

# Loyalty Programs in Second-Hand Markets Stimulate Demand but May Interfere With Supply

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**ABSTRACT:** This study investigates a specific attribute of the circular economy, the direct reuse of old products, and the use of the traditional marketing mechanism of loyalty programs of stimulating this attribute. We conducted two studies into common (clothing) and uncommon (electronics) second-hand markets, testing the effectiveness of rewarding purchases and donations in stimulating the (intended) demand and supply in second-hand stores. Our findings indicate the effectiveness of various loyalty programs in stimulating the intention to repurchase in second-hand stores. We also identify that a loyalty program, which rewards purchases and donations, can effectively stimulate the supply to second-hand stores, but only for customers with a low donation history. However, for those with a substantial donation history, loyalty programs that rewards donations reduce their donation intentions.

**KEYWORDS:** circular economy, loyalty program, second-hand market, repurchase, donation

## 1. Introduction

The Circular Economy (CE), which is a closed loop environmentally sustainable economy utilizing used resources and supporting local networks of businesses and communities, has risen in prominence as a popular economic model in recent years. Numerous governmental bodies around the world are currently supporting or developing a CE (Metta & Bachus 2020), with associated sustainable supply chain practices also being recognized within the retailing sector (Vadakepatt et al., 2020). According to Geissdoerfer et al. (2017), the CE can be divided into three categories: the direct reuse of old items, often known as the second-hand industry, the recycling of old products into new products, and the recycling of old products into various materials. Because they involve the recycling and sale of used, recycled, or refurbished goods, second-hand markets are an important part of circular economies. Additionally, second-hand markets have been a part of economies for centuries, addressing a variety of consumer demands and typically offering goods at a lower price than newly manufactured goods. These markets cover a variety of items, from clothing and household goods to cars, and have gone through numerous periods of popularity and disdain (Williams & Paddock 2003; Weinstein 2014).

At the turn of the millennium, there was a shift toward mass consumption and convenience, which was accompanied by reducing prices for new items across most industries (Matsuyama 2002; Remy, Speelman & Swartz 2016). This increasing demand for cheap new items, as well as population increases and increased rate of technological and design innovations, meant that constant new production and manufacturing came at the cost of environmental sustainability (Remy, Speelman & Swartz 2016). In addition, previously, the purchase of second-hand products was primarily associated with monetary constraints of lower socio-economic households (Williams and Paddock 2003). With new items progressively becoming cheaper and addressing demands previously met by second-hand markets, the result was a reduced demand in second-hand markets. Therefore, mass production led to a culture of throw away consumerism, which led to lots of excess items (e.g., clothing) that could have been sold on second-hand markets and reused, but instead were simply being thrown away as garbage (Norum 2015).

However, the increased awareness of the environmental impact of mass consumerism has resulted in ecofriendly and sustainable practices, and increasing demand for second-hand products by consumers (Diglel & Yazdanifard 2014). Consequently, recycling and reusing old products has gained popularity and second-hand products are no longer considered a result of financial limitations (Williams & Paddock 2003). Second-hand markets are now being used in new technologically integrated manners. Some notable examples are closet sales organized by social media influencers, online thrift shops, and sales through social media communities. The overall meaning and social signal of thrift-shopping is changing, and subsequently, reducing the stigma associated with it (Brace-Govan & Binay 2010; Williams & Paddock 2003).

Even though there has been an increase in demand for second-hand products in recent years, there is still room for improvement in stimulating demand. For instance, with shifting consumer values comes the opportunity to stimulate demand for second-hand goods and engagement in the CE (Calvo-Porrall & Lévy-Mangin 2020). In order to stimulate demand, second-hand stores and markets could reconsider their current marketing efforts inspired by strategies that have been proven effective in traditional linear consumer markets. Yet to date there has been little research on the effectiveness of classical marketing strategies, like reward and loyalty programs or rebate initiatives, in CE (Avagyan et al. 2016; Chamberlin & Boks 2018; Zhao & Jagpal 2006). Our research aims to contribute to closing this gap in the literature.

As a first step towards generalizing our findings, we focus on a common (i.e., clothing) and uncommon (i.e., electronics) second-hand market in this paper. The second-hand clothing market is one of the most prevalent second-hand markets. Of the three stages in clothing's lifecycle – acquisition, usage, and disposal – the disposal stage is the most heterogenous in the population, and hence the most difficult to address (Xie et al. 2021). Research done in the United States shows that, the most common forms of clothing disposal are: donating to charity or second-hand stores, throwing away in the trash, giving away to friends or family, using as rags, and selling items at garage sales (Norum 2015). Research has also shown that, among these methods of cloth waste disposal, the reuse and recycling method is the most sustainable method (Xie 2021). Thus, even though Norum (2015) found nearly half of respondents had donated clothes to second-hand stores previously, they also reported that a third of the respondents still dispose of their clothes in the trash. In effect, this study explores a strategy to influence consumers at the disposal stage to donate rather than dump their old clothing, thereby increasing the potential supply of merchandise in second-hand clothing stores.

The same factors of purchase and disposal apply to other markets as well, one such being the electronics market. With the increasing advancement of technology has come an increasing demand for and reliance on new items and functionality, such that new models and devices are expected by consumers at a frequent rate. Even when older devices are still functioning, they are often forgone for the latest model (Cox et al. 2013). This is further exacerbated by fact that companies even deliberately develop devices that have a shorter lifespan (Bhutta et al. 2011), or have software updates that slow down their functionality (Autorita Garante Della Concorrenza E Del Mercato 2018), so that new items are purchased more frequently. This deliberate plan of companies produces a significant amount of electronic waste (e-waste). A significant amount of this e-waste is sent to developing nations, like Nigeria (Nnorom & Osibanjo 2008), which has the benefit of helping close technological gaps between nations. However, a large portion is still disposed of in landfills, which is becoming a significant issue in developed nations (Babu et al. 2007; Bhutta et al. 2011). Yet much of this e-waste is reusable or recyclable. It is therefore important for developed nations to stimulate their circular economies by facilitating reusing, repairing, and recycling more of their e-waste to make the most of the positive environmental potential of old electronic goods.

Given the opportunities and needs for improvement of these two and other kinds of second-hand markets, we explore how they could benefit from deploying a classic marketing strategy, which aims at building customer loyalty, which refers to customers repeatedly purchasing from a particular company (Sasser et al. 1997). Strategies stimulating customer loyalty tend to generate

positive long term financial results for the company (Duffy 2003). For a business, the motivation to introduce a loyalty program is building a strong, long-term relationship with its customers, making the repurchase from the company (Wright & Sparks 1999). Building this relationship should lead to an increase in customer retention and stimulate consumers to make more frequent purchases. The motivation to participate for the consumer is primarily the discount or free product they will acquire when making the effort to become a loyalty program member and frequent the store (Duffy 2003; Rao & Kotian 2018). A consumer's purchase intention may be positively influenced by the reward associated with the loyalty program (Kopalle & Lehmann 2006; Sharma & Bhardwaj 2015).

As stated by Sharp & Sharp (1997), a loyalty program can reinforce the emotional connection to a company. We know from prior research that an emotional connection leads to more prosocial behavior towards the company, such as forgiving mistakes (van Kleef & Lelieveld 2022). Therefore, it may be assumed that a loyalty program will positively affect donating to the store, which is another pro-social behavior. On the other hand, there is significant evidence showing that incentivizing donation behavior with rewards negatively impacts donation intentions (Ariely et al. 2009; Bénabou & Tirole 2006; Mellström & Johannesson 2008). Previous studies, initially on blood donation, have illustrated this, with significant evidence displaying that external rewards reduce donations (Mellström & Johannesson 2008). Many further studies have analyzed different aspects of prosocial behavior and external rewards, demonstrating that different contextual factors, e.g., public vs. private or the type of reward, can impact the direction and size of the rewards effect on donation (Bénabou & Tirole 2006; Gneezy & Rustichini 2000; James 2005; Lacetera & Macis 2010a, 2010b). There has been little research on the impact of these external rewards in a second-hand retail context though, and less so specifically on loyalty programs. As such there is an opportunity to analyze if a loyalty program in a consumer context can assist in increasing donations to second-hand stores, or if the potential for reward reduces an individual's intention to donate.

To explore this issue, we conducted two high-powered online studies<sup>1</sup> on Western European populations. We measured the intentions of repurchasing and donating to second-hand stores given various loyalty program designs. In particular, we considered two different treatments and a control group. The first treatment consisted of eliciting purchasing and donation intentions of respondents with a classical reward system, whereby customers are rewarded for their purchasing behavior in a second-hand market. The second treatment consisted of eliciting purchasing and donation intentions of respondents with an integrated loyalty program that rewards both purchasing and donating behavior in a second-hand market. The control group elicited the purchase intention of respondents in a second-hand market with no loyalty program. The structure of the paper is as follows. Section 2 describes the study design and the methods, while the two studies with their results are presented in Section 3 and Section 4. Section 5 talks about the general discussions and conclusion, with potential policy implications. The limitations of the paper and the directions for future research are presented in Section 6 and Section 7 talks about practical implications of the study.

## 2. Overall study design and procedure

The two studies used a common treatment design, with slight changes in the wording to adapt them to the two different markets (i.e., second-hand clothing in study 1 and second-hand electronics in study 2). The design included two different treatments, which were scenarios proposing different loyalty programs (scenario 1 and scenario 2) in addition to a control scenario (scenario 0), which had no loyalty program. Participants were randomly assigned to one of the three scenarios. In the classic loyalty program (scenario 1), the customer earns 1 point with each purchase and after they have accumulated 5 points, they are entitled to a 50% discount on their next purchase. In the integrated loyalty program (scenario 2), the customer receives 1 point for each purchase as well as

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<sup>1</sup> One study involving a commonly donated item in second-hand markets (clothes) and the other study involving items that are not commonly donated in second-hand markets (electronics)

1 point for each item of donated material. The customer then receives a 50% discount of the next purchase once he/she can accumulate 5 points. The scenarios describing the loyalty programs were adapted to each of the marketplaces (see Appendix C for full descriptions). After one of the scenarios was presented, the respondents had to indicate their intention to accept the loyalty program (“I’m willing to join the loyalty program for this store”), their intention to purchase in the second-hand shop (“I’m willing to buy clothing/electronic items in this store in the future”), and their willingness to donate to the second-hand shop (“I’m willing to donate clothing/electronics to this store in the future”). Each of these dependent variables was measured with one item on a 5-point Likert scale. In the control condition of both studies, participants only had to indicate their intention to repurchase or donate to a second-hand store.

After the scenario treatments, the survey examined the general shopping behavior of respondents. They were asked to answer questions (on a 5-point Likert scale) about the characteristics of items that are important to them, how much time they spend shopping, as well as brand and shop loyalty. The latter aspects were examined as those with a predilection for frequenting the same set of stores may be more likely to have interest in a loyalty program and show a higher intention to repurchase. Therefore, there was a control variable based on the proportion of market specific second-hand items the respondent had, as well as on whether the respondent had historically donated items in that market, since participants who historically engage with second-hand markets might also show a higher intention to repurchase and donate clothing or electronics. Finally, respondents were asked to supply the basic demographic information of age, gender, student status, and occupation. We tested the main and interaction effect with all these variables as robustness checks. The final screen explained the purpose of the study and thanked participants for their time.

### 3. Study 1

#### 3.1. Method

A survey was used to collect a total of 875 responses on two separate occasions in 2020. A total of 575 responses were collected in the first phase and 300 in the second phase. The first phase of the survey used a convenience sampling approach to sample individuals in a western European country (Belgium), which resulted in an overrepresentation of a particular generation (Generation Z). In order to rectify this problem, a total of 300 responses was collected in a same country via Prolific, with specific age demographic to balance out the skewed population of the first sample. The used instrument in both phases used the same 1x3 between-subject design in which each participant was administered one of three different treatments in a randomized sequence. The questions were the same, except for the fact that we added the question about donation experience with the second-hand market only in phase 2. So, for this study, donation experience is only an explorative variable.

Out of the 875 responses collected, a total of 103 responses were dropped due to incomplete responses, leaving 772 valid responses. The distribution of the age of the respondents shows that about a quarter of the respondents are 22-23 years old (Appendix **Error! Reference source not found.**). Female respondents were also slightly overrepresented, adding up to about 57% of the respondents. About 41% of the respondents indicated that they are students and 59% also indicated that they are engaged in some form of employment. In addition, about 9.8% of the respondents indicated that they are working students. Also, 41% of the respondents indicated that none of their clothes are from a second-hand store, with an additional 37% indicating that the percentage of their clothes that are from a second-hand store is at most 10%. In effect, only about 22% of our respondents get at least 11% of their clothes from the second-hand market.

### 3.2. Results

#### 3.2.1 Main Results

The descriptive statistics of the dependent variables, intention to repurchase, intention to donate, and intention to enroll in a loyalty program, under each scenario is represented by Table 1. The results show that the introduction of the classic loyalty system (scenario 1) increased the mean intention to repurchase from 3.27 in the control condition (scenario 0) to 3.82. This difference was tested by a Mann-Whitney<sup>2</sup> test, which revealed the difference in purchase intention in the classical loyalty program to be significantly higher than the purchase intention in the control condition ( $|z| = 4.80$ ;  $p < .001$ ).

Table 1: Descriptive statistics of dependent variables for each scenario – study 1

Dependent Variable	Statistic	Control Condition ( $n = 251$ )	Classic Loyalty Program ( $n = 253$ )	Integrated Loyalty Program ( $n = 268$ )
Intention to repurchase	Mean	3.27	3.82	3.66
	Std. Dev.	1.3	1.17	1.21
Intention to enroll in a loyalty program	Mean	n/a	3.47	3.85
	Std. Dev.	n/a	1.13	1.06
Intention to donate	Mean	4.25	3.68	3.45
	Std. Dev.	0.92	1.01	1.12

In the second scenario, an integrated loyalty program, which stimulates both donations and purchases of clothes in the second-hand store was introduced. This loyalty program also significantly increased average purchase intention from 3.27 in the control scenario to 3.66 ( $|z| = 3.45$ ;  $p < .001$ ). Further analysis also revealed that intention to repurchase was higher for the classic loyalty program than for the integrated loyalty program (see Appendix A Figure A – 3). In contrast, the intention to enroll in the loyalty programs showed the opposite pattern as it was lower in the classic loyalty program than in the integrated loyalty program.

(3.47 vs. 3.85,  $|z| = 4.13$ ;  $p < .001$ ).

We also analysed the effect of the different loyalty program on respondents' intention to donate. Results indicated that compared to the control condition (scenario 0), the introduction of a loyalty program leads to a reduced mean intention to donate (see Appendix A Figure A – 4). More specifically, the introduction of the classic loyalty program, reduced the mean intention to donate from 4.25 in the control condition to 3.68. This reduction in intention to donate is further exacerbated under the integrated loyalty program, which reduced intention to donate to 3.45. A Mann-Whitney test showed that both differences were statistically significant ( $|z| = 7.21$  and  $|z| = 8.81$  respectively;  $p < .001$ ), which implies that the two loyalty programs had a significant negative effect on stimulating respondent's intention to donate. In addition, the difference in the intention to donate between the two loyalty programs, 0.23, was also statistically significant ( $|z| = 2.27$ ;  $p = .023$ ), with the integrated loyalty program relating to even weaker donation intentions. These results imply that the addition of rewarding donation in scenario 2, lead to a significant reduction in the intention to donate to a second-hand store.

#### 3.2.2 Exploratory Results

The changes in purchase intention and donation intention were also investigated after controlling for demographic characteristics like age, gender, being a student, employment, and donation history

<sup>2</sup> Nonparametric tests were used for all the analysis because the data were not normally distributed.

(part of the sample, see above). The results show that female respondents and students had a significantly higher intention to repurchase and donate than male respondents and, respectively, non-students. The results also show that individuals with a higher proportion of second-hand clothes have a higher intention to repurchase from and donate to a second-hand clothing store. Controlling for the demographic factors (both main and interaction effects) did not affect any of the statistical patterns that we shared in Table 1 (For more details see Appendix B; Tables B – 1 to B – 3).

A multivariate regression analysis was also conducted on the interaction between loyalty programs and demographic factors (see Appendix B; Tables B – 4). The results show that students and female respondents who have loyalty programs have significantly higher intention to repurchase from a second-hand clothing store compared with non-students and male respondents who do not have loyalty programs. In addition, even though being employed did not have any significant effect on purchase intention, employed respondents with a loyalty program have a significantly higher intention to repurchase from a second store compared to the unemployed without a loyalty program.

Table 2: Intention to donate between scenarios by donation history - second survey from study 1, sample  $n = 300$

Intention to donate	Control Condition	Classic Loyalty Program	Integrated Loyalty Program		Difference
Donation History	4.30 (89)	3.72 (89)		$ z  = 4.32; p < .001$	-0.58
	4.30 (89)		3.52 (93)	$ z  = 5.28; p < .001$	-0.78
No Donation History		3.72 (89)	3.52 (93)	$ z  = 1.21; p = .225$	-0.20
	2.57 (7)	3.27 (15)		$ z  = 1.12; p = .263$	0.70
No Donation History	2.57 (7)		3.42 (7)	$ z  = 1.21; p = .225$	0.85
		3.27 (15)	3.42 (7)	$ z  = 0.299; p = .765$	0.15

*Number of observations in parenthesis*

Individuals who have donated clothes in the past also have a higher intention to donate compared to individuals who do not have any donation history. To further explore the effect of respondents' donation history on their donation intention, we tested for the differences in intention to donate by scenario for each group of people (see Table 2). The results show a significant reduction in intention to donate clothes to a second-hand store by respondents who have previous donation experience in both loyalty program treatments. On the other hand, the respondents with no donation history did not show that pattern but the number of observations was too small to say anything meaningful about it.

As indicated above the variable respondent donation history was interacted with the loyalty programs and added to a regression model. The results show a significant negative interaction with both the classic and integrated loyal programs ( $p < .001$ ). We could see from Figure 1 that the overall trend between loyalty programs was maintained for respondents with clothing donation history (i.e., the introduction of loyalty programs discourages donation). However, the respondents without donation history had a higher donation intention under both loyalty programs compared to the control group with no loyalty program. In light of the limited number of people without donation history, we cannot draw any conclusions from this pattern. However, we will pursue this further in study 2, where we focus on a less popular second-hand market (with fewer people with donation history).

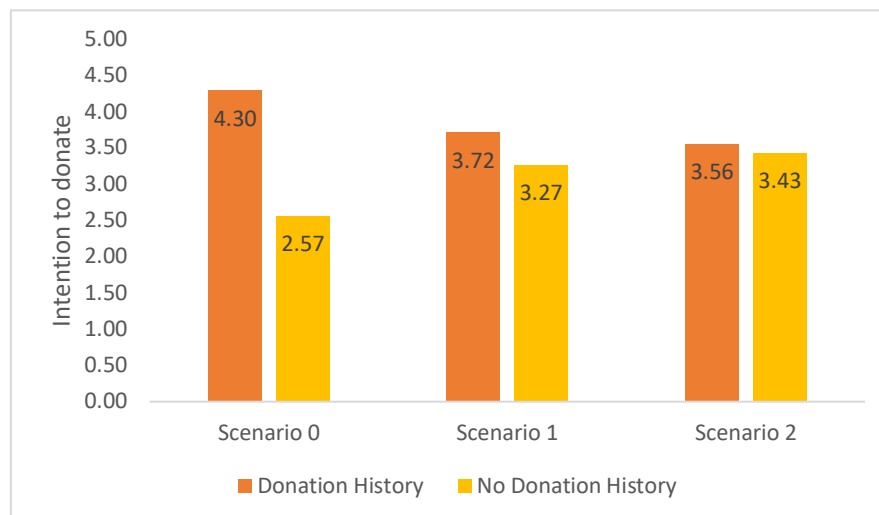


Figure 1: Mean Intention to donate second-hand clothing by donation history – second survey from study, sample  $n = 300$

## 4. Study 2

### 4.1. Method

In this second study, we replicate the methods of study 1, while tailoring the scenario wording to an electronics second-hand market. The electronic second-hand market was chosen because electronic waste (e-waste) is a significant concern for circular economies. Yet, a pilot study ( $n = 100$ ) we conducted<sup>3</sup> as well as findings from (Williams & Paddock 2003) indicate that electronics are one of the least donated items. Thus, by focusing on electronics, we also aimed to yield a deeper understanding of an underutilized second-hand market. In addition, this presented us with the opportunity to investigate whether the findings from the most common second-hand market (clothing) can be replicated in a less popular market. Furthermore, an important motivation for this second study was to check the robustness of the patterns found in the first study, especially the interesting suggestion of an interaction of donation history with intention to donate found in the reduced form of the study 1 sample. For this second study, we selected individuals with a reliable history from the Prolific platform. This way we hoped to overcome some downsides of the sample of study 1, possibly due to the fact that it was a convenience sample, such as a relatively low completion rate and a somewhat unbalanced age distribution. A survey was used to collect a total of 1023 responses from Western European countries through this platform. As hoped, all the collected responses were complete this time and could be included in the analysis. Furthermore, the age distribution was more balanced than in the previous study. In addition, there were slight differences in the demographics of the two studies. For instance, 11% of the participants in this study were students (compared to 41% in study 1). Furthermore, the majority of the respondents (81%) in this study were engaged in some form of employment (compared to only 59% in the first study). About 66% of the respondents were women and about half of the respondents revealed that they had donated electronics in the past. The respondents were assigned to the three loyalty programs in a between-subject manner as in study 1.

### 4.2. Results

#### 4.2.1 Main Results

The descriptive statistics of the dependent variables, namely intention to repurchase a second-hand electronic, intention to enroll in a loyalty program, and intention to donate second-hand electronic for each scenario is presented in Table 3. The results show that, the introduction of the classic

<sup>3</sup> See supplementary materials for a summary of the pilot study.

loyalty system increased the mean intention to repurchase from 3.44 in the control condition to 3.89. This difference was tested by a Mann-Whitney<sup>4</sup> test, which revealed that the purchase intention in the classic loyalty program was significantly higher than the purchase intention in the control condition without a loyalty program ( $|z| = 5.22$ ;  $p < .001$ ).

Table 3: Descriptive statistics of dependent variables for each scenario - study 2

Dependent Variable	Statistic	Control	Classic Loyalty	Integrated
		Condition ( $n = 341$ )	Program ( $n = 343$ )	Loyalty Program ( $n = 339$ )
Intention to repurchase	Mean	3.44	3.99	4.22
	Std. Dev.	1.27	0.84	0.78
Intention to enroll in a loyalty program	Mean	n/a	3.91	4.21
	Std. Dev.	n/a	1.06	0.92
Intention to donate	Mean	4.26	3.65	4.33
	Std. Dev.	0.93	0.99	0.82

The results also showed that, unlike in the case of the second-hand clothing study, the introduction of the integrated loyalty program resulted in an even higher intention to repurchase compared with the classic loyalty system. In particular, the mean intention to repurchase increases from 3.44 in the control condition to 4.22 in the integrated loyalty program, which is a difference of 0.78. This difference was shown to be significant by using a Mann-Whitney test ( $|z| = 8.23$ ;  $p < .001$ ). In addition, comparing the two loyalty programs revealed a significant difference in average repurchase intentions, with the integrated loyalty program having 0.23 high intention to repurchase on average than the classical loyalty system ( $|z| = 3.87$ ;  $p < .001$ ). Overall, these results show that the introduction of loyalty programs significantly increases repurchases in a second-hand electronic store (see Appendix A Figure A – 5).

As in the second-hand clothing study, we investigated whether the introduction of an integrated loyalty program would have a positive effect on the intention to enroll in a loyalty program, compared to the classic loyalty program. It was evident that, just like in the second-hand clothing case, respondents being faced with an integrated loyalty program would have an intention to create a loyalty program that, on average, is 0.30 higher compared to the situation where respondents are being faced with the classic loyalty program ( $|z| = 3.87$ ;  $p < .001$ ).

Turning toward the final dependent variable, we also investigated whether the two loyalty programs would help increase respondents' intention to donate. The results showed that, the classic loyalty program leads to a reduced mean intention to donate from 4.26 in the control condition to 3.65, which represents a reduction of 0.61 units. A Mann-Whitney test displayed that this difference was statistically significant ( $|z| = 8.90$ ;  $p < .001$ ), thereby showing that the classic loyalty program is not effective in stimulating respondent's intention to donate second-hand electronic products, replicating the finding from the first study. However, contrary to the results from the first study, the introduction of the integrated loyalty program resulted in respondents' increased intention to donate electronic products, compared to the control condition. It is important to note that the increase intention to donate from 4.26 in the control condition to 4.33 (see Appendix A Figure A – 6) in the integrated loyalty program was not significant ( $|z| = 0.45$ ;  $p = .654$ ). In comparing the intention to donate between the classic loyalty program and the integrated loyalty program, we observed a

<sup>4</sup> Nonparametric tests were used for all the analysis because the data were not normally distributed.



significant difference ( $|z| = 9.65; p < .001$ ), with the integrated loyalty program having the higher intention to donate on the average. Again, this is contrary to the results from the first study. Therefore, this result illustrated that even though rewarding donation did not significantly increase intention to donate, it does not necessarily reduce intention to donate as we found in the second-hand clothing study.

#### 4.2.2 Exploratory Results

The changes in purchase intention and donation intention of second-hand electronics were also investigated after controlling for the demographic characteristics like age, gender, being a student, employment, and donation history by using a non-parametric<sup>5</sup> regression model. Both the classic loyalty program and the integrated loyalty program significantly stimulated purchase intention in a second-hand electronic shop, even after controlling for the demographics of the respondents. This was not the case for respondent's intention to donate, as both loyalty programs were not significantly stimulating donation intentions in the second-hand electronics shop. While the results show that on average respondents bought roughly 19% of their electronic goods from a second-hand store, this variable had no significant relation to intention to donate ( $p = .746$ ) but did influence intention to repurchase ( $p < .001$ ). In particular, individuals with a higher proportion of second-hand electronics have a higher intention to repurchase from a second-hand electronic shop. Female respondents and the elderly were also found to have significantly higher intention to donate than male respondents and younger respondents, respectively. In addition, respondents with electronic donation history were found to have a significantly higher intention to donate compared to respondents who have no history of donating electronics (see Appendix B; Tables B – 5).

To further explore the intention to donate under the integrated loyalty program, we considered the moderating variable of donation history. We tested the difference for respondents with electronics donation history (51.4%) and those without donation history (49.6%) under the classic loyalty system compared to the control condition first. There was a significant reduction in donation intention for respondents with electronic donation history of 0.65 ( $|z| = 7.53; p < .001$ ) and a reduction of 0.35 ( $|z| = 3.38; p < .01$ ) for respondents with no donation history when the classic loyalty program is introduced. In effect, there was a difference in reduction of 0.30 comparing respondents with donation history to those without donation history. The nonparametric regression results showed that this difference was not statistically significant ( $p = .374$ ).

Table 4: Intention to donate between scenarios by donation history – study 2.

Intention to donate	Control Condition	Classic Loyalty Program	Integrated Loyalty Program		Difference
Donation History	4.58 (201)	3.93 (143)		$ z  = 7.53; p < .001$	-0.65
	4.58 (201)		4.46 (171)	$ z  = 1.53; p = .126$	-0.12
		3.93 (143)	4.46 (171)	$ z  = 5.87; p < .001$	0.53
No Donation History	3.81 (140)	3.46 (200)		$ z  = 3.38; p = 0.001$	-0.35
	3.81 (140)		4.2 (168)	$ z  = 3.13; p = 0.002$	0.39
		3.46 (200)	4.2 (168)	$ z  = 7.27; p < .001$	0.74

*Number of observations in parenthesis*

<sup>5</sup> This is because the dependent variables were not normally distributed and thus failed the assumption of a standard parametric regression model.

In addition, we tested the difference in intention to donate for respondents with and without electronic donation history in the integrated loyalty program condition. For respondents with donation history, the results show a non-significant reduction in intention to donate (0.12) when comparing the control condition to the integrated loyalty program condition ( $|z| = 1.53$ ;  $p = .126$ ). However, there was actually a significant increase in intention to donate (0.39) by the respondents without donation history ( $|z| = -3.13$ ;  $p < .01$ ) (see Table 4).



Figure 2: Mean Intention to donate second-hand electronics by donation history – study 2

It was thus revealed that, though not significant, rewarding donation reduces the intention to donate of individuals who have a history of donating electronics. Similar results were found in the clothing study where introducing the integrating loyalty program, which rewards donation resulted in a reduction in intention to donate by respondents with donation history. In addition, just like the clothing study, incentivizing donation results in a significant increase in the donation intention of respondents without electronic donation history. Hence, while rewarding donation may drive down the donation intention of people with donation history, it can stimulate individuals without donation history to donate more (see Figure 2).

## 5. General Discussion

The results of the studies illustrate the effectiveness of loyalty programs in stimulating purchases in various second-hand stores, whilst identifying a complex dichotomy between donation intention and rewards. As seen in both studies, the intention to get enrolled in a loyalty program was significantly higher for the integrated loyalty program, which rewards both purchases and donations, as compared to the classic loyalty program, rewarding only purchases. As expected, adding an additional avenue for earning rewards increases the intention to enroll in a loyalty program. However, this higher enrollment intention was not reflected in increased donation intentions, as one would expect.

The intention to repurchase at a store was also higher under both loyalty programs. The comparison between the two shows a mixed pattern. In Study 1, the integrated loyalty program leads to less repurchase intention than the classic loyalty program while in Study 2, the integrated loyalty program outperforms the classic loyalty program in terms of repurchase intention. Apart from noise, the difference could be due to the product category, but this in itself can still be due to many different aspects. The difference may emerge because of differential familiarity of the second-hand market in question as we envisaged at the outset. However, it may also be due to the nature of

the product category. People may be more sceptical about refurbished electronics and an integrated loyalty program may signal quality, which is more needed in that sector. People may also perceive recycling electronics to require more effort from the company and appreciate this effort. Also, the wording of the programs differed, which may be driving the difference (see Appendix C). Future research may want to figure out to what extent this difference is robust, and what is the underlying mechanism.

The effectiveness of loyalty programs at stimulating donations is considerably more opaque though. We have evidenced that a classic loyalty program led to a reduction in the intention to donate in both second-hand clothing and electronics markets. One potential explanation for the significant reduction in intention to donate under the classic loyalty program, may be attributed to a reflection of introducing a monetary mechanism (discount reward) to a prosocial context, thus, reducing one's reputational motivation to engage in the prosocial behavior (Ariely et al. 2009; Bénabou & Tirole 2006; Heyman & Ariely 2004). As the potential reward for engaging in such an activity adds noise to the reputational signal of a prosocial behavior, it can reduce one's intention to engage in such an activity, i.e., donation. As such, from the results of the two studies, we can conclude that whilst a classic loyalty program may stimulate sales at a second-hand store, it would likely lead to a reduction in supply of donated materials from those consumers.

Even though the integrated loyalty program has similar results as the classic loyalty program in the second-hand clothing market in reducing donation intention, we did not find evidence that it reduces respondents' intention to donate in the electronics market. In study 2, in the electronic second-hand market, we see a statistically similar intention to donate as in the control scenario, and a significantly higher donation intention than the classic loyalty program. One potential explanation emerges when the donation history of the respondents was taken into account. In Study 1, we observed the significant reduction in clothing donation among the respondents with donation history when the integrated loyalty program is introduced. Similarly, among respondents with electronic donation history, the intention to donate electronics was lower when the integrated loyalty program was introduced.

On the other hand, the respondents without both clothing and electronics donation history had a higher intention to donate when the integrated loyalty program is introduced, as compared to the classic loyalty program. In study 1, there were too few participants to test this pattern, but the inspection of the means suggests an increase. In study 2, this increase was robust. The emerging pattern thus suggests that the integrated loyalty program increases the willingness to donate among people without a donation history (irrespective of the product category), whereas it reduces the willingness among people with such a history. This interaction may be driving the different pattern of main effects, as the donation history varies across product categories, with an average higher donation history in the clothing category than in the electronics category.

The overall reduction in the intention to donate in the context of loyalty programs is consistent with the well-established crowding out effect. As evidenced by many researchers (Bénabou & Tirole 2006; Heyman & Ariely 2004), introducing a monetary mechanism into a social context often leads to a reduced likelihood of engaging in a prosocial activity. If we assume that donating used stuff is a pro-social act and that a loyalty program offers a monetary incentive, we can see that loyalty programs may undermine the intention to donate. Less obvious is that this mechanism may also present a potential reason for the significant difference in intention to donate between classic and integrated loyalty programs. It may be an indication that extrinsic reward for a prosocial behavior crowds out some intrinsic motivation (Ariely et al. 2009; Gneezy et al. 2011; Gneezy & Rustichini 2000), as the addition of specifically rewarding donation is a new extrinsic reward being introduced to an activity (donation) that is generally driven by intrinsic motivation. In this instance donation history is a representation of intrinsic motivation, as those who have not engaged in the prosocial behavior of donating these items previously are assumed to not be intrinsically motivated to do so. Therefore, the loyalty program rewarding them for donating may then act as a positive motivator, as opposed to crowding out motivation as is postulated for those with intrinsic

motivation. These findings illustrate the potential crowding out of intrinsic motivation to donate due to monetary reward – in our case represented by a percentage discount of future purchases – as those who have donated previously (assumed to hold a higher intrinsic motivation to donate), reduce their intention to donate under a loyalty program, and those who have not donated appear to be motivated by the extrinsic reward. This has important implications for the potential adoption of this type of loyalty mechanism by second-hand stores, as it may result in regular donors reducing their donations yet some new donors increasing their donations. Future research should try to find out to what extent such programs would be capable of retaining those without a donation history (who would start to get one after having donated).

Regarding the difference in the intention to donate trend between study 1 and 2: one possible reason for study 1 not displaying the same donation intention trend as study 2, without the aforementioned donation history moderation, is because electronics items are not commonly donated, even those that do donate them may not have the same intrinsic motivations as those who donate clothing. As donating electronics may be associated with being prosocial to a lesser extent than donating clothing.

Overall, the findings indicate that stimulating supply to second-hand stores requires particular care to be taken in the design of the incentive mechanism in order to motivate those who are less intrinsically motivated, whilst not crowding out the donation intentions of those who are intrinsically motivated. In conclusion, we evidence the effectiveness of loyalty programs in common and uncommon second-hand markets. In particular, an integrated loyalty program that rewards both purchases and donations has a significantly beneficial impact on sales, whilst stimulating donations for those who haven't donated before, thereby stimulating positive behavior for a CE.

## **6. Limitations & Future Research**

Whilst the findings are robust across different second-hand markets, the sample populations of our studies may impact the generalizability of our results. Firstly, study 1 has a high proportion of students and individuals aged 22 to 23. Secondly, the samples are from western European nations and may not reflect the same behavioral intentions as those from other countries. Another potential limitation is the self-reported nature of our measurements. These self-reports may be impacted by memory bias, for instance in regard to donation history. Furthermore, intentions do not always align with actual behavior, there is often a disconnect (Sheeran 2002; Sheeran & Abraham 2003). As such our findings could benefit from field studies replicating these loyalty program effects in actual second-hand stores.

Finally, the differences between the studies, namely generalizing the loyalty scenario wording, may have had an impact on the intentions formed. It is possible that the specifics of the loyalty scenario wording in study 1 may be responsible for the lower intention to donate for the integrated loyalty program. An experiment holding other variables consistent and altering only the wording of the loyalty program may shed further light into this possible effect, as would a field study with two similar stores adopting the same loyalty program but with different specific details.

## **7. Practical implications and open questions**

The first implication is that loyalty programs seem to be a good instrument to stimulate demand for second-hand products. From the store point of view, this seems to be an easily actionable strategy. From a societal point of view, loyalty programs can be considered as helping the circular transition as customer demand is an important engine in driving supply. As to the question if integrated donation programs should be adopted, the implications from our findings are less unequivocal, and further research is required. We need to find out if and if so, how, integrated loyalty programs can be designed in such a way that they do not scare away the intrinsically motivated donors of used

stuff, while motivating those without such a history. It may be worthwhile to allow customers to self-select into a loyalty program and give them different names. Perhaps separated loyalty systems may also work out, where donating is not rewarded by monetary incentive but by special entitlements (for instance, the first right to check new batches of incoming material) or by labels or badges (like gold donator).

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## References

- Autorita Garante Della Concorrenza E Del Mercato. 2018. *PS11009-PS11039 - Apple and Samsung fined for software updates that have caused serious troubles and/or have reduced functionality of some mobile phones*. Apple and Samsung fined [Press release]. <https://en.agcm.it/en/media/detail?id=385e274c-8dc3-4911-9b8c-9771c854193a&parent=Press%20Releases&parentUrl=/en/media/press-releases>.
- Ariely, D., Bracha, A., & Meier, S. 2009. "Doing Good or Doing Well? Image Motivation and Monetary Incentives in Behaving Prosocially." *American Economic Review* 99(1): 544–555. <https://doi.org/10.1257/aer.99.1.544>.
- Avagyan, V., Esteban-Bravo, M., & Vidal-Sanz, J. M. 2016. "Riding successive product diffusion waves. Building a tsunami via upgrade-rebate programs." *International Journal of Research in Marketing* 33(4): 780–796. <https://doi.org/10.1016/j.ijresmar.2016.01.007>.
- Babu, B. R., Parande, A. K., & Basha, C. A. 2007. "Electrical and electronic waste: a global environmental problem." *Waste Management & Research* 25(4): 307–318.
- Bénabou, R., & Tirole, J. 2006. "Incentives and prosocial behavior." *American Economic Review* 96(5): 1652–1678.
- Berman, B. 2006. "Developing an Effective Customer Loyalty Program." *California Management Review* 49(1): 123–148. <https://doi.org/10.2307/41166374>.
- Bhutta, M. K. S., Omar, A., & Yang, X. 2011. "Electronic Waste: A Growing Concern in Today's Environment." *Economics Research International* 2011(1): 1–8. <https://doi.org/10.1155/2011/474230>.
- Brace-Govan, J. and Binay, I. 2010. "Consumption of disposed goods for moral identities: A nexus of organization, place, things and consumers." *Journal of Consumer Behavior* 9(1): 69–82. <https://doi.org/10.1002/cb.304>.
- Calvo-Porrà, C., & Lévy-Mangin, J.-P. 2020. "The Circular Economy Business Model: Examining Consumers' Acceptance of Recycled Goods." *Administrative Sciences* 10(2): 28. <https://doi.org/10.3390/admsci10020028>.
- Chamberlin, L., & Boks, C. 2018. "Marketing Approaches for a Circular Economy: Using Design Frameworks to Interpret Online Communications." *Sustainability* 10(6): 2070. <https://doi.org/10.3390/su10062070>.
- Cox, J., Griffith, S., Giorgi, S., & King, G. 2013. "Consumer understanding of product lifetimes." *Resources, Conservation and Recycling* 79: 21–29.
- Demoulin, N. T.M., & Zidda, P. 2008. "On the impact of loyalty cards on store loyalty: Does the customers' satisfaction with the reward scheme matter?" *Journal of Retailing and Consumer Services* 15(5): 386–398. <https://doi.org/10.1016/j.jretconser.2007.10.001>.
- Diglel, A., & Yazdanifard, R. 2014. "Green Marketing: Its Influence on Buying Behavior and Attitudes of the Purchasers towards Eco-Friendly Products." *Global Journal of Management and Business Research*.
- Duffy, D. L. 2003. "Internal and external factors which affect customer loyalty." *Journal of Consumer Marketing*.
- Geissdoerfer, M., Savaget, P., Bocken, N. M.P., & Hultink, E. J. 2017. "The Circular Economy – A new sustainability paradigm?" *Journal of Cleaner Production* 143: 757–768. <https://doi.org/10.1016/j.jclepro.2016.12.048>.
- Gneezy, U., Meier, S., & Rey-Biel, P. 2011. "When and Why Incentives (Don't) Work to Modify Behavior." *Journal of Economic Perspectives* 25(4): 191–210. <https://doi.org/10.1257/jep.25.4.191>.
- Gneezy, U., & Rustichini, A. 2000. "Pay enough or don't pay at all." *The Quarterly Journal of Economics* 115(3): 791–810.
- Hatef, M., & Shaharuddin, S. S. 2019. *Consumer Purchase Behavior of Eco-Fashion Clothes As a Trend to Reduce Clothing Waste*, Vol. 8. <https://doi.org/10.35940/ijitee.L2693.1081219>.
- Heyman, J., & Ariely, D. 2004. "Effort for payment: A tale of two markets." *Psychological Science* 15(11): 787–793.
- Hutchinson, K., Donnell, L. V., Gilmore, A., & Reid, A. 2015. "Loyalty card adoption in SME retailers: the impact upon marketing management." *European Journal of Marketing* 49(3/4): 467–490.
- James, H. S. 2005. "Why did you do that? An economic examination of the effect of extrinsic compensation on intrinsic motivation and performance." *Journal of Economic Psychology* 26(4): 549–566. <https://doi.org/10.1016/j.joep.2004.11.002>.

- Justus von Geibler, S. Berner, L. Erdmann, N. D. Jordan, & M. Stabe. 2012. "Sustainable Innovations in Living Labs: Exploring the Potential of a German Research Infrastructure for User-Lead Product and Service Innovations." In *Sustainable Innovation 2012*.
- Kamleitner, B., Thürridl, C., & Martin, B. A.S. 2019. "A Cinderella Story: How Past Identity Salience Boosts Demand for Repurposed Products." *Journal of Marketing* 83(6): 76–92. <https://doi.org/10.1177/0022242919872156>.
- Kirchherr, J., Reike, D., & Hekkert, M. 2017. "Conceptualizing the circular economy: An analysis of 114 definitions." *Resources, Conservation and Recycling* 127: 221–232. <https://doi.org/10.1016/j.resconrec.2017.09.005>.
- Kopalle, P. K., & Lehmann, D. R. 2006. "Setting quality expectations when entering a market: What should the promise be?" *Marketing Science* 25(1): 8–24.
- Lacetera, N., & Macis, M. 2010a. "Do all material incentives for pro-social activities backfire? The response to cash and non-cash incentives for blood donations." *Journal of Economic Psychology* 31(4): 738–748.
- Lacetera, N., & Macis, M. 2010b. "Social image concerns and prosocial behavior: Field evidence from a nonlinear incentive scheme." *Journal of Economic Behavior & Organization* 76(2): 225–237.
- Mellström, C., & Johannesson, M. 2008. "Crowding out in blood donation: was Titmuss right?" *Journal of the European Economic Association* 6(4): 845–863.
- Metta, J., & Bachus, K. 2020. "Pop-Machina: The breakthrough of the circular maker movement in Europe." *Open Access Government* (April 2020), 1–7. <https://lirias.kuleuven.be/3013999?limo=0>.
- Nnorom, I. C., & Osibanjo, O. 2008. "Electronic waste (e-waste): Material flows and management practices in Nigeria." *Waste Management (New York, N.Y.)*, 28(8): 1472–1479. <https://doi.org/10.1016/j.wasman.2007.06.012>.
- Norum, P. S. 2015. "Trash, Charity, and Secondhand Stores: An Empirical Analysis of Clothing Disposition." *Family and Consumer Sciences Research Journal* 44(1): 21–36. <https://doi.org/10.1111/fcsr.12118>.
- Olsen, M. C., Slotegraaf, R. J., & Chandukala, S. R. 2014. Green Claims and Message Frames: How Green New Products Change Brand Attitude." *Journal of Marketing* 78(5): 119–137. <https://doi.org/10.1509/jm.13.0387>.
- Parker, C., & Worthington, S. 2000. "When lemonade is better than whisky: investigating the equitableness of a supermarket's reward scheme." *International Journal of Retail & Distribution Management* 28(11) 490–497.
- Rao, D., & Kotian, R. R. 2018. "The Impact of Loyalty Cards in Retaining Customers: A Study with Reference to Mega Mart Retail Outlet in Mangalore City." *Anveshana: Search for Knowledge* 8(1): 103. <https://doi.org/10.23872/aj/2018/v8/i1/176267>.
- Rosenbaum, M. S., Ostrom, A. L., & Kuntze, R. 2005. "Loyalty programs and a sense of community." *Journal of Services Marketing* 19(4): 222-233.
- Sasser, W. E., Schlesinger, L. A., & Heskett, J. L. 1997. *Service profit chain*. Simon and Schuster.
- Sharma, A., & Bhardwaj, P. 2015. "Perceived Benefits of Loyalty Programmes and their Impact on Purchase Intentions of Customers." *PRIMA: Practices & Research in Marketing*, 6.
- Sharp, B., & Sharp, A. 1997. "Loyalty programs and their impact on repeat-purchase loyalty patterns." *International Journal of Research in Marketing* 14(5): 473–486.
- Sheeran, P., & Abraham, C. 2003. "Mediator of moderators: Temporal stability of intention and the intention-behavior relation." *Personality and social psychology bulletin*, 29(2): 205-215.
- Sheeran, P. 2002. "Intention-behavior relations: a conceptual and empirical review." *European Review of Social Psychology* 12(1) 1-36.
- Shim, S. 1995. "Environmentalism and consumers' clothing disposal patterns: an exploratory study." *Clothing and Textiles Research Journal* 13(1): 38–48.
- Thomas, V. M. 2003. "Demand and dematerialization impacts of second-hand markets: Reuse or more use?" *Journal of Industrial Ecology* 7(2): 65–78.
- Vadakkappatt, G. G., Winterich, K. P., Mittal, V., Zinn, W., Beitelspacher, L., Aloysius, J., Ginger, J., & Reilman, J. 2020. "Sustainable Retailing." *Journal of Retailing*. Advance online publication. <https://doi.org/10.1016/j.jretai.2020.10.008>.
- van Kleef, G. A., & Lelieveld, G.-J. 2022. "Moving the self and others to do good: The emotional underpinnings of prosocial behavior." *Current Opinion in Psychology* 44: 80-88.
- Weinstein, J. F. 2014. *Reframe, Reuse, Re-Style: Deconstructing the Sustainable SecondHand Consumer*. Wesleyan University.
- Williams, C. C., & Paddock, C. 2003. "The meaning of alternative consumption practices." *Cities* 20(5): 311–319. [https://doi.org/10.1016/S0264-2751\(03\)00048-9](https://doi.org/10.1016/S0264-2751(03)00048-9).
- Winterich, K. P., Nenkov, G. Y., & Gonzales, G. E. 2019. "Knowing What It Makes: How Product Transformation Salience Increases Recycling." *Journal of Marketing* 83(4): 21–37. <https://doi.org/10.1177/0022242919842167>.
- Wright, C., & Sparks, L. 1999. "Loyalty saturation in retailing: exploring the end of retail loyalty cards?" *International Journal of Retail & Distribution Management*.
- Yi, Y., & Jeon, H. 2003. "Effects of loyalty programs on value perception, program loyalty, and brand loyalty." *Journal of the Academy of Marketing Science* 31(3): 229–240.
- Zhao, H., & Jagpal, S. 2006. "The effect of secondhand markets on the firm's dynamic pricing and new product introduction strategies." *International Journal of Research in Marketing* 23(3): 295–307. <https://doi.org/10.1016/j.ijresmar.2006.03.001>.