Chapter 7

Using behavioural insights to improve waste management and resource efficiency

This chapter presents behavioural interventions implemented to improve waste management and resource efficiency policies. Relevant behavioural biases are highlighted, together with the behavioural levers used by policy makers to tackle them. On the one hand, there have been interventions trying to ensure sound waste management, e.g. preventing littering. On the other hand, a number of interventions promote the 3Rs (reduce, reuse, recycle), e.g. by inducing the purchase of long-living products and encouraging product repair as opposed to replacement.
Resource efficiency and waste management policies have multiple aims, which can be summarised with the 3Rs: reduce, reuse, recycle. Opting for longer-living products and packaging-free goods can, for instance, reduce waste generation. Eco-design can facilitate product reuse by simplifying repairs through modular components. Waste should be properly discarded and sorted (e.g. avoiding littering), incentivising the reuse and recycling of waste materials.

Multiple behavioural biases affect individual choices surrounding waste generation, sorting and recycling, as well as product reuse (see Reader’s Guide for definitions of all technical terms):

- When it comes to product choice, consumers subject to status-quo bias will naturally opt for standard, default options: if repair services for broken mobile phones are not common, mobile phones will be more likely replaced with new ones instead of having their lifespan extended.

- Correct waste sorting and recycling is hindered by the often unintuitive design of waste bins. Their design is often the by-product of complex waste sorting regulations; thus, correctly sorting waste requires a conscious effort rather than an automatic, effortless act.

- Littering is influenced both by attitude-behaviour gaps (whereby individuals do not reckon correct waste disposal as necessary civic duty), by miscalculation of the consequences of littering (both personal, e.g. being fined, and public, e.g. generating an environmental externality in the form of unregulated dumpsites) and by negative social norms (whereby individuals can be “incentivised” to litter if they see everyone else doing so).

Alongside behavioural biases, various market features hinder the implementation of policies based on the 3Rs and make it difficult for consumers to minimise waste generation and to maximise reuse and recycling. At the product choice stage, there is obvious information asymmetry between producers and consumers regarding the expected lifespan of a product and its repair possibilities. When it comes to household waste generation, consumers rarely receive feedback regarding the amount and type of waste they generate. Furthermore, it may be complex to connect waste generation to the cost of waste collection, which may be billed to households by their municipality as part of a generic residence tax.

Behavioural insights can contribute to shaping resource efficiency and waste management policies in several ways. For example, a more intuitive design of recycling bins could ease household recycling efforts. Furthermore, making recycling more salient, e.g. through door-to-door waste collection in transparent trash bags, can help activate social norms in this context. When it comes to waste generation, providing feedback on the amount of waste produced – both in absolute terms and relatively to meaningful benchmarks – would make the cost and benefit of waste collection more salient, and could be paired with commitment devices.

**Framing product lifespan information to foster the purchase of long-living products**

Designing longer-living products or modular products (e.g. facilitating the replacement of malfunctioning components) can decrease waste. While there is asymmetric information between producers and consumers regarding product life expectancy, lifespan labelling can signal consumers the expected lifespan of a given product, thus possibly inducing a more resource efficient choice.
In 2016, the European Economic and Social Committee commissioned a study based on a stated choice experiment to assess to what extent consumers’ product choices were affected by lifespan labelling. More specifically, the experiment tested four different visual displays of lifespan labels for 9 categories of products (suitcases, printers, trousers, sport shoes, coffee makers, washing machines, vacuum cleaners and smartphones) in four different geographical regions and under different product price scenarios (European Economic and Social Committee, 2016).

Participants in the experiment could select products from a simulated online retail platform. This behavioural intervention showed that, in spite of different displays, all lifespan labels led consumers to purchase products with a longer lifespan: on average, sales of long-living products increased by 13.8% relatively to shorter-living ones in the same class. Sales of all products but televisions were affected: this varied from 23.7% for suitcases to 11.4% for smartphones.

As suitcases are used for sporadic travels, they may be expected to last longer: this is the explanation associated with the large impact that lifespan labels have proven to have in driving the purchase of long-living suitcases. Conversely, the less important impact of such labels for smartphones may be due to the fact that consumers replace such devices relatively often, as technological improvements kick in leading to the development of better performing phones. The lack of a significant impact of labels on the purchase of televisions may be explained by the fact that the lifespan variation across the 10 television sets proposed may not have been sufficiently large to attract consumers’ attention to this specific criterion.

Lifespan labels were shown to steer purchasing decisions towards longer-living products regardless of their price. However, it appeared that these labels had a more important impact on purchases of more expensive products (+15.3%) relatively to low-end ones (+14.1%). This is intuitive, as consumers bound to invest in an expensive durable good may want to make sure that it has a long lifetime.

From replacement to repair: changing default options to decrease electronic waste

As consumption of electronics increases, so does the amount of electronic waste requiring disposal. Correct disposal and recycling of the materials used in electronic goods is particularly important for minimising the environmental and health impacts associated with their extraction and disposal. While supply-side measures such as extended producer responsibility are crucial to ensure the engagement of producers in correct disposal of electronics, a study by the Nordic Council argues that there is ample room for demand-side measures (Stefansdotter et al., 2016). Such measures would leverage behavioural insights to tackle phenomena hindering the sustainable consumption of electronic goods. Examples of concrete measures are incentives to replace electronic goods less often, to opt for environmentally friendly or long-living models and to correctly recycle them if reuse is not an option.

The study recognises that the consumer’s decision-making process in this respect differs according to the type of electronic good concerned (be it a mobile phone or a white good appliance), and the decision involved (decision to purchase, reuse or recycle). Furthermore, consumers belonging to different demographic groups may well have heterogeneous preferences when it comes to electronics. Considering the heterogeneity at play in this sector, the authors have chosen to focus on the consumption of mobile phones in the age-group 19-28 years old in the Nordic Countries.
The study included two phases. In the first one, a sample of young consumers was surveyed in a Danish electronics shop to identify unintended behaviours or behavioural obstacles preventing sustainable consumption of electronics throughout their entire lifecycle (e.g. identification of barriers to repairing broken devices instead of replacing them with new ones; barriers to purchases of second-hand goods). In the second phase, two stated choice experiments were carried out in order to test the impact of different treatments on mobile phone purchase decisions. Depending on the treatment group, slightly different hypothetical purchasing situations were described and participants were asked to answer a questionnaire indicating the actions they would take in the described circumstances.

The first experiment simulated the situation of having a broken mobile phone: in this context, consumers had to choose between buying a new phone or repairing the broken one in a scenario, and buying a new phone or buying a second-hand one in an alternative scenario. This experiment aimed at understanding if young consumers would be interested in reparation or second-hand possibilities, which are not automatically offered by electronics shops.

Results from the first scenario showed that 87% of consumers would opt for repairs if that option was offered in store (twenty percentage points more than in the baseline scenario where only new phones would be proposed). In the second scenario, 28.9% of consumers would opt for the second-hand mobile phone, this being 7 times more than in the baseline scenario. All these results were statistically significant.

The second experiment aimed at increasing the percentage of young people opting to lease their mobile as an alternative to buying it, by including a third, clearly undesirable option (e.g. a more expensive mobile leasing scheme). This led 62% of consumers to choose to lease their phone, as opposed to only 38% in the baseline scenario. A variation of this stated choice experiment explicitly stated that the mobile phone under consideration was “green”, meaning its components were sourced respecting certain sustainability criteria: this intervention, however, did not yield any statistically significant result.

These results signal that young consumers are open to considering sustainable alternatives to the purchase of new mobile phones (e.g. repairing old phones, buying second-hand devices). However, these options have thus far been rarely offered in the mobile phone market, hindering the adoption of more sustainable behaviours. This expands the findings from the study on product lifespan information developed by the European Economic and Social Committee, showing that population subgroups may have different motivations towards the 3R objectives, and may thus respond differently to related behavioural interventions.

**Leveraging social norms, salience and commitment devices to decrease littering**

In 2010, eight municipalities in the Netherlands participated in a project aimed at reducing littering in the immediate surroundings of waste containers. The project was commissioned by the Foundation Nederland Schoon and Agentschap NL, a division of the Dutch Ministry of Economic Affairs at that time (Dijksterhuis & Van Baaren, Tabula Rasa and IPR Normag, 2010).

Six behavioural interventions were tested through a field experiment with a before/after design: in each treatment group, waste containers and their surroundings were monitored for two weeks (baseline), which were then followed by two weeks of treatment. The six rolled-out treatments were:

1. **Self-correction by self-reflection**: placing a mirror next to the waste container, so that people see themselves when bringing their waste to the container.
2. **Injunctive social norm**: placing a picture of a person littering next to waste containers alongside the request to behave in the right way by throwing trash bags in the appropriate containers.

3. **Descriptive social norm**: placing alongside the waste containers a sign with the text: “Help to keep it clean here: most people in this neighbourhood do not litter around the containers”.

4. **Monitoring and penalties**: monitoring waste container sites and placing a warning that littering can result in a fine.

5. **Commitment and consistency**: the “foot-in-the-door” approach consists in first prompting people to a generic commitment (e.g. commit to keeping the neighbourhood clean) and then giving them a concrete hint of how to honour that commitment (e.g. placing a sign next to the container inviting them to keep the neighbourhood clean by not littering).

6. **Setting the right norm**: emptying the containers more frequently and keeping their location clean.

The experiment showed that three of the interventions had statistically significant effects. The descriptive social norm intervention led to a reduction in littering frequency from 50% to 30%; mechanisms based on monitoring and penalties resulted in a reduction from 51% to 29% and commitment devices led to a reduction from 45% to 28%. For the remaining interventions, no significant effect was found.

**Green defaults to save resources**

Because individuals are subject to status-quo bias, simplifying their daily effortful activities by changing default options to more environmentally sustainable ones can “green” routine behaviour without entailing additional effort on the part of consumers.

As its first annual report explains, throughout its first year of operation, the United States Social and Behavioural Sciences Team implemented a range of “proof-of-concept projects where behavioral insights could be embedded directly into programs at a low cost and lead to immediate, quantifiable improvements in program outcomes” (Social and Behavioral Sciences Team, 2015).

One such project was aimed at reducing the use of printing paper (and thus the costs of printing) at a Federal Government agency (US Department of Agriculture’s Economic Research Service), testing whether the introduction of a green default could deliver these outcomes (see Annex 7.A1). Upon launching a print job, users were prompted to switch to double-sided printing: introducing this green default increased the likelihood of double-sided printing on a given print job by 5.8 percentage points from a baseline of 46%. This result prompted the agency to extend the green default to all its printers.

This field experiment provides an example of how public institutions themselves can “green” their procedures leveraging behavioural insights. More specifically, it shows the power of green defaults, which build upon consumer inertia to promote sustainable consumption choices.
Conclusion on waste management and resource efficiency

The behavioural insights applications to resource efficiency and waste management policies reviewed in this report have mainly relied on *framing and simplification of information* (e.g. product lifespan labelling) and on *changes to the physical environment* (e.g. signs describing correct waste disposal alongside waste collection points). While not many behavioural interventions have been implemented in this field, they have leveraged a variety of additional insights: *green defaults, use of social norms, feedback mechanisms,* and *commitment devices.*

Experiments aimed at ensuring efficient use of printing paper and of mobile phones have shown the way various behavioural levers, from green defaults to differently framed messages, can prompt consumers to reduce their waste generation by using or reusing a product to its full potential (Social and Behavioral Sciences Team, 2015). Lifespan labels have shown that product labelling does have the potential to impact consumer purchases by redirecting them towards lower-impact, more durable goods (European Economic and Social Committee, 2016). There is some evidence that leveraging social norms can also induce e.g. correct waste disposal (Dijksterhuis & Van Baaren et al., 2010).

While there has been considerable action involving interventions aimed at encouraging the reuse and repair of products, ultimately leading consumers to fully exploit their lifespan, there have not been any interventions aimed at reducing waste generation or at encouraging correct waste sorting at home. This may seem surprising, as indicators to track waste generation are potentially straightforward (e.g. volume, number of trash bags filled, weight). However, monitoring changes in these parameters is complex, as most waste is generated at home. Tracking sorting and recycling patterns is subject to the same constraint. The lack of transparency surrounding “waste choices” is likely the biggest obstacle to the application of behavioural insights to this policy area.
Annex 7.A1

Green printing defaults to save paper – United States

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**Evaluation of the intervention: methodology**

**Relevant population:** Economic Research Service (ERS)’s employees.

**Sample size and sampling method(s):** Unspecified.

**Method**

This was a between-groups field experiment, in which the treatment was randomised at the printer level within ERS: different groups of users relying on different printers would be exposed to the treatment or not.

More specifically, the treatment involved changing the default printing option by introducing a small cost in terms of additional time associated with single-sided documents. Whenever employees initiated a single-sided print job, a dialog box would appear on their screen, prompting them to change their default printer setting to double-sided, but still allowing them to continue to single-printing if preferred.

**Units of measurement:** Percentage change in double-sided printing on a given print job.

**Findings**

Individuals who are exposed to the dialog box prompting them to switch to double-sided printing are more likely to print double-sided. This prompt increases the likelihood of double-sided printing on a given job by 5.8 percentage points (p < 0.01, 95% confidence interval [4.2, 7.4]), from a baseline of 46 percent. Note that on the basis of this result, ERS has decided to change the default settings of all of its printers to double-sided.
7. USING BEHAVIOURAL INSIGHTS TO IMPROVE WASTE MANAGEMENT AND RESOURCE EFFICIENCY

Source

Social and Behavioral Sciences Team (2015), Social and Behavioral Sciences Team 2015 Annual Report, Office of Science and Technology Policy, Washington, DC.
References


European Economic and Social Committee (2016), *The influence of lifespan labelling on consumers*, Brussels.


The objective of this report is twofold: first, to understand the extent to which behavioural insights are being incorporated in environmentally relevant policy making, as well as the outcomes of this process; and second, to provide policy makers with concrete examples of successful as well as unsuccessful applications of behavioural insights to the design and implementation of relevant policies.

This reader’s guide presents all definitions of terms related to behavioural biases, interventions and levers, as well as those related to the methods used to test and assess the impact of behavioural interventions. While the definitions of these terms are also presented in Chapters 1 and 2, this guide mainly aims to support the reading of the chapters reviewing applications of behavioural insights to various policy areas: energy consumption and energy efficiency, water consumption, food consumption, transport and car choice, waste management and resource efficiency, and compliance with environmental regulation. These chapters make frequent use of the terms defined here.

Which behavioural biases affect environmental policy outcomes?

Behavioural biases are the features of human behaviour that, if observed through the lens of standard economic theory, can be defined as deviations from rational decision-making. Following Mullainathan and Thaler (2000), behavioural biases can be grouped into three categories, depending on the behavioural deviation from the characteristics of homo economicus: bounded rationality, bounded willower and bounded self-interest. While behavioural sciences have provided evidence for many more behavioural biases, the focus here is on the biases which have the potential to impact environmental policy and its effectiveness.

Bounded rationality

“Bounded rationality reflects the limited cognitive abilities that constrain human problem solving.” (Mullainathan and Thaler, 2000)

- **Framing effect**: the way an option is presented (or framed) affects individual choice among alternatives. More specifically, individuals can draw different conclusions from the same amount of information, depending on how it is presented and the relative salience of its elements.

- **Loss aversion** arises when the cost associated with giving up something is perceived as greater than the benefit that would accrue to the acquisition of the same thing (Gsothbauer and van den Bergh, 2011). Loss aversion can help explain the endowment effect and the status-quo bias:

  - **Endowment effect**: “The value of a good to an individual appears to be higher when the good is viewed as something that could be lost or given up than when the same good is evaluated as a potential gain” (Kahneman, 2003)
- **Status-quo bias**: “Because the reference point is usually the status quo, the properties of alternative options are evaluated as advantages or disadvantages relative to the current situation, and the disadvantages of the alternatives loom larger than their advantages. This leads to inertia.” (Kahneman, 2003)

**Bounded willpower**

“**Bounded willpower** captures the fact that people sometimes make choices that are not in their long-run interest.” (Mullainathan and Thaler, 2000)

- Inconsistencies between individual beliefs and behaviours can be denoted as **cognitive dissonances**. This phenomenon leads to an attitude-behaviour gap, a mismatch between beliefs and concrete behaviours. Sometimes, people may react to this mismatch by aligning their beliefs to their behaviour instead of the opposite (Carlsson and Johansson-Stenman, 2012).

- **Myopia in intertemporal choices**: individuals tend to show time-inconsistent preferences when considering decisions characterised by time-varying discount rates. This means that they will apply discount rates that are higher in the short run than in the long run (hyperbolic discounting), rather than constant over time. In other words, individuals with this type of preferences would rather obtain one Euro today than one Euro tomorrow, but when presented with the choice between receiving one Euro in one year and the same amount in one year and one day, they will gladly wait for an extra day. This type of discounting drives short-sighted decisions, placing disproportionate weight on immediate costs and benefits relatively to long-term ones (Gsottbauer and van den Bergh, 2011).

**Bounded self-interest**

“**Bounded self-interest** incorporates the comforting fact that humans are often willing to sacrifice their own interests to help others.” (Mullainathan and Thaler, 2000)

- Individuals are not motivated exclusively by their own utility: **altruism, fairness and social norms** also affect individual decision-making. While altruism and fairness need not be defined, social norms and their impact on consumer behaviour deserve further scrutiny. People conform to behaviours which are perceived as the norm in society, and compare their own behaviour to these ideal benchmarks.

**What are behavioural interventions?**

A recent report from the European Commission (Sousa Lourenço et al., 2016) provides a typology of the extent to which behavioural insights have been taken into consideration and have informed the policy process:

- **Behaviourally tested interventions** are “initiatives based on an ad-hoc test, or scaled out after an initial experiment”;

- **Behaviourally informed interventions** are “initiatives designed explicitly on previously existing behavioural evidence”; and

- **Behaviourally aligned interventions** are “initiatives that, at least a posteriori, can be found to be aligned to behavioural evidence”.

TACKLING ENVIRONMENTAL PROBLEMS WITH THE HELP OF BEHAVIOURAL INSIGHTS – © OECD 2017
This report focuses solely on behaviourally informed and behaviourally tested interventions, as they are the outcomes of deliberate efforts of policy makers to draw upon behavioural insights when developing and implementing policies. Here, these two types of interventions are denoted as *behavioural interventions*. Conversely, while behaviourally aligned initiatives may be effective in delivering policy results, they are not based on a good understanding of the behavioural mechanisms upon which they act. This limits the possibilities to replicate them in the future or in other contexts.

**What types of behavioural levers can policy makers use?**

Policy makers can use a range of behavioural levers to design and roll out an appropriate policy intervention. These levers are, in fact, the building blocks of behavioural interventions and, as such, constitute concrete tools for policy makers. Extending the classification provided by Mont, Lehner and Heiskanen (2014), seven main types of *behavioural levers* can be distinguished:

- **Simplification and framing of information**: simplifying complex information can prevent information overload. Framing aims at representing information by consciously activating certain values and attitudes of individuals. The way information is framed can also affect how it is processed by its recipients. For example, energy efficiency labels can be framed to provide a sense of the relative ranking of an electric appliance with respect to the best-in-class one, and the savings that one could enjoy when switching to the latter.

- **Changes to the physical environment**: the physical environment can substantially affect individual decision-making, especially in contexts in which choices are made spontaneously, on the basis of automated mechanisms and habits. Examples of such interventions are changes in the location and appearance (e.g. colour) of recycling bins, or the installation of automatic (sensor-based) water taps to curb water consumption.

- **Changes to the default policy**: as individuals are prone to status-quo bias, they often postpone making decisions until or unless it becomes inevitable to do so. Defaults can, thus, have a great impact in contexts in which people are resistant to change. An example of such interventions is a change to the default setting of thermostats (i.e. to a lower baseline temperature in order to foster energy savings).

- **Use of social norms and comparisons**: as individuals are social beings, not solely driven by their own payoffs, they are affected by the way people surrounding them behave (social norms), by how they compare to their peers (social comparison) as well as by moral injunctions. An example of this type of intervention is the comparison of a household’s energy or water consumption to the consumption of a same-sized household in the same neighbourhood.

- **Use of feedback mechanisms**: several routine behaviours, such as energy consumption or waste disposal, have considerable environmental impacts. However, these impacts are often not sufficiently salient for consumers. Providing them with timely feedback can make such contexts more transparent, increasing awareness of environmental externalities stemming from daily consumption choices. For example, real-time in-home displays connected to smart energy meters can provide real time feedback on energy consumption and costs.

- **Reward and punishment schemes** can be used as “carrots and sticks”, associating a salient, material payoff to consumers’ achievements. For example, rewarding
households who have been particularly savvy with water consumption during scarcity periods may generate a positive norm for water conservation.

- **Goal setting and commitment devices**: as individuals are bound by status-quo bias and inertia, effortful behaviour changes can be encouraged by setting specific and measurable goals and using commitment devices to regularly follow up on progress. One such example involves pinning down an objective of energy savings and following up on the objective with regular feedback and tips.

Note that “hybrid” interventions can be designed by building upon several of these insights at once. For example, energy conservation can be prompted by reframing energy bills in order to make them more intuitive and by using social comparisons therein.

Price-based policies, instead, leverage the most traditional form of market-based tools, such as taxes, to induce economically rational changes in individual behaviour. They should, thus, not be confused with policies building upon behavioural insights, which aim at tackling behaviours that are not consistent with the model of rational economic behaviour.

### What methods can be used to test and assess the impact of behavioural interventions?

*Experiments* enable the estimation of a policy’s causal effect. The cornerstone for credibly identifying the causal effect of a policy is the construction of the correct counterfactual (List and Price, 2016). The idea behind the establishment of a counterfactual is to compare the impact of the policy of interest on a group that is exposed to it (or, in the experimental jargon, “treated” with it), with its impact on a control group, which is unaffected by the policy intervention. The empirical findings of experiments can inform policy makers, motivating the launch of new policies or changes in existing ones.

Harrison and List (2004) argue that “[c]ontrolled” experiments, which include laboratory experiments and field experiments, represent the most convincing method of creating the counterfactual, since they directly construct a control group via randomization” (p. 1014). In fact, randomisation ensures that the individuals or groups of people exposed to the policy to be tested and those exposed to the control condition are truly comparable (Haynes et al., 2012). Experiments based on the randomised assignment of participants (individuals, households, firms…) to treatment or control groups (in short, randomised treatment allocation) are called **randomised controlled trials** or, in short, **RCTs** (see also Haynes et al., 2012; Gertler et al., 2016). According to the type of randomisation process, Charness, Gneezy and Kuhn (2012) distinguish two different types of design:

- “In a **within-subject** designed experiment, each individual is exposed to more than one of the treatments being tested, whether it be playing a game with two different parameter values, being treated and untreated, answering multiple questions, or performing tasks under more than one external stimulus. With such designs, as long as there is independence of the multiple exposures, causal estimates can be obtained by examining how individual behavior changed when the circumstances of the experiment changed.

- In a **between-subject** designed experiment, each individual is exposed to only one treatment. With these types of designs, as long as group assignment is random, causal estimates are obtained by comparing the behavior of those in one experimental condition with the behavior of those in another.” (Charness, Gneezy and Kuhn, 2012, p. 1)
Likewise, one can talk about between-group and within-group experimental design, if the randomisation is carried out at the level of groups of individuals (e.g. a village, a cohort of students...) rather than at the level of single individuals. According to the experimental context, one can distinguish between:

- **Laboratory (lab) experiments** are conducted with volunteer participants in a controlled laboratory facility (Levitt and List, 2009; Noussair and van Soest, 2014).
- **Field experiments** are carried out in naturally occurring settings, often with subjects that are unaware of being part of an experiment. Field experiments also include experiments carried out on real online platforms (e.g. e-commerce websites or social networking platforms), which are becoming increasingly popular. Such experiments are denoted in this report by the term online field experiments (Chen and Konstan, 2015). These should not be confused with experiments carried out on simulated online environments specifically designed for experimental purposes.

**How to assess policy impacts when treatment allocation is not randomised?** For some of the interventions described in this report, impact evaluation is not based on the randomised assignment of experiment subjects to a treatment or control group. In such cases, causally identifying the impact of the policy intervention requires different methodological approaches based on the analysis of what Levitt and List (2009) call “naturally-occurring data” or “uncontrolled data” (see e.g. Blundell and Costa Dias (2009) for a technical overview of such methods and Gertler et al. (2016) for a non-technical one). This approach to causal identification of policy impacts works as long as the policy is introduced as an “exogenous shock”, and randomly – in a statistical sense – allocates subjects to control (unaffected by the policy) and treatment (affected by the policy) groups.

**What about stated preference studies?** An entirely different category of policy interventions involves stated preference studies, such as stated choice experiments. In this type of experiments, subjects are presented with hypothetical choice scenarios where they have to select their preferred alternative among a menu of hypothetical options (see also Alpízar et al., 2003). This type of experiment can be carried out in the context of a survey (with the help of a questionnaire), or in simulated online environments. The aim of this type of studies is to elicit individual preferences and willingness to pay for specific goods or attributes – usually for those not yet available in the market or those for which no market exists.

**References**


