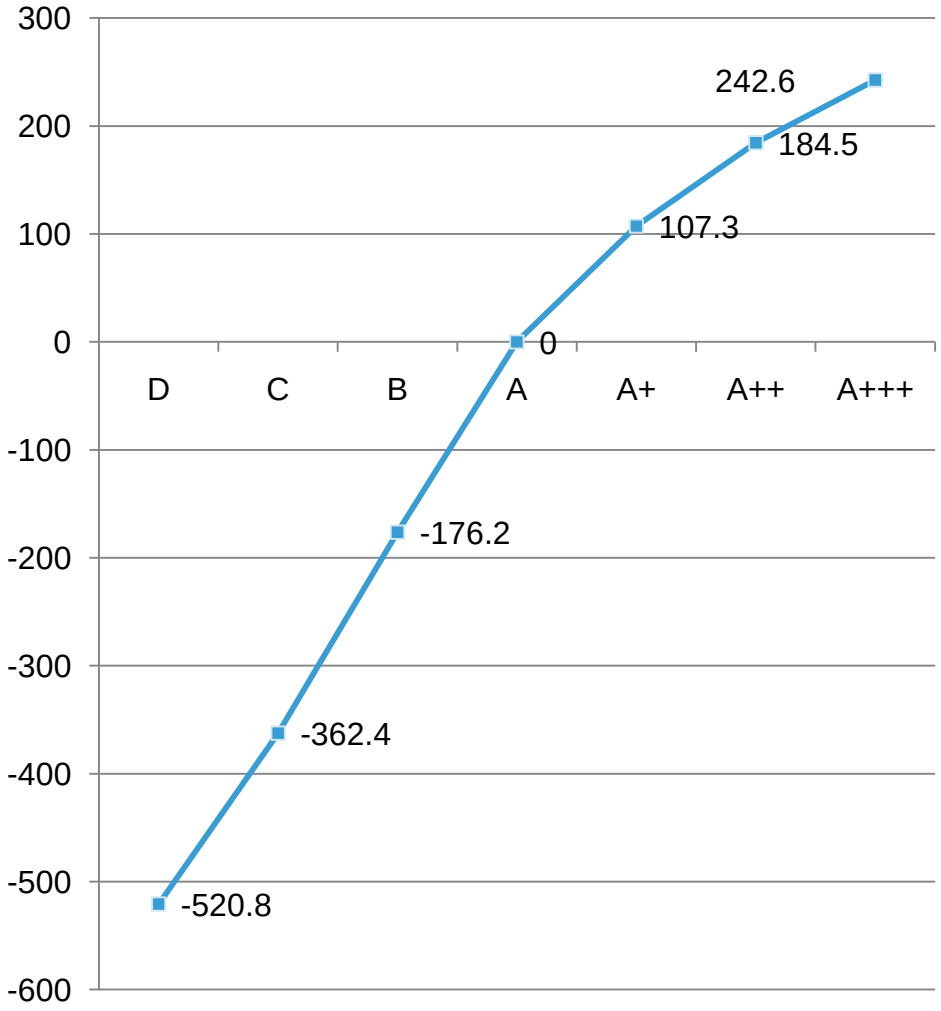


- Relative attribute importances describe how much influence each attribute has on the purchase decision
- Whereas with the old label, the energy efficiency rating was almost equally important to price, the importance of the energy label sharply dropped with the introduction of the new label version, and consumers relied much more heavily on price

- Statistical differences between groups tested with Mann-Whitney U Test ($p>0.05$, two-sided) → ($p = 0.000$)

Results (willingness-to-pay)



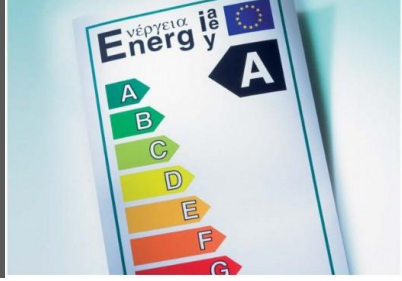


- We showed that the findings support the value function that prospect theory predicts

- We tested the effect of the energy classes on price and showed that the WTP between classes is steeper for classes B,C,D than for classes A+,A++ and A+++

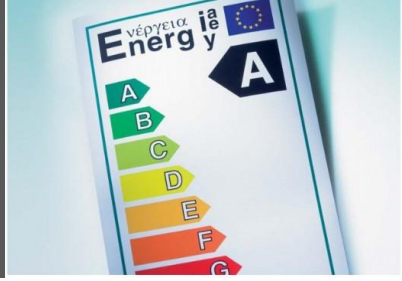
- **Hypothesis:** The relationship between energy efficiency class and price that consumers are willing to pay is steeper for losses (B,C,D) than for gains (A+, A++, A+++) by a factor about 2 – 2.5 → *hypothesis confirmed by a factor 2.15*

Conclusions

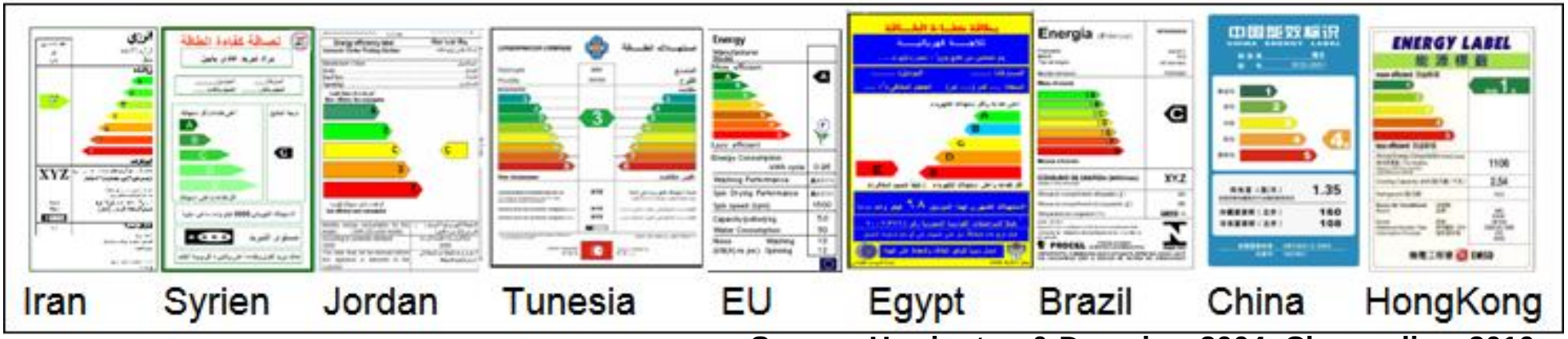


- Results show that introducing the new label with its additional categories weakens the effect of the label, resulting in lower consumer awareness about energy efficiency as an important attribute
- This strong willingness to pay for a labelled product should be encouraging for manufacturers to support the maintenance of the well-known A-G scheme in order to differentiate themselves based on energy-efficient products

Discussion



• How does the decision of the European Union influences other labeling schemes worldwide?



Source: Harrington & Damnics, 2004; Clasponline, 2010