Faculty of Business & Law
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Consumer Perception of the Circular Economy and Retail – Are Retail Customers Willing to Pay for Circular Products?

This report was prepared for

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Note

This report is not for external publication without approval from the Australian Retailers Association and Dr Torres de Oliveira.

This report is a deliverable under the terms of the Queensland University of Technology (QUT) Services Agreement with the Australian Retailers Association, which sought to understand how consumers perceive retailers' strategies around corporate social responsibility, specifically the circular economy. This report is supported by a literature review and the findings from the 17-item online survey that was distributed in three Australian states.

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Executive Summary

Prior to implementing circular economy (CE) initiatives, it is important to analyse and understand the demand side and consumers' willingness to buy and pay for CE products; that is, products made of recycled, reused or recovered materials. Lack of consumer acceptance is a key barrier to the implementation of CE initiatives. Consumers who demonstrate purchasing habits involving CE products believe that their behaviour makes a difference in the world, and they also perceive companies positively and as good corporate citizens who care about the planet and are socially responsible. The decision and intention to buy and pay for CE products are dependent on demographic characteristics and are also driven by different motivational factors. Moreover, consumers' willingness to buy and pay also vary across different product categories. It is important to understand these factors to be able to address concerns and focus on preferred aspects. The results of this report are based upon the 17-item, quantitative, online survey, which was circulated across a sample of 607 respondents equally distributed across Australia in New South Wales, Queensland and Victoria with a balanced gender representation. The findings reveal interesting opportunities for retailers to consider and make them aware of potential concerns.

Key Aims

1. *To identify what type of customers are willing to buy and pay for recycled, reused or recovered materials, and the extent to which this is the case, analysed across various products categories.*
2. *This research aims to bring clarity to how circular economy initiatives and principles impact consumers in the Australian context across different states.*
3. *This research aims to analyse how the presence of recycled, reused or recovered materials impacts consumers' willingness to pay and whether there is any perceived contradiction in promoting and indicating circular initiatives.*
4. *This research aims to deliver a business model innovation for a circular economy strategy.*
5. *This research aims to contribute to the theoretical advancement of the field, focusing on better understanding the customer side.*

Key Implications

- **Implication 1** – *Consumers focus more on their own future savings than ecological or social reasons.*
- **Implication 2** – *Consumers have, to some extent, an ecological perception and believe that their behaviour impacts the world.*
- **Implication 3** – *Retailers' strategies around the CE impact consumers' perceptions of the retailer's brand.*
- **Implication 4** – *Consumers are informed and can identify products made of recycled, reused or recovered materials, this being more preeminent among young and male individuals.*
- **Implication 5** – *In relation to products made of recycled, reused or recovered materials, consumers perceive product performance differently across categories, with products that might impact their health and safety performing worst and products used for packaging and other consumable products having the highest performance.*
- **Implication 6** – *Similar to implication 5, consumers are more willing to buy products made of recycled, reused or recovered materials in categories that do not impact their health and safety, and are more likely to purchase products in all other categories.*
- **Implication 7** – *Interestingly, consumers perceive products made of recycled, reused or recovered materials should necessarily be more affordable. If retailers ask consumers to buy products made from recycled, reused or recovered materials, they need to understand that consumers will be willing to pay a lower price for them than brand new products. This might be due to consumers' perceptions that such products are cheaper for the manufacturer to make since the performance does not seem to have an impact – as we saw in implication 5.*
- **Implication 8** – *Higher prices, lower quality and the ability to easily buy new products represent the main reasons why consumers are not willing to buy products made of recycled, reused or recovered materials. Similar to implication 5, reliability does not seem to have a high impact on consumers' perceptions.*
- **Implication 9** – *Consumers have good intentions to hold habits of buying products made of recycled, reused or recovered materials as this projects an image of being environmentally responsible citizens and due to the social construct that such actions will make a difference in building a better world, which is similar to implication 2.*
- **Implication 10** – *Environmentally conscious consumers are particularly attuned to retailers that are associated with CE policies. This is particularly important for the younger generation and male consumers.*
- **Implication 11** – *Consumers are more likely to buy products made of recycled, reused or recovered materials if they have purchasing habits involving CE products.*
- **Implication 12** – *Consumers' decisions to pay for CE products depends on how they compare the performance of these products to others – not on their purchasing habits.*

Key Recommendations

- **Focus on price, functionality and quality** – companies should aim to create products that function well, are of high quality but are of a reasonable price to respond to price-sensitive consumers. Companies need to understand that consumers will be willing to pay a lower price for products made of recycled, reused or recovered materials than brand new products.

- **Target environmentally aware consumers and the younger generation** – young consumers are attentive to CE products and show great willingness to buy these products. For them, CE initiatives impact their perception of the retailer's brand, which also impacts the abilities of these retailers to hire and retain young talent.

- **Implement circular initiatives** – consumers are becoming increasingly aware of environmental initiatives and, among them, people who exhibit purchasing habits involving CE products show positive perceptions of companies who incorporate CE principles.

- **Packaging and consumables** – consumers show more willingness to buy and pay for CE products in the category of packaging and containers, household products and electronics.

- **Personal health consumables and cosmetics** – consumers show less willingness to buy and pay for CE products in the personal health consumables and cosmetics category due to the risks. If the retailer is involved in the production and commercialisation of such products, it is important to highlight the benefits and balance out the perceived risks by offering consumers better options and incentives.

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Introduction

Circular Economy

The circular economy (CE) is a concept associated with sustainable development, and it refers to an economic system that aims to rule out the end-of-life concept of products and substitute it with reused, recycled and recovered materials in production and consumption processes. The objective of the CE is to avoid discarding materials and to reduce material usage when discarding is inevitable (Ajwani-Ramchandani, Figueira, Torres de Oliveira, Jha, et al., 2021). Accordingly, the CE builds upon three principles focusing on natural resources preservation and enhancement, longer circulation of products and materials in biological and technical cycles and designing out waste. Therefore, the CE is a collaborative system that frequently needs to incorporate different stakeholders such as manufacturers, service providers and consumers, among others (Ajwani-Ramchandani, Figueira, Torres de Oliveira, & Jha, 2021).

Role of Consumers in Sustainable Consumption

Consumers play a key role in contributing to sustainable development, sustainable consumption and the successful implementation and transition to a CE. Consumers, however, often resist purchasing reused products due to their perceived inferiority (Boyer et al., 2021) due to disutility, perceived risk, low quality, low seller reputation, low tolerance of ambiguity and disgust (Harms & Linton, 2016). Furthermore, a lack of consumer acceptance of circular initiatives is a substantial barrier in moving towards a CE (Camacho-Otero et al., 2018). Nonetheless, current literature focuses on CE solutions and the production side, with the demand or consumption side being still under-presented and not comprehensively investigated and understood by research. As such, it is unclear what strategies are required to promote sustainable consumption and how consumers would react to a loss of ownership or additional CE-related activities in their consumption process, such as repairing and returning goods. To reiterate, as consumers are key enablers of CE, sustainable development and sustainable consumption, it is important to understand what influences their consumer behaviour (Harms & Linton, 2016).

Consumer Behaviour

Consumer behaviour generally depends on costs and benefits (Camacho-Otero et al., 2018), and the benefits a consumer associates with a product depend on motivational perspectives, which can be approached from environmental (i.e., green aspects) and rational economics perspectives (i.e., price/value considerations) (Harms & Linton, 2016). In other words, intention to buy a product depends on intrinsic and extrinsic factors. There are also factors that hinder consumers' intentions to buy or participate in circular solutions (Camacho-Otero et al., 2018). For example, consumers' personal characteristics and attitudes, including traits, values, beliefs and ideologies, can influence their intentions (Camacho-Otero et al., 2018; Harms & Linton, 2016). Situational factors, such as lifestyle and identities, also have an impact on a consumer's attitude towards sustainable consumption. The level of knowledge and understanding of the specific product offerings is also another key factor (Harms & Linton, 2016), and it is important to understand how consumers interact with the company solutions and how these impact their everyday lives (Camacho-Otero et al., 2018). Some factors that can impact and lead to sustainable consumption that could be adopted in the CE context are nudging, eco-labelling, marketing and practice-oriented interventions. In addition to understanding the influential factors of consumer behaviour, it is important to note that achieving sustainable change is not only a matter of reaching consumer acceptance but the actual adoption and diffusion of such change (Camacho-Otero et al., 2018).

Consumers' Willingness to Pay

A key concept in addition to consumer behaviour is consumer's willingness to pay (WTP) for products. WTP indicates the amount that the consumer is prepared to pay for a good or service. Harms and Linton (2016) investigated consumers' acceptance and WTP in relation to refurbished products. Refurbished products are often negatively viewed by customers and are associated with lower functionality owing to the refurbished content. Additional negative associations arise due to disutility, perceived risk, low quality, low seller reputation, low tolerance of ambiguity and disgust. These lead to a lower consumer willingness to buy and lower WTP for these products, which negatively affects companies' sales prices and margins (Harms & Linton, 2016). As consumers regard reused, refurbished and remanufactured products as lower in value, they become reluctant

to buy these products; it is therefore important to address this aspect and change their attitude to achieve successful commercialisation of such products (Inigo & Blok, 2019). Contrary to this, however, is the presence of eco-certification (or eco-labels), which has been found to be positively associated with WTP due to the perceived lower ecological impact and increased utility; in some cases, eco-certification counteracts the loss of value and signals lower risk to consumers (Harms & Linton, 2016). WTP is also a function of the consumer's demographic characteristics, such as income, gender or age. Accordingly, higher income is associated with higher WTP, and females are found to be more willing to pay premiums than males (Boyer et al., 2021). There are, however, no conclusive results in terms of age. Different WTP can also depend on different certification types and levels for which there are no comprehensive conclusions yet. Additionally, the magnitude of consumers' WTP also differs across product categories. As such, it is important to take into consideration individual product categories when assessing WTP. In other words, product-specific factors also influence the level of WTP. It is also important to highlight that knowledge and action are different, and knowledge of environmental issues is further mediated by additional factors before this knowledge turns into action (Harms & Linton, 2016). In fact, purchase intention and behaviour are an outcome of the collective effect of many subjective constructs (Agostini et al., 2021). Although the decision to purchase a product could be attached to a consumer's knowledge and attitudes toward the environment – that is, manifesting in pro-environmental behaviour – it does not mean that consumers are necessarily willing to pay more once seeing sustainability labels on products (Harms & Linton, 2016).

Although there is little research looking at WTP specifically in the CE context, the previously mentioned paradox is assumed to apply. To reiterate, findings suggest that consumers are willing to pay more for products that have labels indicating social and environmental benefits; however, they are willing to pay less if products are reused, refurbished or recycled. This raises an important question and prompts better investigation of consumers' responses to CE products and product labels (Boyer et al., 2021). It is important to understand this aspect, as drawing from customers' WTP to eco-certification, customers' WTP for CE-labelled products might also decrease as they might associate the CE with its second-hand nature and loss of value, as well as lower quality and functionality (Harms & Linton, 2016). These negative associations of CE products can be traced

back to consumers' knowledge levels. For instance, the perceived higher risks are sometimes explained by consumers' lack of knowledge of refurbished alternatives, and this is assumed to be the case in other circular solutions of recycled, reused or recovered materials. WTP is also associated with the circularity level of a product. For instance, some level of circularity is accepted, in which case consumers are willing to pay more, and this action is also associated with virtuous, environmentally conscious notions. In addition, customers are willing to pay more for a product if the label indicates direct benefit to them rather than the environment. Overall, this area of research, which reflects the motivations behind consumer behaviour, requires further investigation (Boyer et al., 2021), and it is this area that the current analysis aims to address.

In summary, achieving sustainable development, sustainable consumption and a CE is dependent on consumers' acceptance as well as their WTP for recycled, reused or recovered materials and refurbished products. This makes it important for businesses to understand the consumer side to pursue economic viability and market growth (Harms & Linton, 2016). More empirical investigation and research in different contexts and specific product categories is required to advance this understanding, which this report helps to uncover.

Key Aims

1. *To identify what type of customers are willing to buy and pay for recycled, reused or recovered materials, and the extent to which this is the case, analysed across various products categories.*

Prior to implementing a circular economy (CE) strategy, it is important to understand and analyse the demand side of consumption, specifically customers' WTP for products that are made of reused, recycled and recovered materials. As discussed previously, the perception of environmental benefits, WTP and intention to buy depends on many factors, including consumers' personal/demographic characteristics, the product/service offerings, the labelling framework and the context (Boyer et al., 2021). This study aims to deliver a better understanding of consumers' preferences for circularity to contribute to an economically viable strategy.

2. *This research aims to bring clarity to how circular economy initiatives and principles impact consumers in the Australian context across different states.*

Although there is increasing interest and a growing number of studies to address the link between consumption and the CE, it remains unclear how consumption and consumers may affect or become impacted by CE initiatives and principles (Camacho-Otero et al., 2018). This study aims to bring clarity to this aspect, analysing the consumer behaviour of Australian residents.

3. *This research aims to analyse how the presence of recycled, reused or recovered materials impacts consumers' willingness to pay and whether there is any perceived contradiction in promoting and indicating circular initiatives.*

To reiterate, a CE label and its impact on a consumer's WTP may present a contradiction. Accordingly, in some cases, consumers will be willing to pay more for products that are associated with social and environmental benefits; that is, products that are made following CE principles. On the other hand, customers might be less likely to pay extra for circular products (i.e., recycled, reused, recovered) due to the perceived lower functionality and additional risks as noted earlier. There is still limited research looking at customer preference for and acceptance of circular solutions and WTP for products associated with CE, and there is uncertainty as to what extent the

level of circularity could influence WTP (Camacho-Otero et al., 2018). Therefore, this research also aims to address the magnitude of WTP across different product categories and according to demographics.

4. *This research aims to deliver a business model innovation for a circular economy strategy.*

The findings of this study are relevant for industry as they contribute to product marketing and strategy decision-making processes (Harms & Linton, 2016). It is important to understand under what circumstances it makes sense to be involved in CE practices and how much net value this will bring to a business. The evidence-based recommendations set out in this research are of great value for practitioners.

5. *This research aims to contribute to the theoretical advancement of the field, focusing on better understanding the customer side.*

The findings of this research are relevant from the academic perspective as little is known about consumers' behaviour and purchase patterns involving the CE.

Overall, as consumers play a key factor in the successful implementation and transition to a CE, as well as sustainable development and consumption, it is important to understand the factors underlying consumers' decisions to take part in the CE or not (Camacho-Otero et al., 2018).

Methods

Survey

This study adopted a quantitative approach, using an online survey to support the understanding of circular economy (CE) approaches in relation to consumer behaviour. To avoid confusion or bias, the survey refrained from using the technical term *'circular economy'* and instead adopted the more familiar lay terms of *'recycled, reused or recovered materials'*, which are terms closely relevant to the CE. The survey was developed after reviewing the literature on consumer behaviour, consumers' willingness to pay (WTP) for CE products and its impact factor. The survey was piloted to avoid misinterpretations and to improve its validity. One unrelated question was also used to ensure common methods bias and survey reliability.

Survey participants were asked five questions about how familiar they were with products made of recycled, reused or recovered materials, as well as their ability to identify products made of recycled, reused or recovered materials across various product categories (using a 7-point Likert scale from 1 = *'strongly disagree'* to 7 = *'strongly agree'*). The participants were also questioned about the likelihood of buying ten specified types of products if the product was made of recycled, reused or recovered materials (using a 7-point Likert scale from 1 = *'extremely unlikely'* to 7 = *'extremely likely'*), their WTP (using a 7-point Likert scale from 1 = *'-20%'* to 7 = *'+20%'*) and the performance of these products (using a 7-point Likert scale from far 1 = *'below average'* to 7 = *'far above average'*). The reasons for not buying products made of recycled, reused or recovered materials were also investigated. Participants were then asked about their purchasing habits, using ten statements analysing the likelihood of certain activities using a 5-point Likert scale from 1 = *'never'* to 5 = *'always'*. The statements indicated activities such as trying to buy products and appliances that can be recycled or are energy-efficient, buying high-efficiency light bulbs to save energy, convincing members of family or friends not to buy some products that are harmful to the environment, or switching to products/brands for ecological reasons. Participants were also asked about their perceptions of the impact they can have by buying these products and their perceptions of the retailers that sell products made of recycled, reused or recovered materials.

In the survey, demographics including age group, gender, marital status, number of children, location (state and territories), education, employment status and income range were collected.

Sample

This study used a 17-question online survey to collect information about demographics, purchasing attitude and willingness to buy and pay for CE products. Rigour was ensured by using a quantified, anonymous survey, which was distributed by the Australian Retailers Association (ARA) Consumer Research Committee. Using this quantitative survey method allowed the researchers to get a generic representation of the average Australian consumer. The results are based upon a sample of 607 respondents equally distributed across New South Wales, Queensland and Victoria, with a 51%–49% female–male representation. Thirty per cent were aged 35–44 years old, 28% were 55–65 years old, and 24% were 25–34 years old (see Figure 1). Respondents with a 'married' or 'in a relationship' status accounted for 70% of the sample, 22% were single, and the rest were divorced or separated (see Figure 2). Four in ten did not have any children.

Figure 1: Age groups of respondents

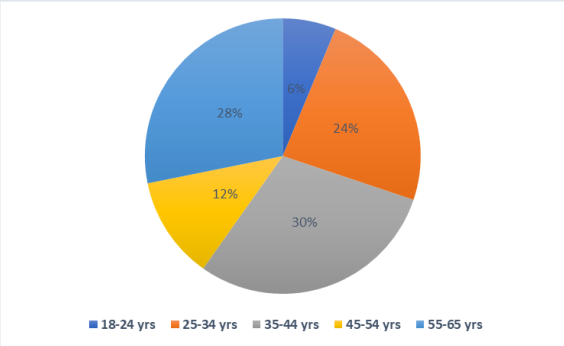
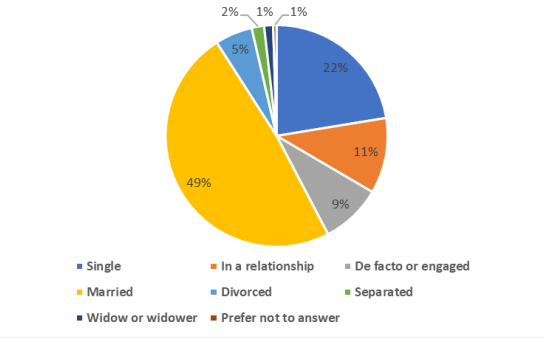


Figure 2: Marital status of respondents



With regards to qualifications, 19% finished high school, 28% had a college or TAFE degree, 36% held a bachelor's degree, and 16% had finished a master's degree or above. Half of the sample worked full-time, 14% were part-time workers and 10% worked on a casual/contract/temporary basis. The majority of the respondents earned less than $100,000 per year, with 15% earning less than $25,000, 17% having an annual income from $25,000 to $50,000 and 34% from $50,000 to $100,000. Only a quarter earned from $100,000 to $200,000 per year (see Figures 3, 4, and 5).

Figure 3: Education of respondents

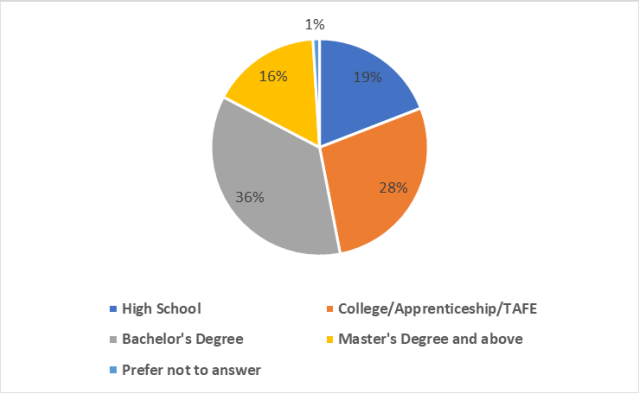


Figure 4: Employment status of respondents

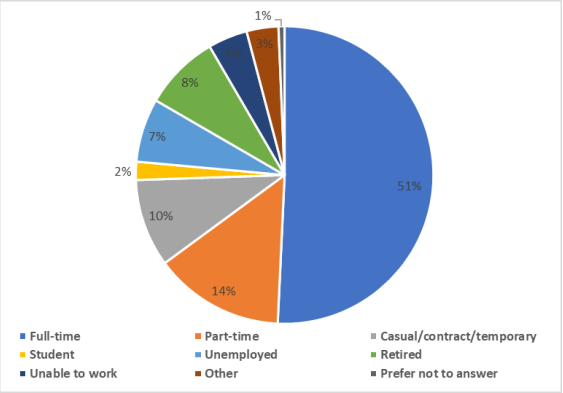
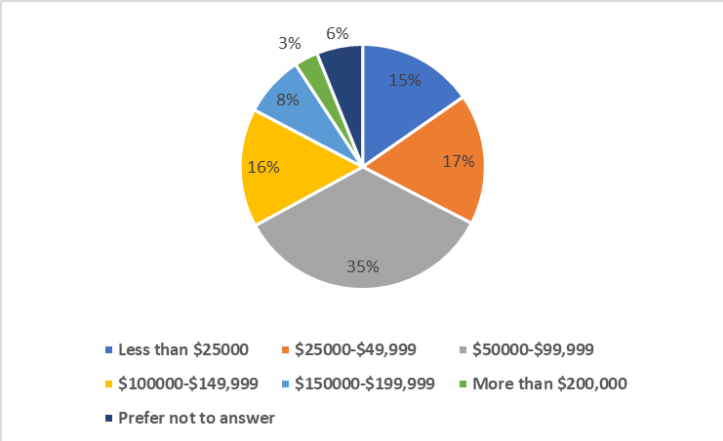


Figure 5: Annual income of respondents



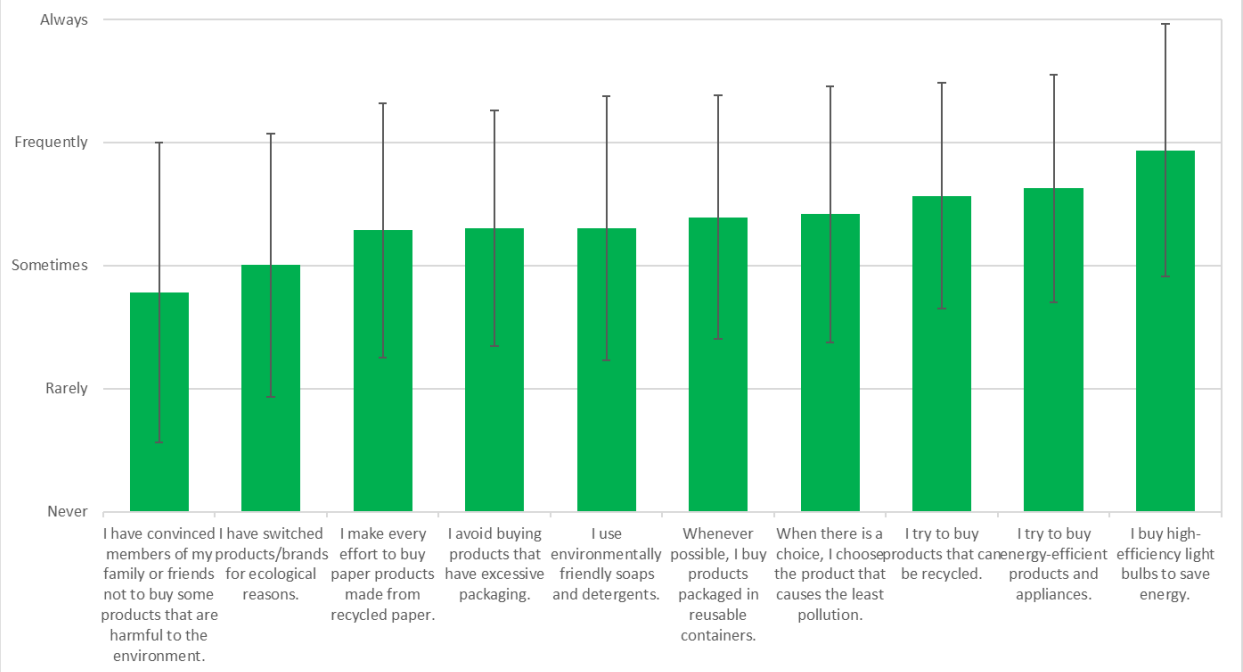
Key Insights and Implications

The following points summarise the key findings from the quantitative research undertaken to address the research aims listed above.

Purchasing Attitude

In this sample, buying *high-efficiency* or *energy-efficiency* products are the two most frequent choices of consumers, followed by *products that can be recycled*, *products that cause the least pollution* and *products packaged in reusable containers*. The impacts of *consumers on family or friends purchasing recycled, reused or recovered products* and *buying products for ecological reasons* are the least significant compared with the other choices (see Figure 6).

Figure 6: Purchasing habits



- **Implication 1** – *Consumers focus more on their own future savings than ecological or social reasons.*

The majority of consumers at least somewhat agreed that buying products made of recycled, reused or recovered materials can *make a difference*, not only for themselves but also to help in *building a better world,* with 44% of respondents agreeing or strongly agreeing with this statement (see Figure 7). Consumers ranked retailers who sell products made of recycled, reused or recovered materials as high and associated this action with *caring about the planet* (42% agree or strongly agree), being *socially responsible* (40% agree or strongly agree) or being *a good corporate citizen* (34% agree or strongly agree) (see Figure 8).

Figure 7: To what extent do you think you can make a difference by buying products made of recycled, reused, or recovered materials?

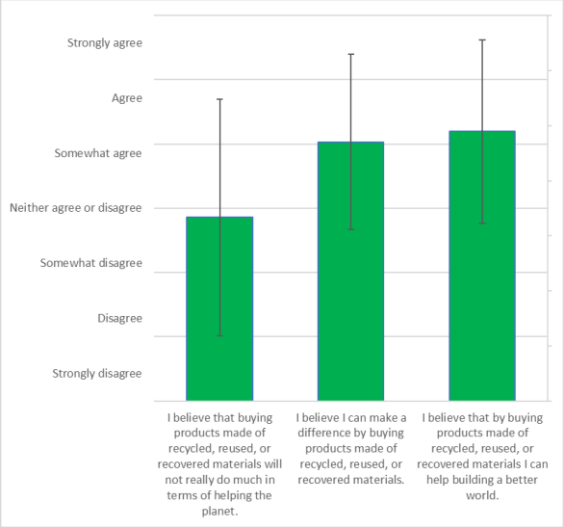
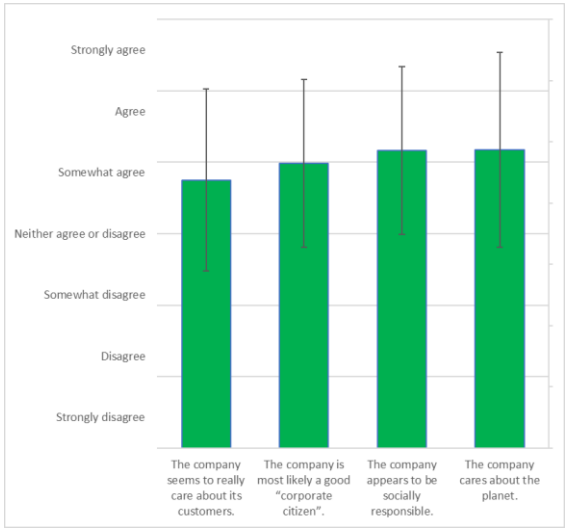


Figure 8: How do you perceive retailers who sell products made of recycled, reused or recovered materials?



- **Implication 2** – *Consumers have, to some extent, an ecological perception and believe that their behaviour impacts the world.*
- **Implication 3** – *Retailers' strategies around the CE impact consumers' perceptions of the retailer's brand.*

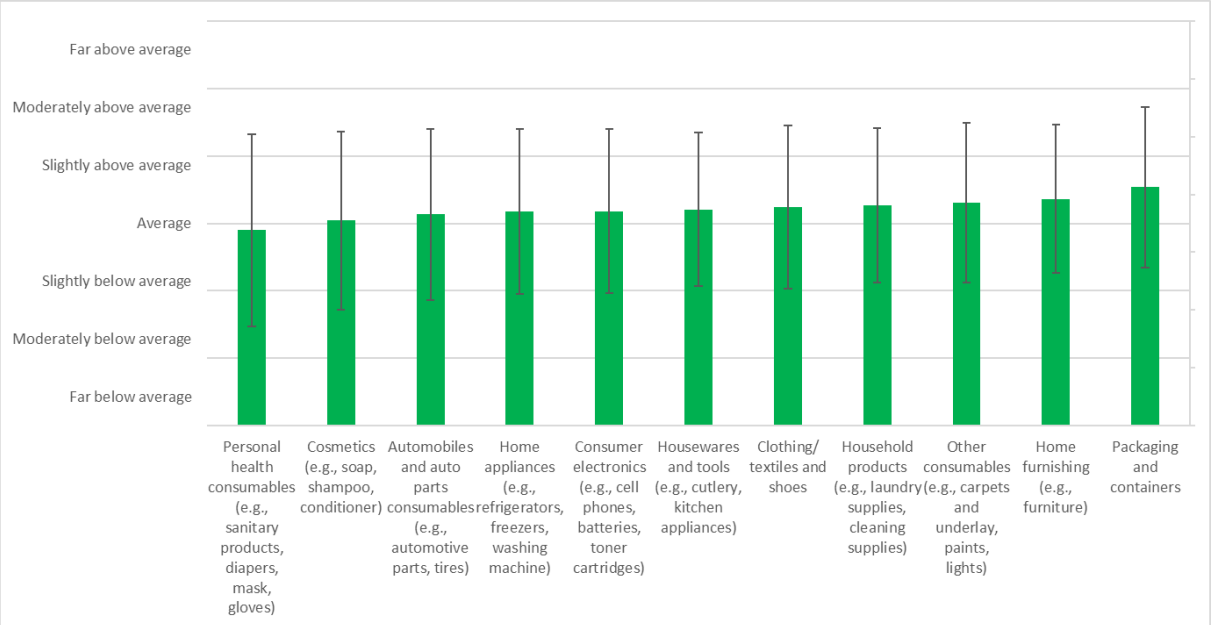
Willingness to Buy and Pay for Circular Economy Products

According to the survey, 79% of the participants somewhat agreed that they can *identify products made of recycled, reused or recovered materials* (CE products) among other products. The ability to identify CE products is higher among consumers who are younger than 35 years old. Interestingly, males showed a stronger willingness to buy these products than females.

- **Implication 4** – *Consumers are informed and can identify products made of recycled, reused or recovered materials, this being more preeminent among young and male individuals.*

In terms of product performance, the participants generally believe that CE products outperform the average level, except in the category of *personal health consumables* (e.g., sanitary products, diapers, masks, gloves). *Packaging and containers*, *home furnishing* (e.g., furniture) and *other consumables* (e.g., carpets and underlay, paints, lights) are the top three product categories with the highest performance, having scores of 4.54, 4.36 and 4.30 out of 7 respectively. *Personal health consumables*, *cosmetics* (e.g., soap, shampoo, conditioner) and *automobiles and auto part consumables* (e.g., tires) are among the worst-performing CE products (see Figure 9).

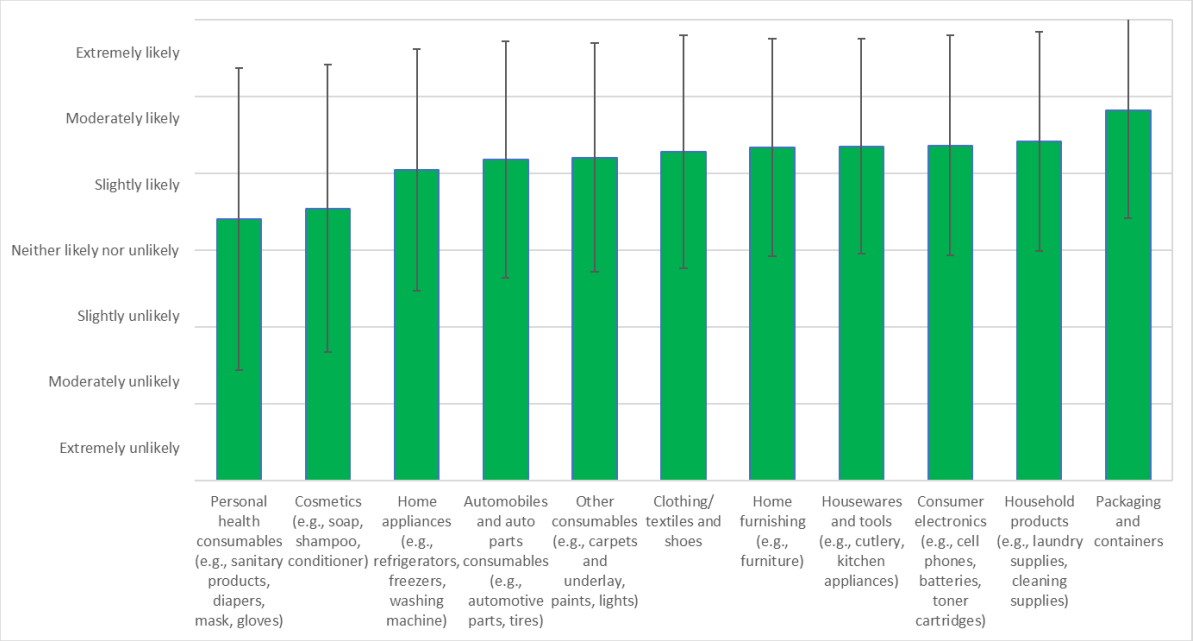
Figure 9: How do you think products in the following product categories will perform if the product was made of recycled, reused, or recovered materials?



- **Implication 5** – *In relation to products made of recycled, reused or recovered materials, consumers perceive product performance differently across categories, with products that might impact their health and safety performing worst and products used for packaging and other consumable products having the highest performance.*

When measuring the likelihood of buying certain CE products, *packaging and containers* are products that participants are most willing to buy, with a score of 5.8 out of 7, followed by *household products* (e.g., laundry supplies, cleaning supplies), *consumer electronics* (e.g., cell phone, batteries, toner cartridges), *housewares and tools* (e.g., cutlery, kitchen appliances), and *home furnishing* (e.g., furniture), with scores of 5.42, 5.37, 5.36 and 5.34 out of 7 respectively. *Personal health consumables* (e.g., sanitary products, diapers, mask, gloves) and *cosmetics* (e.g., soap, shampoo, conditioner) are the products that participants are less likely to choose if they were CE products, with a score below 5 (4.40 and 4.54 respectively; see Figure 10).

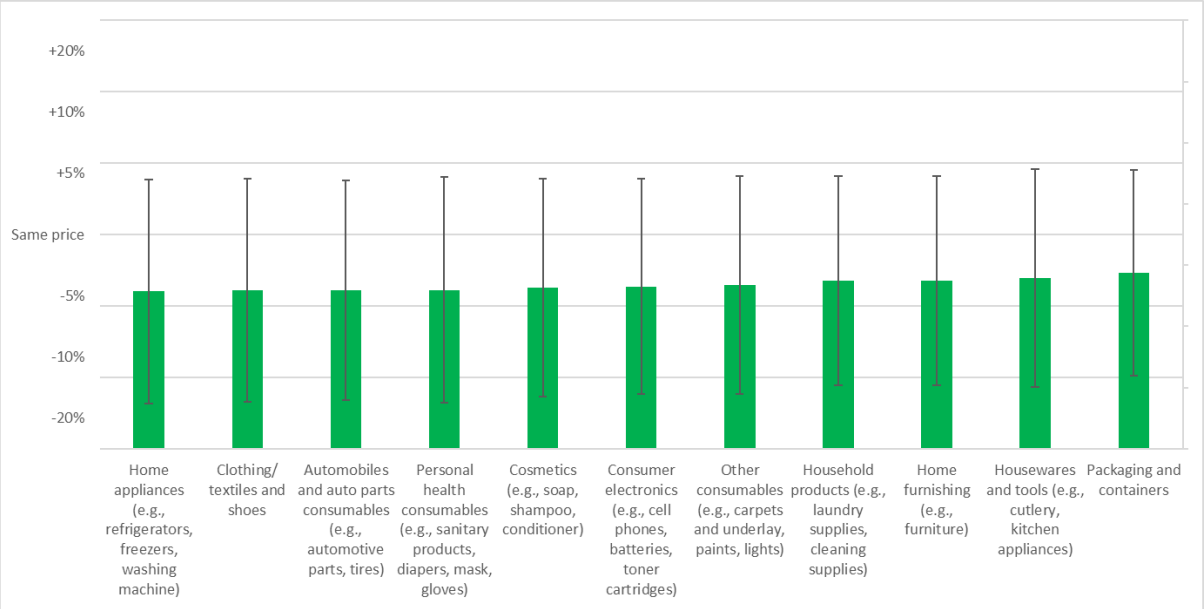
Figure 10: How likely are you to buy the following products if the product was made of recycled, reused, or recovered materials?



- **Implication 6** – *Similar to implication 5, consumers are more willing to buy products made of recycled, reused or recovered materials in categories that do not impact their health and safety, and are more likely to purchase products in all other categories.*

As a key area of interest, the survey also investigated consumers' WTP for CE products. Even though participants showed a willingness to buy CE products, they were less likely to pay at least the same price as other products. Instead, they expect to pay less for products made of recycled, reused or recovered materials. With reference to the different product categories, *packaging and containers*, *housewares and tools*, and *home furnishing* are again the top three products that participants are more likely to pay a price close to that of similar products at 3.46, 3.39 and 3.36 out of 7 respectively (see Figure 11).

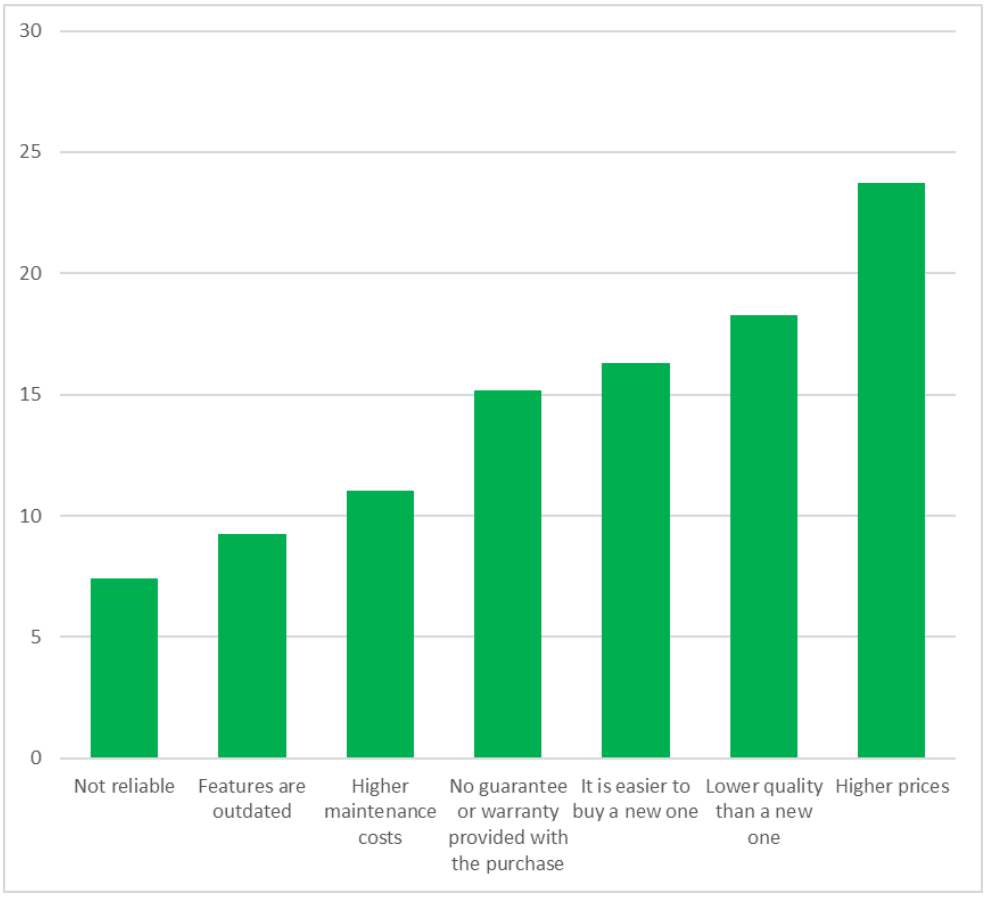
Figure 11: How much would you be willing to pay for the following products if the product was made of recycled, reused or recovered materials?



- **Implication 7** – *Interestingly, consumers perceive products made of recycled, reused or recovered materials should necessarily be more affordable. If retailers ask consumers to buy products made from recycled, reused or recovered materials, they need to understand that consumers will be willing to pay a lower price for them than brand new products. This might be due to consumers' perceptions that such products are cheaper for the manufacturer to make since the performance does not seem to have an impact – as we saw in implication 5.*

Finally, the survey looked at the reasons why participants are not willing to buy products made of recycled, reused or recovered materials. The results show that *higher prices* are the most striking barriers preventing consumers from buying CE products, accounting for one-quarter of responses, followed by *lower quality* (18%) and *ease of buying a new one* (16%) as relevant arguments. *Not reliable*, *outdated features* and *higher maintenance costs* are the least significant barriers, with only 7%, 9% and 11% respectively of consumers not choosing CE products due to these reasons (see Figure 12).

Figure 12: If you are not willing to buy products made of recycled, reused or recovered materials, please indicate why



- **Implication 8** – *Higher prices, lower quality and the ability to easily buy new products represent the main reasons why consumers are not willing to buy products made of recycled, reused or recovered materials. Similar to implication 5, reliability does not seem to have a high impact on consumers' perceptions.*

Regression Analysis

According to the survey, consumers' perceptions of how they view themselves when buying products made of recycled, reused or recovered materials positively influence purchasing habits, and this significant relationship holds when consumers perceive their purchases as making a difference and building a better world (both significant at the 1 per cent level). Specifically, a 1.0 unit increase in these two perceptions can lift the purchasing habit towards CE products by an addition of 0.15 of a unit.

- **Implication 9** – *Consumers have good intentions to hold habits of buying products made of recycled, reused or recovered materials as this projects an image of being environmentally responsible citizens and due to the social construct that such actions will make a difference in building a better world, which is similar to implication 2.*

These perceptions are also associated with how retailers selling CE products are ranked by consumers. Consumers who believe that they can make a difference by buying products made of recycled, reused or recovered materials or believe that buying products made of recycled, reused or recovered materials can help to build a better world are more likely to consider the retailers who are associated with these products as being good corporate citizens, caring about the planet and having social responsibility. This implication is particularly important for retailers as the majority of consumers, and particularly the new generations, are nowadays preoccupied and attentive to the environmental impact of their purchases and choices.

- **Implication 10** – *Environmentally conscious consumers are particularly attuned to retailers that are associated with CE policies. This is particularly important for the younger generation and male consumers.*

It was also found that purchasing habits involving CE products have a positive impact on the willingness to buy products made of recycled, reused or recovered materials, and this relationship is statistically significant at the 1 per cent level. A 1-unit increase in purchasing habits involving CE products will lead to an increase of 0.59 of a unit in the willingness to buy these products.

- **Implication 11** – *Consumers are more likely to buy products made of recycled, reused or recovered materials if they have purchasing habits involving CE products.*

However, purchasing habits involving products made of recycled, reused or recovered materials do not significantly positively influence the ability to pay for these products. Instead, the perception of the performance of CE products determines consumers' WTP; this relationship is significant at the 5 per cent level.

- **Implication 12** – *Consumers' decisions to pay for CE products depends on how they compare the performance of these products to others – not on their purchasing habits.*

Conclusion

The survey results point to some important conclusions. First, most consumers can identify CE products, and when the price, functionality and quality are met using a CE approach, consumers are willing to switch to a more sustainable product. Second, that economic aspects, in terms of savings, remain the priority when considering using CE products compared to other ecological and social reasons. Third, consumers believe that as environmentally responsible citizens, their behaviour somewhat impacts the world and the retailers who follow CE principles – that is, provide products made of recycled, reused or recovered materials – are positively perceived and are viewed as good corporate citizens who care about the planet. Preferential consumer behaviour towards CE products is mainly demonstrated by young male consumers who show considerable awareness and strong willingness to buy CE products; they are also more sensitive to retailers who promote CE products. Therefore, their perceptions and considerations are highly relevant for industry. Fourth, consumers perceive CE products differently across different product categories. Personal health consumables and cosmetic products are perceived more negatively in terms of performance and are associated with a lower WTP, whereas packing products, household consumables and electronics are expected to perform better than average, and consumers show more willingness to buy these CE products compared to other product categories. The perceived performance of products greatly impacts the amount a consumer is willing to pay for the product. Fifth, consumers are not willing to buy CE products due to higher prices, lower quality or the ease with which they can access new products. Future research could look at CE knowledge levels, the role of education and the way in which they can influence consumers perceptions of CE products.

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Appendices

Appendix 1 – Survey Information Sheet

PARTICIPANT INFORMATION FOR QUT RESEARCH PROJECT

– Survey –

Consumer Perceptions of the Circular Economy and Retail

QUT Ethics Approval Number 2021000372

Research team

Principal Researcher:	Dr Rui Torres de Oliveira, Chief Investigator
Associate Researcher(s):	Dr Tam Nguyen, Research Assistant
	Ms Agnes Toth-Peter, Research Assistant
	School of Management / Faculty of Business & Law
	Queensland University of Technology (QUT)

Why is the study being conducted?

This research project is being undertaken as part of a commercial research grant sponsored by the Australian Retailers Association (ARA).

The purpose of this research project is to understand how consumers perceive retailers' strategies around corporate social responsibility (CSR), more specifically, their actions in relation to the circular economy (CE). The project aims to understand how much individuals understand and measure the importance of the CE and what their purchasing behaviour will be when a retailer follows a CE approach.

You are invited to participate in this research project if you are 18 years of age or above. Your contribution will support the accurate representation of the different Australian consumers.

What does participation involve?

Participation will involve completing a 17-item survey with Likert-scale answers (strongly agree – strongly disagree) that will take approximately 6 minutes of your time.

Questions will include:

- *How familiar are you with products made of recycled, reused or recovered materials?*
- *How do you perceive retailers who sell products made of recycled, reused or recovered materials, and what do you think about the quality of these products?*

Your participation in this research project is entirely voluntary. If you agree to participate, you do not have to complete any question(s) you are uncomfortable answering. Your decision to participate or not participate will in no way impact upon your current or future relationship with QUT or ARA. If you do agree to participate, you can withdraw from the research project during your participation without comment or penalty. However, as the survey does not request any personal identifying information, once it has been submitted, it will not be possible to withdraw. You will be able to review your responses before submitting and save a copy of your responses after submitting the survey.

What are the possible benefits for me if I take part?

It is expected that this research project will not directly benefit you. The outcomes of the research, however, may benefit the ARA Consumer Research Committee and its retailers, members and industry partners. You can request a summary of the outcomes of the study by getting in touch with the ARA Consumer Research Committee.

What are the possible risks for me if I take part?

There are no risks beyond normal day-to-day living associated with your participation in this research project. The burdens are related to time commitments, as you will need to take a short time off work and your normal duties to fill in this short survey.

What about privacy and confidentiality?

All comments and responses are anonymous i.e., it will not be possible to identify you at any stage of the research because personal identifying information is not sought in any of the responses. The questions address your knowledge regarding the circular economy, purchasing behaviour and willingness to buy and pay for products made of recycled, reused or recovered materials. To ensure confidentiality, the researchers will not directly interact with you.

Any data collected as part of this research project will be stored securely as per QUT's Management of research data policy. Data will be stored for a minimum of 5 years and can be disclosed if it is to protect you or others from harm, if specifically required by law, or if a regulatory or monitoring body such as the ethics committee requests it.

The research project is funded by the ARA Consumer Research Advisory Committee. ARA will not have access to the data during the project. The industry partners are seeking tangible value in the form of findings and reports and actionable insights to build upon. The research data collected in the surveys will be used by the research team to write an industry report, which will be submitted to the ARA Consumer Research Committee. Data might be used in future publications as well, for example, in additional journals, book chapters, articles or teaching materials.

How do I give my consent to participate?

The submission or return of the completed survey is accepted as an indication of your consent to participate in this research project.

What if I have questions about the research project?

If you have any questions or require further information, please contact the Chair of the ARA Consumer Research Advisory Committee, Professor Gary Mortimer or the Chief Investigator of the project, Dr Rui Torres de Oliveira:

Professor Gary Mortimer	gary.mortimer@qut.edu.au	+61 7 3138 5084
Dr Rui Torres de Oliveira	rui.torresdeoliveira@qut.edu.au	+61 7 3138 0475

What if I have a concern or complaint regarding the conduct of the research project?

QUT is committed to research integrity and the ethical conduct of research projects. If you wish to discuss the study with someone not directly involved, particularly in relation to matters concerning policies, information or complaints about the conduct of the study or your rights as a participant, you may contact the QUT Research Ethics Advisory Team on +61 7 3138 5123 or email humanethics@qut.edu.au.

Thank you for helping with this research project. Please keep this sheet for your information.