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CIRCULAR ECONOMY REBOUND EFFECT IN THE CONTEXT OF SECOND-HAND CLOTHING CONSUMPTION

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ABSTRACT: The purpose of this paper was to investigate whether consumer behaviour in the second-hand clothing market causes a rebound effect, and if so, what are the reasons behind it. The study examined two potential causes: the price effect and moral licensing. A survey technique was used for data collection to quantitatively study the phenomenon. Non-parametric tests, analysis of relationships between variables and hierarchical cluster analysis were used to analyse the results. The existence of a rebound effect in the used clothing market was confirmed. At the same time, the magnitude of the substitution rate between new clothing and used clothing was estimated at 1:1.23. It was also proved that the phenomenon under study is influenced by both the price effect and moral licensing.

KEYWORDS: second-hand clothing, circular economy, rebound effect, price effect, moral licensing

Introduction

Dynamic growth of apparel production in recent decades (globally, production of textile fibre is estimated at 109 million metric tons in 2020, three times more than in 1975 (Statista, 2023)) and growing awareness of the negative environmental effects of the fashion industry (e.g. Bick et al., 2018; Chen & Burns, 2006; Shirvanimoghaddam et al., 2020) have been accompanied by efforts to increase the reuse of clothing. This is reflected in the growing number of initiatives aimed at extending the life cycle of clothing, mainly by the reuse of second-hand clothing (SHC) through stationary stores, online platforms, exchange groups, etc.

Activities aimed at extending the life cycle of clothing are part of a wider trend of the creation of a circular economy (CE). The circular economy is to be an alternative to the hitherto dominant linear economy model (takemake – use – throw away), the negative effects of which were already noticed by Boulding in the 1960s (Boulding, 1966), and in whose works the postulate of building a CE appeared. Many researchers (e.g. Roche et al., 2019; Corona et al., 2019) argue that the transition to the CE can have numerous positive impacts on the environment and the economy, including reduced greenhouse gas emissions, improved resource efficiency, and the creation of new business opportunities.

CE was discussed in Europe for decades, but it gained policy attention after the European Commission (2014) provided a detailed roadmap for the transition towards CE. In that document, CE was defined as one that *Keeps the added value in products for as long as possible and eliminates waste*. European Union's adoption of the European Green Deal led to the new CE action plan in March 2020 (European Commission, 2020). This plan aims to introduce a range of initiatives throughout the product life cycle, from design to consumption, to prevent waste and promote circular production. In textiles, the plan emphasises boosting the EU's sustainable and circular textile market, addressing fast fashion, supporting textile reuse, and driving new business models. This policy process is reflected in a growing body of research on CE measures for textiles (for literature reviews, see, e.g. Abdelmeguid et al., 2022; Liu et al., 2022).

The role of consumers in the policies related to CE is highly emphasised, both in a political context and in recent research. The body of literature on consumer behaviour in the context of CE has been growing rapidly since 2018 (see, e.g. Vidal-Ayuso et al., 2023), with a general conclusion that consumers can no longer be mere end-users in a linear production-consumption-disposal process. The shift in consumer behaviour is seen as a necessary part of building a circular economy. As stated in the report commissioned by the European Commission, steps should be taken to increase consumer engagement in CE (European Commission et al., 2018). Consumers must become part of the life cycle of products, actively participating in the reuse and recycling of goods. A literature review done by Vidal-Ayuso et al. (2023) emphasises the critical role of consumer atti-

tudes and behaviours in the purchase intention of green products and their switch towards more sustainable options.

Consumer decisions related to the CE are influenced by many factors, such as perceived environmental and personal benefits, perceived value, perceived functionality, price, and value for money. A comprehensive analysis done by Ottelin et al. (2020) proved that young people (16–24 y.o.) indeed showed a stronger inclination towards circular consumption behaviours compared to the older generation. However, components such as socio-structural contexts, trade-offs and rebound effects could have an influence on the appropriation and routinisation of circular consumer practices (Rabiu & Jaeger-Erben, 2022). For example, McCollough (2007) showed that with higher incomes, consumers are less likely to repair and more likely to replace goods, favouring disposable items. Interestingly, in the case of clothing, consumers' willingness to buy second-hand is higher compared to other products analysed – vacuum cleaners, televisions, dishwashers and smartphones (European Commission et al., 2018).

Emerging evidence suggests, however, that the positive environmental impact of CE in the textile market may be limited by a rebound effect (RE). RE occurs when increased efficiency of resource use leads to higher resource consumption, contrary to theoretical expectations. RE has been observed in various sectors, such as energy (Sorrell, 2007; Gillingham et al., 2014), transportation (Malmaeus et al., 2023; Munyon et al., 2018; Du et al., 2023), water (Wang et al., 2020), and iron and steel industries (Wang et al., 2022). There is some limited evidence that RE may also occur in the second-hand clothing (SHC) market (Miura, 2021; Campos, 2022; Chetty, 2022; Piot, 2022). Since there is little quantitative research on this phenomenon, we addressed this issue in our study.

The purpose of our study is to better understand the potential of SHC in closing loops and guide more effective CE activities in the textile sector and the economy in general. We posed the following research questions:

1. Does the use of SHC involve a RE?
2. What are the causes of RE?

The assumption that two phenomena could cause RE was considered. For this reason, two research sub-questions were formulated:

- 2a. Is RE driven by the price effect (PE)?
- 2b. Is RE driven by the moral licensing (ML)?

To answer these questions, we applied a quantitative approach and conducted a survey. Non-parametric tests, analysis of relationships between variables and hierarchical cluster analysis were used to for data analysis. The paper is organised as follows: Following the introduction and literature review, material and methods are described. In the section Results all research questions are answered. Last, the paper concludes with a discussion, limitations and future research.

An overview of the literature

The impact of the SHC market on CE is not well investigated. Some studies suggest that SHC has a significant positive contribution to CE. For example, a comparative LCA by Babel et al. (2019) found that SHC has a lower environmental impact than brand-new clothing. Liang and Xu (2018) suggest that wearing clothing for an additional three months can reduce the carbon, water, and waste footprint.

However, there are indications of RE in the SHC market. RE in the SHC appears where consumers who use second-hand clothes buy more of them. As a result of increased consumption, the positive environmental impact is lower than expected if new clothes were replaced with used ones in a 1:1 ratio (Sandin & Peters, 2018). Piot (2022) found in a lab experiment that the substitution ratio between brand-new clothes (BNC) and SHC is closer to 1:1.5 rather than 1:1. This was confirmed by Miura's (2021) research on rental platforms for clothing.

Zink and Geyer (2017) identified two mechanisms that can lead to RE: insufficient substitutability (IS) and price effect (PE). IS occurs when secondary goods, such as recycled materials or refurbished products, are not good enough substitutes for primary goods due to their lower quality. In the context of SHC, IS means that SHC may not be a suitable substitute for BNC. However, Campos (2022), in a survey of Dutch consumers, found that RE caused by IS is unlikely to occur. Most respondents believed that SHC offers the same or more enjoyment, equal value for money, and equal quality and durability compared to BNC. They also experienced equal social acceptance when consuming SHC and BNC, suggesting that SHC is a sufficient substitute for BNC.

PE occurs when prices decrease due to the increased availability of cheaper secondary goods, and buyers are enticed to purchase more. This leads to an increase in demand for goods and, therefore, contributes to RE. The model built by Thomas (2003) points out that buying second-hand goods can, under certain conditions, increase the demand for new products. Campos (2022) found PE in SHC market in Netherlands. The survey results show that consumers are mainly interested in buying SHC when they are cheaper than BNC. Moreover, 36% of the population stated they are likely to buy SHC they don't necessarily need due to the low prices. Another finding is that 21% of surveyed people who sell their clothing tend to spend the extra money on more clothing rather than on household expenses or other activities. Similarly, in the study by Piot (2022), 29% of participants declared using the extra money for bonus purchases instead of planned expenses or savings (but only 5% spent this money directly on other clothes). These results suggest that consumer behaviours on the SHC market lead to an overall increase in clothing demand and thus could lead to RE.

While the IS and PE provide an economic explanation for the RE, Santarius and Soland (2016) propose an additional psychological mechanism – moral licensing (ML). The ML theory states that there is a strong cognitive process by

which individuals justify immoral behaviour by having previously engaged in moral behaviour. Moral licensing has been studied in various contexts, including organic food consumption (Bauer & Menrad, 2020), climate-related behaviour (Burger et al., 2022), energy conservation (Tiefenbeck et al., 2013), smartphones (Makov & Vivanco, 2018). In relation to SHC, ML was investigated by Chetty (2022). However, due to the qualitative inquiry approach she applied, the results of this study do not constitute strong evidence of the presence of RE related to SHC but rather give grounds for further research. According to opinions expressed by a small group of respondents (12 persons) in a semi-structured interview, SHC consumption is perceived as less environmentally damaging, but on the other hand, the sustainability context of SHC is interpreted as a license for consuming more. In our study, we want to verify the occurrence of ML using a quantitative method.

Research methods

Studying the RE for SHC purchases using either micro or macroeconomic approaches is challenging due to various factors. Clothing is a highly diverse category, and SHC is a small portion of consumer spending, making it difficult to measure the potential impact quantitatively. Microeconomic approaches used in other fields, such as studying preferences or actual choices in experiments, also face difficulties arising from the lack of homogeneity in the goods. Hence, considering the preliminary nature of our study, we decided to measure RE using an opinion survey.

Two analytical procedures were used to answer research question 1:

(1) We conducted an analysis of the relationship between the number of items of clothing purchased per month and the percentage of SHC owned. It was assumed that if the increase in the number of clothes purchased monthly is accompanied by an increase in the share of SHC, it means that more extensive use of SHC is associated with an increase in consumption of clothing, which proves the presence of RE. The Kruskal-Wallis test for independent samples was used to analyse the relationship.

(2) If RE was identified, we calculated the mean overconsumption of clothes among people who buy second-hand clothing compared to people who buy only new clothing. This relationship was illustrated using a cumulative frequency curve. The identified relationship allows us to estimate the displacement rate, i.e. the degree to which buying SHC replaces buying BNC, expressed as a ratio. The ratio of 1:1 means that the purchase of 1 piece of BNC is replaced by the purchase of 1 piece of SHC. A ratio of 1:(>1) means that 1 piece of BNC is replaced by more than 1 piece of SHC.

In order to answer research questions 2a and 2b, consumers were segmented, taking into account two dimensions: the amount of clothes purchased monthly and the percentage of SHC purchased. The respondents were segmented

using the hierarchical cluster analysis (Ward's method with Euclidean distance). Four clusters were specified: (1) less but new (LN), (2) more but new (MN), (3) less but used (LU), and (4) more but used (MU).

In this way, the group in which RE appeared (group 4, MU, people who buy a lot of clothes, mainly second-hand) was specified. Then, the structures of the motives of the specified consumer segments were compared, checking whether environmental motives were more important for the group in which RE occurred than for the other groups, which would indicate the presence of moral licensing. We also checked whether the groups differ in terms of wealth to identify the price effect.

To answer question 2a, the financial situation of the four consumer groups was examined. The existence of the price effect is evidenced by a more difficult financial situation in the group in which RE is stronger. The contingency coefficient was used to assess this relationship. In order to answer question 2b, the structure of declared purchasing motives in particular groups was examined. We believe that RE occurs because of ML when heavy users of SHC report higher concern for the environment than other groups.

Table 1. Sample characteristics

Variables (all respondents, N=639)	Proportion [%]
Gender:	
% women (N=430)	67.3
% men (N=209)	32.7
The University in:	
Białystok (N=406)	63.5
Wrocław (N=233)	36.5
Living arrangement:	
% living with family (N=237)	37.1
% living with friends (N=341)	53.4
% living on their own (N=61)	9.5
Place of living during academic term:	
% living in a big city (over 250 thous. inhabitants)(N=523)	81.8
% living in a smaller city (N=52)	8.1
% living in a village (N=64)	10.0
% having siblings(N=559)	87.5
Financial situation:	
% in financial difficulties (N=372)	58.2
% in a fairly good financial situation (N=190)	29.7
in a very good financial situation (N=77)	12.1

* For statistical analysis, we used IBM SPSS Statistics ver. 28.0.1.0(142).

To address our research questions, we conducted a survey of potential SHC buyers, which included 639 students from economic programs (both BA and MA)

at the University of Bialystok and the Wroclaw University of Economics and Business (both in Poland). We invited all full-time students to participate, specifically targeting Generation Z (people born between 2000 and 2004), who are known for being more open and flexible in their purchasing decisions and considering ethical and environmental criteria in their choices. (see e.g. Dabija et al., 2019; Prayag et al., 2022; Nichols & Holt, 2023). Only full-time students were included to maintain group homogeneity.

Data were gathered using an internet questionnaire. It consisted of 33 questions: (a) questions on the behaviour related to obtaining and disposing of used clothing, (b) questions on the motivations and barriers in trading used clothing experienced by respondents, (c) questions concerning pro-environmental attitudes and behaviours and (d) questions about the respondents' socio-economic background. The CAWI survey was conducted in November 2022. Characteristics of the respondents, taking into account the explanatory variables, are shown in Table 1.

Results of the research

Rebound effect

The first research question was whether people using SHC tend to buy more items in total than those using only BNC, which could confirm the existence of a RE in the analysed market. The relation between the average number of pieces of clothing purchased per month and the level of use of SHC was analysed. The use of second-hand clothing was expressed by two variables. The first one was binary; the sample was divided into people using SHC and those who did not use it (Figure 1). The second was quantitative and indicated what part of the total clothing owned by a given person is used clothing. Overall, the sample was dominated by people who buy 2-3 pieces of clothing a month (48%). Approximately 38% of respondents purchased one or fewer pieces of clothing per month. 12% of the respondents answered that they bought 4-6 pieces of clothing, and 2% bought 7 pieces or more. Among the respondents, a majority (75%) used second-hand clothes and usually, such clothes were a complement to their wardrobe. For 49.8% of respondents, second-hand clothes constituted less than 10% of their wardrobe, and in the case of 16.3%, it was between 10 and 20%. A small percentage (9.6%) of people mainly used second-hand clothes (Figure 2).

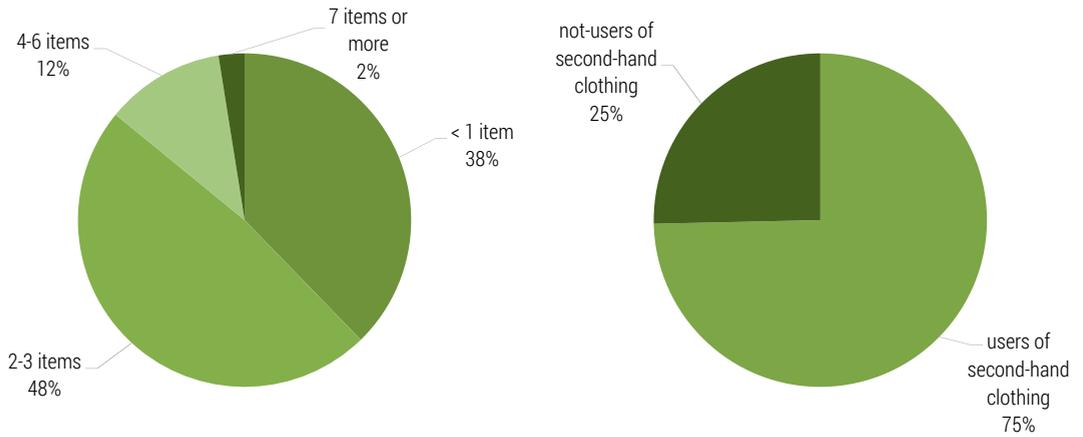


Figure 1. Structure of respondents in terms of the average amount of clothing purchased per month and the use of second-hand clothing [%]

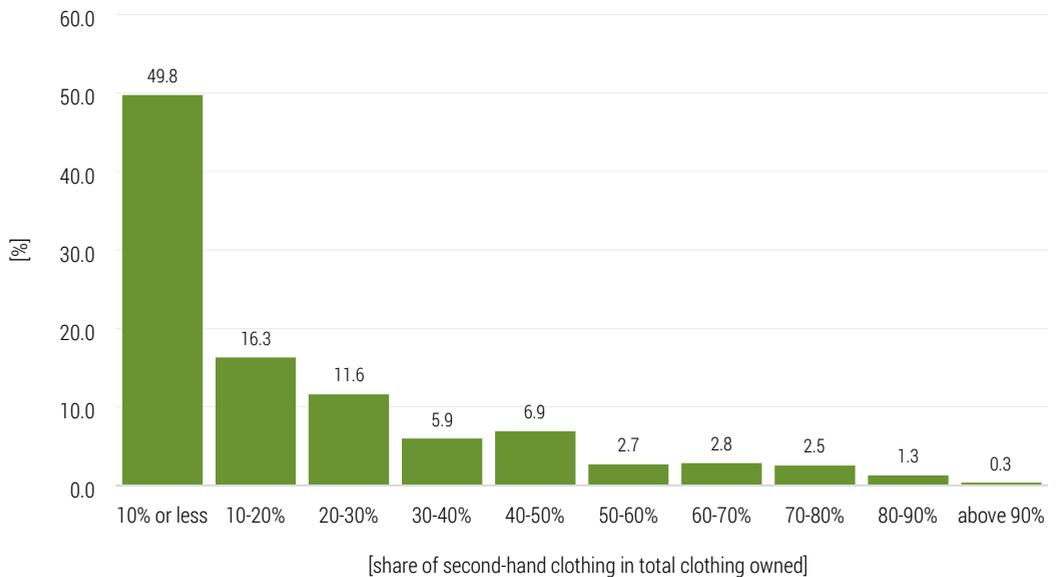


Figure 2. Structure of respondents in terms of the share of used clothing in the total clothing owned [%]

Table 2 presents information on the percentage of respondents declaring the use of second-hand clothing in each category of buyers in terms of the total amount of clothing purchased.

Table 2. Buying SHC vs. the amount of total clothing purchased

Total quantity of clothing purchased	% of respondents using SHC	N
Less than 1 per month	67.2%	241
2-3 items	78.9%	308
4-6 items	79.7%	74
7 items or more	81.3%	16
Chi-2 statistic	11.342	
Contingency coefficient	.132***	
V-Crammer coefficient	.133***	

*** p<.001.

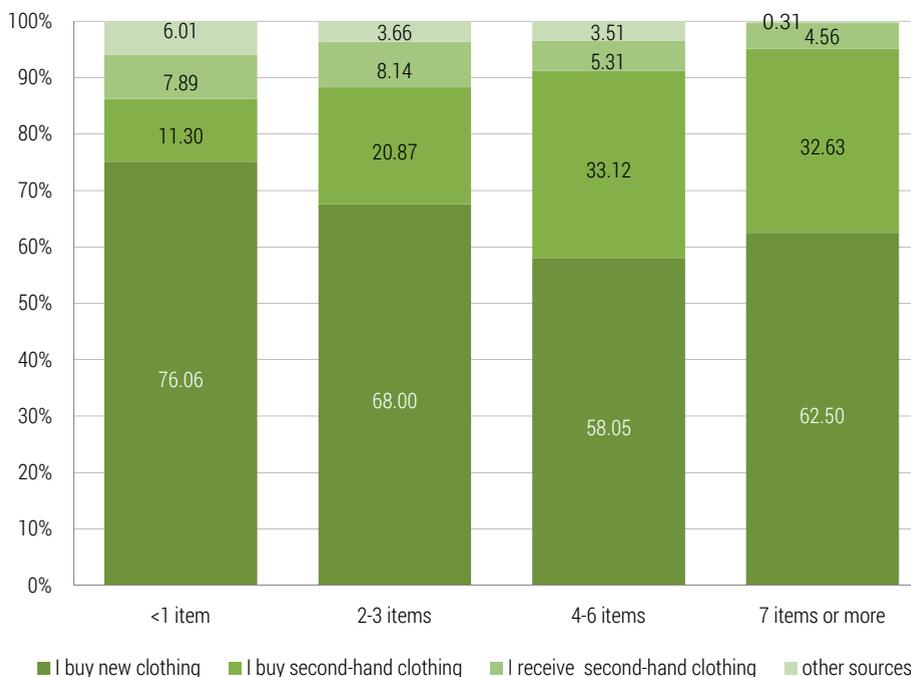


Figure 3. The structure of clothing sources and the amount of purchased clothing [%]

The results indicate that as the number of items of clothing purchased increases, so does the percentage of people using SHC. Among people buying 1 piece of clothing a month or less, 67.2% of respondents used SHC, while among those buying 2-3 pieces of clothing a month it was already 78.9%. In the group of people buying 4-6 pieces of clothing per month, the percentage of people buying

SHC increased to 79.7%, and among people buying at least 7 pieces – it amounted to 81.3%. A statistically significant relationship existed between the variables ($p < .001$).

Figure 3 presents the sources of clothing acquisition in groups of buyers.

As the amount of clothing purchased increases, the share of new clothing in total purchases decreases markedly. In the group buying 1 item or less, it is more than 76%, in the group of buyers of 2-3 items per month – 68%, while in the following groups it drops to around 60%.

Table 3. Relationship between the sources of acquisition and the amount of clothing purchased, Kruskal-Willis test for independent samples

The source of clothing	Test statistic	Statistical significance
% of clothes purchased as new	24.331***	< .001
% of clothes purchased as second-hand	60.211**	< .011
% of clothes received free of charge	2.129	.546
% of clothes acquired from other sources	2.302	.512

** $p < .01$, *** $p < .001$.

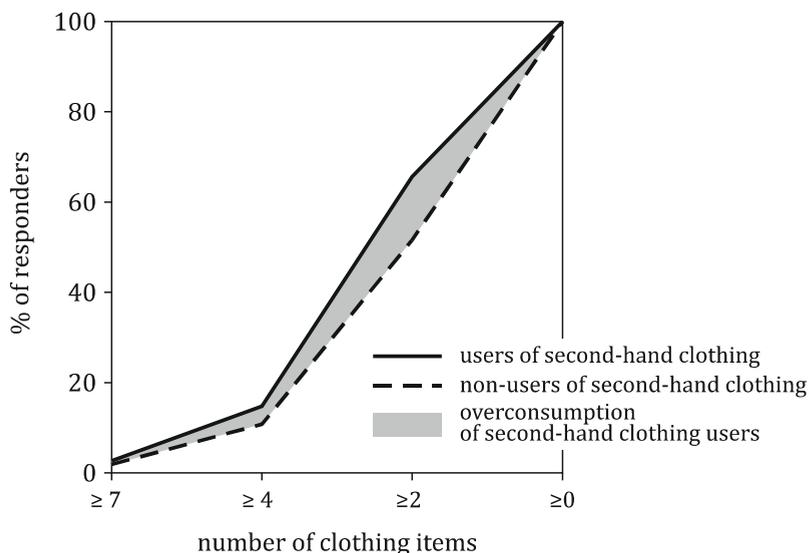


Figure 4. Area of overconsumption of clothes by people using second-hand clothes (cumulative frequency curves)

Based on the results of the Kruskal-Wallis test for independent samples, we found that the analysed groups differed statistically significantly in terms of the share of clothing purchased as new ($p < .001$) and in terms of the share of clothing purchased as used ($p < .01$) – Table 3. However, they do not differ in terms of the percentage of clothes received free of charge and obtained from other sources (i.e. received in a way other than by purchase, e.g. exchange). Along with the increase in the share of used clothing in the respondents' wardrobes, the number of items of clothing purchased per month also increases. In the next step, an attempt was made to estimate the "level of overconsumption" of clothing among people using second-hand clothing. Figure 4 shows the percentage of respondents buying at least the number of clothes indicated in the questionnaire: those using second-hand clothing and those not using second-hand clothing.

The area between the curves illustrates the level of overconsumption in the group of people using second-hand clothes. The curve for people buying only new clothes in its entire length is below the curve for people using both new and used clothes. The average number of items of clothing purchased by people using new clothes was 1.86 items/month, and in the group of people using both new and used clothing, it was 2.28 items/month. This means that overconsumption in the second group is 0.42 items/person/month. On this basis, we can estimate the displacement rate as 1:1.23 (one BNC piece is replaced by 1.23 SHC pieces).

The reasons for the occurrence of RE

The first step in the search for the root cause of RE was to find the consumer group in which the effect was present. The data was normalised according to the min-max formula:

$$f(x) = \frac{x - \min(x)}{\max(x) - \min(x)} \quad (1)$$

The results of the cluster analysis were plotted – broken down into four groups of respondents – on the scatter plot of the variables used for clustering (Figure 5).

As a result of the segmentation, four types of clothing consumers were distinguished (Table 3).

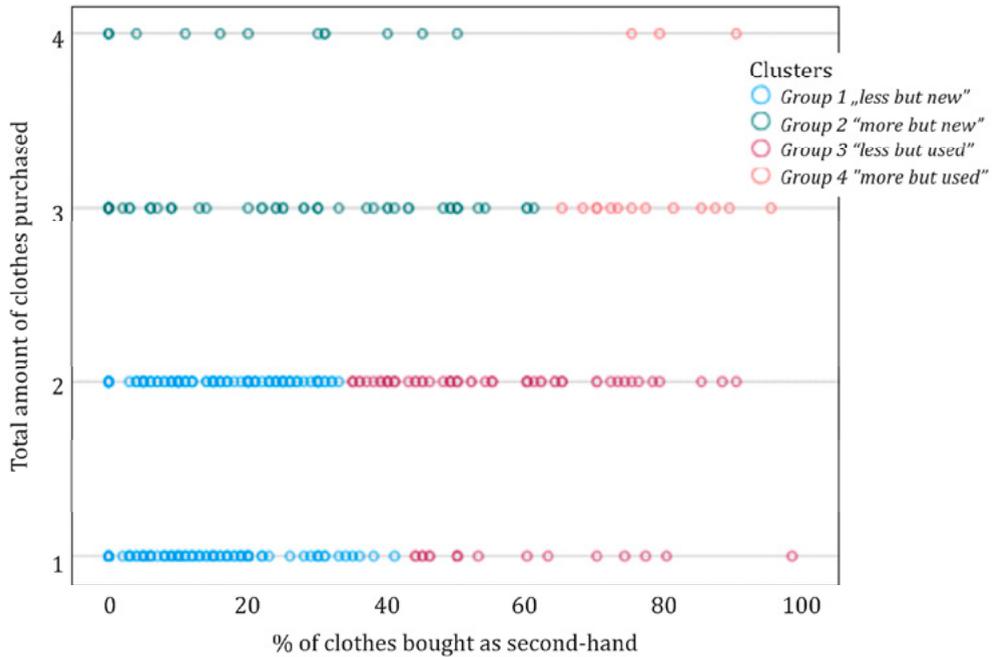


Figure 5. Results of hierarchical cluster analysis presented on a scatter plot of variables used in the analysis

Table 3. Descriptive statistics for user groups

Types of clothing consumers	N	% of total	Number of pieces of clothing		% of second-hand clothing	
			min-max	arithmetic mean (SD)	min-max	arithmetic mean (SD)
Group 1 less but new	461	72.1	1-2	1.52 (0.50)	0-41	9.51 (10.35)
Group 2 more but new	73	11.4	3-4	3.18 (0.39)	0-61	22.63 (19.83)
Group 3 less but used	88	13.8	1-2	1.8 (0.41)	35-98	54.15 (14.64)
Group 4 more but used	17	2.7	3-4	3.18 (0.39)	65-95	77.71 (8.78)

Due to the strong asymmetry of the distributions of both variables, the obtained clusters representing types of consumers differed significantly in terms of size. Group 1 “less but new” (LN) included 72.1% of respondents. These were people who bought little clothes, mostly new ones. Group 2 “more but new” (MN) accounted for 11.4% of the sample and included people buying a larger amount of clothing, mainly new. Group 3 “less but used” (LU) accounted for 13.8% of the

sample and included people buying little clothing, mainly second-hand. The last group of 4 “more but used” (MU) was the most interesting from our point of view. It included people buying a lot of clothing, mostly second-hand. This is the group in which RE was the strongest.

Price effect

In order to answer the research question 2a, the financial situation of four specified types of consumers was examined (Table 4).

Table 4. Financial situation of particular groups of clothing users

Variable	LN	MN	LU	MU	Contingency coefficient	p-value
Financial situation:					.129	.095
Difficult	30.8	27.4	34.1	52.9		
Pretty good	58.1	52.0	58.0	23.6		
Very good	11.1	20.5	8.0	23.5		

Respondents classified into particular groups differed slightly in terms of their financial situation ($p=.095$). However, it can be noticed that while in the LN, MN and LU groups the situation was similar, the MU group was in a clearly worse financial situation. This may prove that this type of consumer buys SHC precisely because of the low price of SHC; and part of the savings resulting from buying SHC instead of BNC, they spend on additional consumption of clothes, instead of other expenses in the household budget or savings.

Moral licensing

In order to clarify whether RE is caused by the moral licensing effect, the motives for using SHC among the specified groups of respondents were compared, especially the economic and environmental motives. Only people who used second-hand clothes (75% of the sample) were included in the analysis. Figure 6 shows the intensity of motives for using SHC among the specified groups of users.

Our study shows that the economic motive was the strongest in the MU group, which could be related to the more difficult financial situation of people from this group (which confirms PE as the cause of RE). In this group, there were also stronger psychological motives related to habits and reluctance to waste. The most important, however, is the fact that these consumers were also characterised by the strongest environmental motives. This means that ML can be suspected as the cause of RE – the sense of environmental protection related to the consumption of SHC. When buying second-hand clothes in increased quantities, respondents feel that they are acting in an environmentally friendly way. This confirms that moral licensing contributes to the rebound effect.

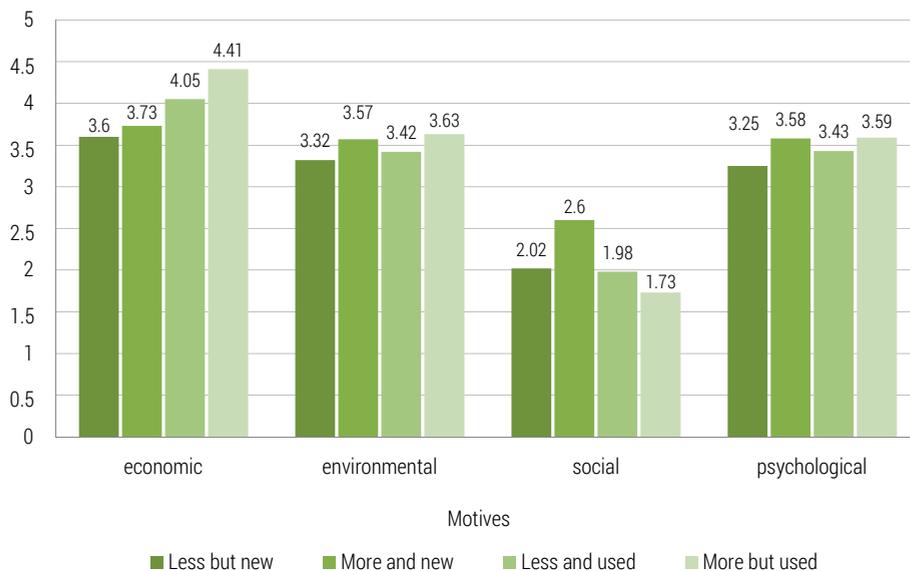


Figure 6. Intensity of motivation to buy SHC of specified groups of clothing users

Discussion, limitation and future research

Our study showed that RE is present in the SHC market – we estimated a displacement rate between BNC and SHC as 1:1.23. The calculated value is within the range estimated by Farrant et al. (2010) in a survey (from 1:1.18 to 1:1.8, dependent on the country of reuse) but lower than that calculated by Piot (2022) in a lab experiment (1:1.5 ratio). This finding is of importance when considering the assessment of the environmental benefits of SHC using the LCA method. CE policies assume that reused products should replace new items made from raw materials at a 1:1 ratio. Taking into account the displacement rate estimated in our study, it may change the results of the analysis of the environmental impact of textiles conducted using the LCA method. It is worth emphasising, however, that the replacement rate cannot be traced as a constant over time and space. Farrant et al. (2010) indicate that this indicator can be influenced by i.a., country, age group, and type of clothing. The study by McCollough (2007) highlights a crucial behavioural shift where higher income leads to a preference for disposable items over repairing or reusing existing ones.

We confirmed that one of the causes of RE is PE. Our results are in line with those obtained by Campos (2022) in a study conducted in the Netherlands. Our research has also revealed that ML is one of the underlying causes of RE. This finding is consistent with the results of a qualitative study conducted by Chetty (2022), which suggests the existence of a psychological mechanism for RE.

Together, our and Chetty's research provide complementary insights into this phenomenon.

Our research has some limitations. Firstly, as Ottelin et al. (2020) stated, different types of households (young, seniors, families, etc.) adopt different circular features in their consumption behaviour. In our study, we analysed the behaviour of young people. To fully recognise the scale of the rebound effect on the second-hand clothing market, it is worth extending the research to other groups of market participants. What is more, we used a typical approach to study the phenomenon under investigation, i.e. declared behaviour. In declarative surveys, there is always a risk that respondents overestimate or underestimate their behaviour (its scale, frequency, etc.), mainly because they may have difficulty accurately recalling the exact amount of clothes they purchase. This phenomenon is referred to as recall bias. As a result, an interesting further stage of the study could involve the collection of diary-type data. This form of data collection is considered to be more accurate than recall interviews as confirmed by e.g. Graham et al. (2003) or Bell et al. (2019).

We also confirmed that RE is affected by both PE and ML, but we did not test whether such an effect is also exerted by insufficient substitutability, which will be the subject of our further research.

Conclusions

Higher consumption of resources as a result of increased efficiency in their use, or the rebound effect, is observed in many areas of the economy. An example of its occurrence is the increase in energy consumption in homes when energy prices decrease, or the frequency of using energy-saving devices increases. Our research shows that this effect also occurs in the used clothing market, as we observed a higher than 1:1 ratio of replacement of new clothes by used ones. This fact should be taken into account in the life cycle analyses of these products on the market. Our research shows that people who only buy new clothes buy an average of 1.86 items per month, while those who buy second-hand clothes buy 2.28 items. This indicates a replacement ratio of 1:1.23. The group of respondents in which the effect was the strongest (people who buy a lot of clothing, mainly second-hand) was in a more difficult financial situation on average, which may indicate that the price effect contributed to this phenomenon. At the same time, these people motivated the purchase of second-hand clothing to a greater extent with concern for the environment, which indicates the occurrence of the moral licensing effect. It means that taking actions perceived as environmentally friendly becomes an excuse for overconsumption.

The fact that individual actions aimed at extending the life cycle of used clothing are associated with a rebound effect has important implications for public policies related to the clothing industry. Political documents on the circular

economy in the garment sector tacitly assume that SHC consumption translates into less production of new clothing. Our study shows that CE analyses should include the presence of RE in order to more accurately estimate and better understand the environmental impact of the used clothing market.

The contribution of the authors

Each author contributed equally to the conceptualisation, literature review, acquisition of data, analysis and interpretation of data, and manuscript preparation.

All authors have read and agreed to the published version of the manuscript.

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EFEKT ODBICIA W KONTEKŚCIE KONSUMPCJI ODZIEŻY UŻYWANEJ

STRESZCZENIE: Celem niniejszej pracy było zbadanie, czy zachowania konsumentów na rynku odzieży używanej powodują efekt odbicia, a jeśli tak, to jakie przyczyny za tym stoją. W badaniach sprawdzono dwie potencjalne przyczyny: efekt cenowy oraz licencjonowanie moralne. Badanie miało charakter ilościowy. Wykorzystano technikę sondażu. Do analizy wyników wykorzystano testy nieparametryczne, analizę zależności między zmiennymi a także hierarchiczną analizę skupień. Potwierdzono istnienie efektu odbicia na rynku odzieży używanej. Jednocześnie oszacowano wielkość stopy zastąpienia zakupu odzieży nowej odzieżą używaną na poziomie 1:1.23. Udowodniono także, że na badane zjawisko wpływa zarówno efekt cenowy, jak i licencjonowanie moralne.

SŁOWA KLUCZOWE: odzież używana, gospodarka obiegu zamkniętego, efekt odbicia, efekt cenowy, moralne licencjonowanie