

## Repair or Replace?

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### Insights from Behavioural Economics

Repair, Reuse, Economics, Consumer Behaviour, Electronic Products, Furniture, Clothing

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Repair in the UK is a declining activity. In 2010, households spent a total of £500m on repairs to domestic appliances. However, this is almost a 50% fall, in real terms, compared to household expenditure on repair in the year 2000.<sup>1</sup> There are many sound economic reasons for this decline such as the relative reduction in the purchase price of new goods, the increase in the cost of domestic labour required for repair and increased product longevity.

The decision whether to repair or replace an item will likely involve consideration of the following aspects:

- The estimated cost of repair vs. replacement
- The perceived risk and impact of a failed repair
- The financial and emotional value of the broken item
- How essential the product is to everyday life
- The desirability of the replacement and obsolescence of the broken item

In many cases, the consumer decision to replace rather than repair is often based on sound reasons. These include the cost of an equivalent replacement being cheaper than the repair, irreparable failure, the obsolescence of the broken item, a lack of spare part availability to carry out the repair or concern about overall integrity of the product once one part has failed. Our UK research has explored these issues and the associated markets for repair for each product group. This paper, however, explores decision-making concepts from the field of behavioural economics to better understand the decision whether to replace or repair from the consumer's viewpoint.

#### Different Types of Consumers

Traditional economics models human behaviour as being generally rational, seeking to maximise their welfare within constrained budgets. There are a number of basic assumptions about the behaviour of a rational decision maker that are required to support economic theory. For example, it is commonly assumed that consumers have fixed preferences; all choices can be effectively compared and that 'more is generally better'.

Other researchers, however, have emphasised other important aspects of consumption— in particular, whether consumers are active or passive in their behaviour.<sup>2</sup> For example, consumers may be very active in their purchasing decisions, such as seeking out the best deals or being heavily influenced by informative or persuasive advertising. Alternatively consumers might instead be active in their use of a product, including conspicuous consumption, being influenced by their social grouping or needing to keep up-to-date with the latest trends. In contrast, other consumers may make more routine decisions, with little interest for any of the above factors.

All of these perspectives will have important implications for attitudes towards repair and reuse. In the first instance, they will influence purchasing decisions related to price, brand and quality;

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<sup>1</sup> See ONS, Consumer Trends data in WRAP (2012), Understanding the opportunities to increase re-use and repair; Oakdene Hollins

<sup>2</sup> See Swann P. (2009), The Economics of Innovation, Chapter 15 for a useful discussion summarising different types of consumers

which will in turn be linked to the consumer's expectation of how long they want the product to last. And in the second instance, they will affect decisions regarding whether to replace, repair or upgrade a product – once it has reached the end of its working life or even before.

Behavioural economics seeks to take the analysis one stage further by considering the replicable distortions of human decision-making. Of relevance to attitudes to repairs are the impact of short-term decision making, perception of risk and the role of regret and emotional attachment.

### Short-term Decision-Making

The expectation for product lifetimes appears to be shortening. For example, studies highlight that one-third of appliances are in working order when disposed of, which rises to almost 60% for computers and mobile phones.<sup>3</sup> Recent evidence identifies that expected lifetimes of televisions have reduced from 10 to seven years, from four to two years for mobile phones and from six to four years for computers.<sup>4</sup> Within the clothing industry, there is growing evidence of the impact of 'fast fashion'.<sup>5</sup> This has significant impacts on resource efficiency.

These attitudes will of course differ according to the type of product being purchased.<sup>6</sup> For example, clothing and consumer electronics items are considered to be products that many consumers wish to keep up-to-date, and therefore generally replaced within five years. However, household appliances and furniture may be classified as 'workhorse' products and have lifetimes of longer than five years. Additionally, sometimes consumers might choose to 'invest' in a product, hence extending its lifetime.

Economists would describe this behaviour as relating to the patience of consumers, which is commonly denoted as the 'discount factor' that consumers place upon current versus future consumption. However, are consumers becoming more impatient? Or do falling prices or rising disposable incomes means that consumers can simply afford to replace products more often? Behavioural economics often emphasises myopic decision-making, where consumers consistently over-emphasise the present compared to the future. This impact can be most clearly observed in the lack of saving for pensions, but it is also likely to apply other decisions such as purchasing decisions and expectations of product durability.

### Perceptions of Risk

All decisions in life are associated with a certain degree of risk, including whether that be buying a new product or getting it repaired. Consumers, therefore, have established views on their appetite for risk and processed by which they make these decisions.

To illustrate this point, consider the following scenarios and contemplate your own answers if faced with these choices:

- Scenario 1:
  - a) a sure gain of £200 or
  - b) 80% odds of winning £400, but with 20% of gaining nothing
- Scenario 2:
  - a) a sure loss of £600 or
  - b) 80% odds of losing £200, but with 20% odds of losing £800

The amounts in these scenarios have been carefully constructed to reflect a real-life situation. The cost of a new iPhone is approximately £600 with the official Apple repair cost close to £200 for out-of-warranty service (depending on the model), including the optional cost of an instant replacement.<sup>7</sup> The odds and outcome are equal between two scenarios, with the single

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<sup>3</sup> Cooper T. (2004), Inadequate Life? Evidence of Consumer Attitudes to Product Obsolescence; Journal of Consumer Policy

<sup>4</sup> Defra (2011), Public Understanding of Product Lifetimes and Durability; Brook Lyndhurst

<sup>5</sup> See Allwood J. et al (2006), Well Dressed?, University of Cambridge Institute for Manufacturing

<sup>6</sup> See Defra (2011), Public Understanding of Product Lifetimes and Durability; Brook Lyndhurst

<sup>7</sup> See [http://support.apple.com/kb/index?page=servicefaq&geo=United\\_Kingdom&product=iphone](http://support.apple.com/kb/index?page=servicefaq&geo=United_Kingdom&product=iphone) [accessed 8<sup>th</sup> May 2013]

difference is that scenario 1 represents a gain and scenario 2 a loss. Here it has been assumed that there is an 80% chance that the repair is successful, and that the fault does not reoccur within the expected lifetime of purchasing a new product. However, in this instance, the scenarios do not represent equivalent gains.<sup>8</sup>

A rational decision maker would be expected to either chose both 1a and 2a or both 1b and 2b depending on their attitude to risk, with a more risk averse consumer preferring the sure outcome. However, studies have shown that people may choose 1a and 2b. This demonstrates that people tend to be risk averse in securing gains and risk seeking in trying to avoid losses. This is thought to be due the psychological pain associated with a loss significantly out-weighing the pleasure associated with a similar gain.<sup>9</sup>

Faced with a broken item that the consumer was otherwise satisfied with will entail a loss of both money and temporary use of its facilities. The decision to repair carries the lowest potential cost with a risk that the repair is unsuccessful and a replacement is still required. The choice to replace represents a financial loss that is generally greater than the cost of repair. In the real-life setting shown here, the decision on whether to repair or replace, therefore, may be linked to how the consumer has 'framed' the decision – i.e. whether they have already 'written-off' the £600 loss of the cost of the iPhone or not.

However, the risk of repair failure is not necessarily fixed. In the absence of data, consumers will estimate the probability of success. The evidence suggested that people tend to ascribe a higher probability of an event occurring when we can easily recall similar events or circumstances.<sup>10</sup> This could have significant effect on our judgement of the probability of a repair being unsuccessful or only lasting a short time before breaking again and then skew our perceived probability of having a negative experience with repair. Similar issues arise in the purchase of second-hand products.

## Emotional Attachment

A further influencing factor is what economists term the endowment effect. This describes behaviour where people exhibit a strong preference to retain items that they own rather than trading or renting them, even if this makes economic sense to do so.<sup>11</sup> There are two possible effects on the issue of repair, each with opposite effects on behaviour.

The most obvious application is that the consumer experiences the loss of the broken item. The extent to which this affects the consumer behaviour will depend on the degree of attachment. For domestic appliances this is likely to be low, whereas for an old record player this may be extremely high. Another example might be computer equipment, where user customisation might help encourage repair of the product rather than replacement.

In contrast, the endowment effect may also mean that consumers choose to hoard broken items in preference to repair or discard. However, this has the risk of leading to procrastination, as there may be significant effort required in researching possible repair options. And in any case the consumer may decide to replace it ahead of organising its repair, particularly if its functionality is of considerable importance or in everyday use.

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<sup>8</sup> See Kahneman D. (2011), *Thinking, Fast and Slow*; New York Times Bestseller; for such an example

<sup>9</sup> Kahneman D. & Tversky A. (1984), *Choices, Values, and Frames*; *American Psychologist* 34

<sup>10</sup> Tversky A. & Kahneman D. (1974), *Judgement under Uncertainty: Heuristics and Biases*; *Science* 185, 1124-1131

<sup>11</sup> Thaler R. (1980), *Toward a Positive Theory of Consumer Choice*; *Journal of Economic Behaviour and Organization*, 39-60

## Conclusions and Recommendations

Repair is a collectively beneficial activity that improves resource efficiency and provides domestic economic benefit through increased demand for skilled labour. However, in many cases it can make financial sense for a consumer to carry out a repair but they choose not to. We therefore recommend the following policy and research actions to stimulate repair:

### Research purchasing decisions

Greater research to increase knowledge of consumers' motivations in purchasing to understand the trade-offs between price, brand quality and durability. Purchasing decisions might then be influenced through mandatory or voluntary measures, such as Eco-design or Ecolabel criteria.

### Consumer messaging

Initiate consumer campaigns to encourage donations for repair and reuse, particularly consumer groups, who discard functional products in order to keep up-to-date or have a tendency to hoard broken products. The campaign should reinforce good experiences of repair and encourage consumers to not mentally 'write-off' the value of repairable products. Information on the benefits of repair to the wider economy and the environment might help support the campaign.

### Product-specific analysis

Generate product-specific information on the economic viability of repair, including consumer acceptance and business cases. In addition, collect product-specific evidence on the lifetimes and failure rates of new and repaired products. These can then be compared to typical discounts versus new products to give price-risk analysis. This product-specific research could lead to a gap analysis and help better target efforts for promoting repair.

### Mitigate risk of repair failure

Encourage the greater adoption of 'no-fix, no-fee', fixed price repairs, warranties and standards to mitigate risks and boost confidence in repair activities. Evidence on the impact of each of these measures may be necessary in support.

### Engage with OEMs

Endorsement of repair schemes by Original Equipment Manufacturers (OEMs) is key mechanism to help boost trust in the quality of repairs. OEMs also have a role in the design of their products to improve reparability and to ensure spare part availability after production ceases.

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### Background to this report:

This summary report has been produced based upon the results and insights gained from research for the UK government-funded body WRAP on repair and reuse. Our research has involved private sector companies along all stages of the supply chain including original equipment manufacturers, warranty suppliers, retailers, independent repair organisations, large repair organisations and trade associations.

Examples of our work in repair, remanufacturing and reuse include:

- Market and industry analysis
- Strategy and business model development
- Value and supply chain analysis for products
- Advice on waste management and prevention
- Quantifying environmental benefits

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