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ANALYSIS OF INTENTIONS TO USE THE DEPOSIT SYSTEM IN POLAND – PILOT STUDIES

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Purpose: The purpose of the article was to develop and validate scales that measure factors influencing intentions to use the deposit system, and then examine the determinants of these intentions. The scales were developed based on the Theory of Planned Behavior.
Design/methodology/approach: Scale items were developed based on the literature analysis, and then each scale was validated based on questionnaire surveys. Validation was carried out based on Confirmatory Factor Analysis. In addition, based on structural equation modelling, a pilot analysis was conducted to validate the hypotheses regarding the influence of factors derived from the Theory of Planned Behavior on intentions to use the deposit system in Poland.
Findings: Due to the complexity of factors resulting from the theory of rational behavior, it was necessary to develop eight measurement scales. Based on the research, six multi-item scales and two single-item scales were established that meet the criteria of convergent and discriminant validity. Pilot verification of the hypotheses allowed us to state that: 1) attitudes and social norms are significant factors determining the intention to use the deposit system, 2) ecological awareness is a significant factor determining attitudes towards the deposit system and social pressure to use this system, 3) convenience significantly affects the perceived control associated with using the deposit system.
Research limitations/implications: The research presented in the article should not be generalized to the entire population due to its pilot nature. The sample of respondents participating in the research is not representative of the Polish population.
Practical implications: The questionnaire and measurement scales proposed in the article can be used to study the factors determining the use of the deposit system in targeted studies on a larger and representative sample.
Social implications: The article is relevant to research on factors influencing the use of plastic packaging in the food and beverage industry consistent with the circular economy.
Originality/value: The article's novelty is the presentation of scales measuring the factors determining the use of the deposit system in Poland.
Keywords: sustainability, sustainable development, deposit system, plastic packaging, PLS-SEM.
Category of the paper: research paper.

Introduction

In response to the growing environmental pollution caused by post-consumer waste, efforts are underway to mitigate these impacts. Governments worldwide are taking decisive steps to reduce plastic waste (Picuno et al., 2025), as global plastic production reached 413.8 million metric tons (Mt) in 2023 (PlasticsEurope, 2024). A particular concern is the increasing volume of beverage packaging, which poses a significant environmental challenge due to its production from fossil fuels or materials that degrade very slowly (Ma et al., 2019). One proposed solution involves implementing deposit return systems to incentivize consumers to return packaging. These systems are particularly popular in the food industry for beverage containers, which can be efficiently and easily collected, significantly reducing greenhouse gas emissions through recycling (Choudhary et al., 2019; Zhou et al., 2020). Deposit return systems for beverage containers have been widely adopted in various countries since the 1970s (Zhou et al., 2020). However, Poland remains one of the few European countries that has yet to introduce such a system.

The aim of this article was to develop and validate scales measuring factors influencing the intention to use a deposit return system and to examine the determinants of these intentions. It was hypothesized that three main factors derived from the Theory of Planned Behavior (TPB) would predict the intention to use the deposit return system: Attitudes Towards the Deposit System (ATT), Subjective Norms (SN) i.e., social pressure to use the system and Perceived Behavioral Control regarding system use (PBC). Specific factors influence each of these three predictors. It was assumed that attitudes toward the deposit return system and social pressure to use it were influenced by Ecological Awareness (EAW) and Public Information (PI) factors. Meanwhile, PBC was assumed to be affected by PI, Economic Consequences (EC), and the Convenience of using the deposit system (CON). The scales were developed based on a literature review and validated using survey data. The main analytical method employed at this stage was Confirmatory Factor Analysis (CFA), which identified latent variables for path analysis using structural equation modeling with the PLS-SEM algorithm. This approach revealed statistically significant factors influencing the intention to use the deposit return system. Research on the determinants of deposit return system adoption was essential for understanding the factors that influence the acceptance of this type of innovation in Polish society.

The article is structured as follows. The first section outlines the development of research hypotheses and the construction of the research model. The second section discusses methodological aspects, including a sample description, a presentation of the measurement tool used in the survey, and an overview of the analytical methods applied. The third section presents the research findings. Finally, the fourth section provides a discussion of the results, limitations of the study, and directions for future research.

1. Development of hypotheses and research model

To examine the determinants of deposit system use in Poland, the Theory of Planned Behavior (Zhang et al., 2021; Amirudin et al., 2023) was used. This theory considers behavioral intention as the primary predictor of actual behavior. In turn, intentions are influenced by three main factors: attitudes, subjective norms, and perceived behavioral control. Attitudes are understood as an individual's attitude towards a given behavior, which can be either positive or negative. Subjective norms represent the social pressure exerted on an individual to prefer a specific behavior. Perceived behavioral control refers to the degree of control an individual perceives they have over their behavior (Ajzen, 1991).

In addition to the factors derived from the Theory of Planned Behavior, this study also includes other variables that may influence the intention to use a deposit return system. These include ecological awareness, public information about the system, economic consequences associated with its implementation, and the convenience of its use. All these factors were utilized as constructs in the research model, and the relationships between them formed the basis for the development of research hypotheses. The definitions of the constructs included in the research model are presented in Table 1.

Table 1.
Construct Definitions

Construct	Definition	Source
Ecological Awareness (EAW)	Understanding the environmental consequences of the deposit system	(Koshta et al., 2022), (Khan et al., 2019)
Public Information (PI)	Publicly available information on waste segregation and handling of waste covered by the deposit system	(Si et al., 2022), (Zhang et al., 2021)
Economic Consequences (EC)	Economic benefits of the deposit system	(Juliana et al., 2022), (Van et al., 2021), (Wang et al., 2020)
Convenience (CON)	Infrastructural support for using the deposit system	(Wang et al., 2020), (Soomro et al., 2022)
Attitude (ATT)	The extent to which using the deposit system is assessed as positive or negative.	(Khan et al., 2019), (Bosnjak et al., 2020)
Subjective Norms (SN)	Social pressure to use the deposit system	(Bosnjak et al., 2020), (Amirudin et al., 2023)
Perceived Behavioral Control (PBC)	A person's perception of their ability to use the deposit system	(Bosnjak et al., 2020), (Amirudin et al., 2023)
Intention to Use the Deposit System (INT)	Readiness of the persons to use the deposit system	(Bosnjak et al., 2020), (Amirudin et al., 2023)

Source: own study.

In their study, (Amirudin et al., 2023)showed that (Amirudin et al., 2023) environmental awareness has a significant impact on attitudes toward the deposit system and, through them, on intentions to use it. Environmental awareness, according to (Amirudin et al., 2023) also influences social pressure to use the deposit system (Amirudin et al., 2023). Both relationships stem from the fact that the knowledge gained during environmental awareness influences the

values we hold, which in turn build our positive attitudes, i.e. our positive attitudes. Assuming that this mechanism operates in any cultural context and therefore also in the Polish one, we pose the first two research hypotheses:

H1: Environmental awareness has a significant impact on attitudes toward the deposit system.

H2: Environmental awareness has a significant impact on subjective norms regarding the use of the deposit system.

The introduction of a deposit system in a country is preceded by an extensive information campaign. This information states how the deposit system will function, what waste it will cover and what environmental benefits it will generate (Zhou et al., 2023) This information through knowledge building also builds individual attitudes, social pressure and perceived behavioral control. These relationships have been demonstrated in the work of (Tian et al., 2019) and (Amirudin et al., 2023). Assuming that they are also true in the Polish cultural context, we pose the following research hypotheses:

H3: Public information has a significant impact on attitudes.

H4: Public information has a significant impact on subjective norms.

H5: Public information has a significant impact on perceived control over the use of the deposit system.

The individual economic benefits of a deposit system are significant factors influencing the perceived control over its use. This relationship has been demonstrated in prior studies (Amirudin et al., 2023). The higher the deposit amount, the greater the motivation for individuals to recover it, which in this case involves returning the packaging covered by the system (Amirudin et al., 2023). It is evident that the deposit amount must be appropriately calibrated to the product price and consider the financial capacity of the system's users. Convenient infrastructure is another crucial determinant of perceived control over the use of the deposit return system. This relationship has been confirmed by studies (Khan et al., 2019; Amirudin et al., 2023; Khan et al., 2019; Amirudin et al., 2023). Based on this, the following research hypotheses are proposed:

H6: Economic consequences have a significant impact on the perceived control over using the deposit system.

H7: Convenience has a significant impact on the perceived control over using the deposit system.

Ajzen (1991) in his work on the Theory of Planned Behavior, demonstrated that attitudes, subjective norms, and perceived behavioral control are significant predictors of behavioral intentions (Ajzen, 1991). We assume that these relationships also hold true within the Polish cultural context. Thus, on this basis, we formulate the following three research hypotheses:

H8: Attitudes toward the deposit system have a significant impact on the intention to use it.

H9: Subjective norms regarding the deposit system significantly influence the intention to use it.

H10: Perceived behavioral control over using the deposit system has a significant impact on the use of the system.

Based on the defined constructs and the relationships between them, a theoretical research model was developed (Fig. 1). The dependent variable in this model is the intention to use the deposit system. The study focuses on intention because a unified deposit system is not yet operational in Poland, although fragmented systems, primarily associated with the brewing industry, are in place. At this stage, it is not feasible to study actual behaviours related to the deposit system. However, given publicly available information regarding plans for the introduction of a universal deposit system, investigating the intention to use such a system is both justified and timely.

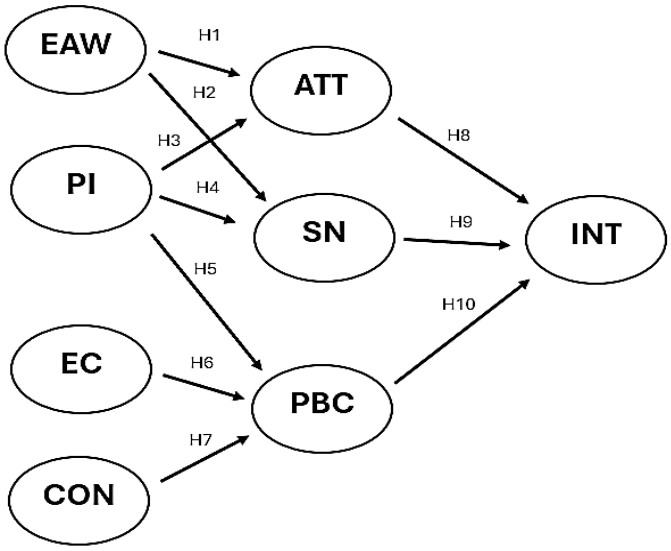

Figure 1. Research model.
Source: own study.

2. Methods

2.1. Research sample

Since the main purpose of the study was to validate the questionnaire, no attempt was made to select a sample representative of Polish society. The survey included 119 respondents. Since the number of items in all scales of the questionnaire was 29, the number of 119 cases is sufficient for validation of the entire questionnaire, as there are 4 observations for each variable (scale item). The sample was slightly more female (56%), and a slight majority of respondents had no experience of using the deposit system (53%) (see Figure 2).

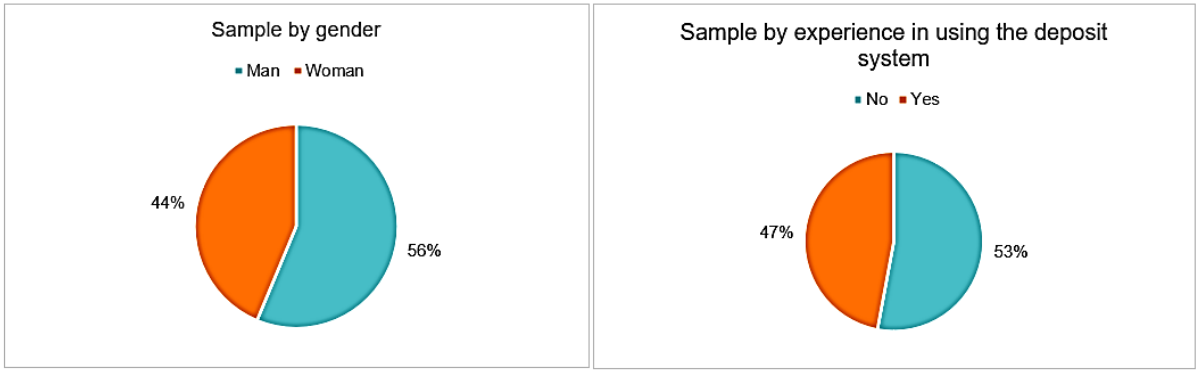

Figure 2. Research sample.

Source: own study.

2.2. Research tool

A questionnaire was developed to achieve the goal set in the article. It consisted of eight scales measuring individual latent variables (constructs). The observable variables along with the construct membership are presented in Table 2.

Table 2.
Survey questionnaire

Construct	Item	Observable variable
Environmental Awareness (EAW)	EAW1	I believe that a deposit system for beverage packaging will result in less trash in the environment.
	EAW2	I believe that a deposit system for beverage packaging will contribute to creating a better environment for future generations.
	EAW3	I believe that a deposit system for beverage packaging will have a positive effect on consumers' habits of segregating packaging.
	EAW4	I believe that a deposit system for beverage packaging will protect the environment and natural resources.
Public Information (PI)	PI1	I get my knowledge about beverage packaging segregation from public information (brochures, social media, etc.).
	PI2	Public information helps me understand how to segregate waste properly.
	PI3	Public information makes me aware of the importance of waste segregation.
Economic Consequences (EC)	EC1	I would keep the beverage containers to get the deposit back.
	EC2	I would collect discarded beverage containers to earn the deposit money.
	EC3	I believe that less affluent people would collect beverage packaging to earn extra deposit money.
Convenience (CON)	CON1	I have time to segregate beverage containers.
	CON2	I have the ability at home/apartment to store and segregate beverage containers before returning them to the collection point.
	CON3	I prefer to return beverage containers to a designated collection point rather than to the current yellow waste garbage.
	CON4	I am concerned that the infrastructure of the deposit system (the placement of the bottle machines) will be inconvenient.
	CON5	I am concerned about queues at collection points.
Attitude (ATT)	ATT1	I rate the idea of introducing a deposit system in Poland as good.
	ATT2	I rate the idea of introducing a deposit system in Poland as useful.
	ATT3	I am glad that the deposit system will be introduced in Poland.
	ATT4	I think the deposit system should be introduced in Poland.
Subjective norms (SN)	SN1	My family expects me to use the deposit system.
	SN2	My neighbours expect me to use the deposit system.
	SN3	My community expects me to use a deposit system.

Cont. table 2.

Perceived behavioral Control (PBC)	PBC1	It is only up to me to segregate beverage containers.
	PBC2	I have the confidence to segregate beverage containers if I want to.
	PBC3	I understand how the deposit system for beverage packaging will work in Poland.
Intention to Use the Deposit System (INT)	INT1	I am interested in initiatives under the deposit system program.
	INT2	I am ready(a) to use the deposit system regularly after its introduction.
	INT3	I am ready(a) to devote extra time to return beverage packaging.
	INT4	I am willing to participate in environmental movement programs.

Source: own study.

2.3. Methods of analysis

Campbell and Fiske (Campbell, Fiske, 1959) and Hair (Hair, 2014b) propose that scales measuring constructs should be validated by convergent validity and discriminant validity. Convergent validity refers to the confidence we have that a construct (i.e., a latent variable) is well measured by observable variables. Convergent validity is measured by the correlation of the observable variables of a construct. Assessment of convergent accuracy is related to such measures as factor loadings of observable variables (loadings), composite reliability (CR) of a construct and average variance extracted (AVE) of a construct. Factor loadings determine the correlations between each observable variable and each construct. The threshold value is 0.5, although it is recommended that factor loadings be higher and exceed 0.7. Composite reliability (CR) and Cronbach's alpha coefficient measure the internal consistency of scale items (internal consistency). The threshold value for these measures to be exceeded is 0.7. AVE measures the level of variance captured by a construct relative to the level due to measurement error. The acceptable level for this ratio should exceed 0.5.

Discriminant accuracy measures the degree to which indicators of different constructs are uncorrelated. It checks whether constructs show stronger relationships with their own observable variables than with the observable variables of other constructs. Discriminant accuracy is assessed using the Fornell-Larcker (FL) criterion and the heterotrait-montrait (HTMT) criterion.

Convergent and discriminant accuracy were calculated using the data collected in the survey. After assessing convergent and discriminant accuracy, modeling was performed on latent variables (constructs) using the pls SEM algorithm available in the seminar package in RStudio.

3. Results

Table 3 shows the factor loadings within each construct. It shows that the vast majority of factor loadings exceed 0.7. it should be added that not all scale items assumed at the beginning remained in the constructs. Of the 29 observable variables assumed at the beginning, 22 remained. The largest variable eliminations were made for the EC (elimination of two variables), CON (elimination of three variables) and PBC (elimination of two variables) scales. The EC and PBC scales thus became scales measured with single observable variables. The remaining scales are multi-element scales. As can be seen in Table 4, the measures i.e. CR and Cronbach's alpha exceed the value of 0.7 for all multi-element constructs. In turn, the AVE values for these constructs exceed the values of 0.5. This indicates correct measures of convergent reliability.

Table 3.
Convergent reliability: loadings

	EAW	PI	EC	CON	ATT	SN	PBC	INT
EAW1	**0.819**	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EAW2	**0.863**	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EAW3	**0.772**	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EAW4	**0.794**	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EC1	0.000	0.000	**1.000**	0.000	0.000	0.000	0.000	0.000
CON1	0.000	0.000	0.000	**0.766**	0.000	0.000	0.000	0.000
CON2	0.000	0.000	0.000	**0.933**	0.000	0.000	0.000	0.000
ATT1	0.000	0.000	0.000	0.000	**0.875**	0.000	0.000	0.000
ATT2	0.000	0.000	0.000	0.000	**0.900**	0.000	0.000	0.000
ATT3	0.000	0.000	0.000	0.000	**0.922**	0.000	0.000	0.000
ATT4	0.000	0.000	0.000	0.000	**0.929**	0.000	0.000	0.000
SN1	0.000	0.000	0.000	0.000	0.000	**0.881**	0.000	0.000
SN2	0.000	0.000	0.000	0.000	0.000	**0.845**	0.000	0.000
SN3	0.000	0.000	0.000	0.000	0.000	**0.880**	0.000	0.000
PBC3	0.000	0.000	0.000	0.000	0.000	0.000	**1.000**	0.000
INT1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.789**
INT2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.905**
INT3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.887**
INT4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.692**
PI1	0.000	**0.787**	0.000	0.000	0.000	0.000	0.000	0.000
PI2	0.000	**0.926**	0.000	0.000	0.000	0.000	0.000	0.000
PI3	0.000	**0.939**	0.000	0.000	0.000	0.000	0.000	0.000

Source: own study.

Table 4.
Convergent reliability: Cronbach' alpha, CR and AVE

	alpha	rhoC	AVE	rhoA
EAW	0.828	0.886	0.660	0.830
PI	0.866	0.916	0.786	0.926
EC	1.000	1.000	1.000	1.000
CON	0.652	0.842	0.729	0.803
ATT	0.928	0.949	0.822	0.929
SN	0.840	0.902	0.754	0.864
PBC	1.000	1.000	1.000	1.000
INT	0.840	0.892	0.677	0.883

Source: own study.

Two criteria were used to test discriminant validity, namely FL (Table 5) and HTMT (Table 6). Table 5 shows the correlation matrix between constructs and on the diagonal is inserted the square root of the AVE of each construct. The criterion is met when the correlations between constructs are less than the number on the diagonal. The calculations in Table 5 show that the FL criterion is satisfied.

The concept of the heterotrait-monotrait ratio (HTMT) is the ratio of the average correlation of observable variables between two different constructs (heterotrait) and the square root of the product of the average correlations between indicators of the same constructs (monotrait) (Hair, 2014a). This criterion assumes that the ratio cannot exceed a threshold value of 0.9. The calculations in Table 6 show that the HTMT criterion is also met.

Table 5.
Discriminant validity: Fornell-Larcker criterion

	EAW	PI	EC	CON	ATT	SN	PBC	INT
EAW	0.813	.	.	.	.	.	.	.
PI	0.272	0.887	.	.	.	.	.	.
EC	0.591	0.215	1.000	.	.	.	.	.
CON	0.398	0.270	0.551	0.854	.	.	.	.
ATT	0.727	0.293	0.490	0.541	0.907	.	.	.
SN	0.382	0.258	0.536	0.473	0.380	0.869	.	.
PBC	0.154	0.274	0.092	0.288	0.225	0.098	1.000	.
INT	0.665	0.425	0.708	0.590	0.703	0.482	0.278	0.823

Source: own study.

Table 6.
Discriminant validity: Heterotrait-Monotrait criterion

	EAW	PI	EC	CON	ATT	SN	PBC	INT
EAW	.	.	.	.	.	.	.	.
PI	0.308	.	.	.	.	.	.	.
EC	0.645	0.230	.	.	.	.	.	.
CON	0.515	0.339	0.651	.	.	.	.	.
ATT	0.827	0.316	0.509	0.672	.	.	.	.
SN	0.442	0.299	0.580	0.584	0.421	.	.	.
PBC	0.171	0.278	0.092	0.335	0.233	0.102	.	.
INT	0.773	0.506	0.736	0.765	0.772	0.543	0.300	.

Source: own study.

After verifying convergent and discriminant validity, path analysis was performed on the constructs to verify the hypotheses. Used bootstrapping technique on 1000 samples. The results are shown in Table 7, which shows that attitudes (β = 0.580, t = 7.947) and social norms (β = 0.249, t = 2.745) are significant predictors of intention to use the deposit system, while perceived behavioral control was found to be statistically insignificant (β = 0.124, t = 1.900). This means that for the sample of respondents studied, intentions to use the deposit system are most strongly influenced by attitudes toward the system, social norms have much less impact, and perceived behavioral control is insignificant. The insignificance of PBC can be explained by the lack of widespread experience of respondents in using this system.

Environmental awareness (EAW) was found to be a significant predictor of attitudes toward the deposit system (ATT) (β = 0.669, t = 11.953), while public information (PI) about this system was found to be insignificant (β = 0.103, t = 1.332). A similar result was also obtained for predictors explaining social norms (SN). In this case, too, EAW proved to be a significant predictor (β = 0.337, t = 3.929), while PI was not significant (β = 0.167, t = 1.752). PBC was explained by two significant predictors. These include PI (β = 0.220, t = 2.446) and CON (β = 0.293, t = 2.856), while the predictor EC was found to be insignificant (β = -0.116, t = -1.284).

Table 7.
Bootstraping

Hypothesis	Original Est.	Bootstrap Mean	Bootstrap SD	T Stat	2.5% CI	97.5% CI
EAW → ATT	0.699	0.700	0.058	11.953	0.573	0.809
EAW → SN	0.337	0.349	0.086	3.929	0.182	0.519
PI → ATT	0.103	0.102	0.077	1.332	-0.044	0.255
PI → SN	0.167	0.162	0.095	1.752	-0.026	0.345
PI → PBC	0.220	0.219	0.090	2.446	0.044	0.388
EC → PBC	-0.116	-0.119	0.091	-1.284	-0.299	0.054
CON → PBC	0.293	0.302	0.103	2.856	0.085	0.486
ATT → INT	0.580	0.580	0.074	7.847	0.429	0.708
SN → INT	0.249	0.254	0.091	2.745	0.075	0.423
PBC → INT	0.124	0.120	0.065	1.900	-0.001	0.256

Source: own study.

Figure 8 also shows the R^2 for each construct. Intention to use the deposit system was explained by 56%, attitudes by 54%, social norms by 17%, and perceived control by 13%. This means that there are some other factors not included in the study that explain the constructs in question. The factors are particularly important for the constructs i.e. SN and PBC.

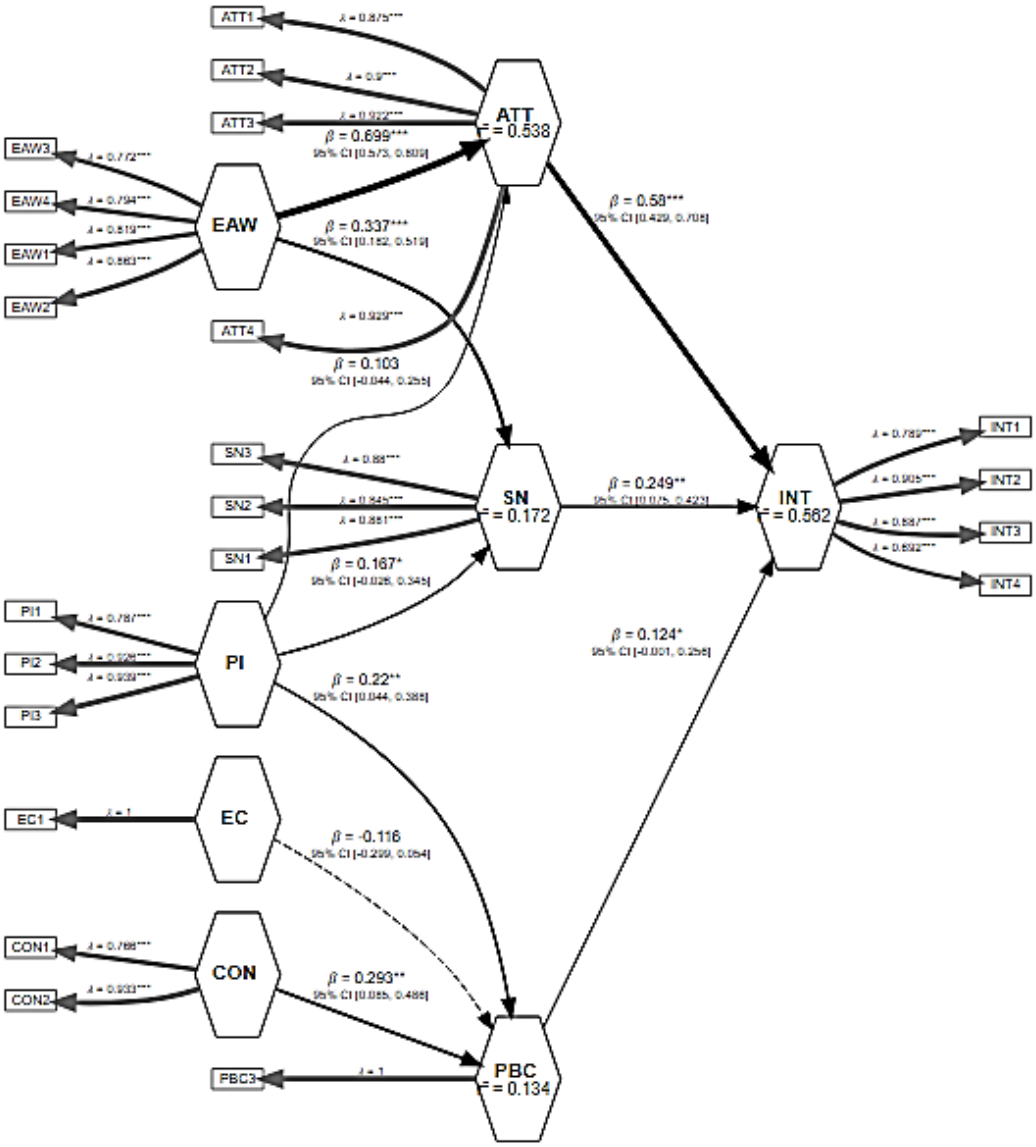

Figure 8. Graphic representation of the influence of individual factors on the intention to use the deposit-refund system.
Source: own study.

4. Discussion and conclusion

The goal outlined in the article was achieved: scales measuring factors determining the intention to use the deposit system were validated and a trial analysis was conducted to verify the hypotheses. Eight scales were subjected to validation. Six of these proved to be valid multi-item scales; however, for two scales (EC and PBC), our study revealed that the values for convergent and discriminant validity were not satisfactory. To conduct structural equation modeling, we were compelled to reduce these two scales to single-item scales. Therefore,

it is necessary to re-evaluate the items for these two scales and revalidate the questionnaire, which will be the focus of our forthcoming research. Another notable finding is the low coefficient of determination (R^2) for constructs such as SN and PBC. When comparing this result to the study by (Amirudin et al., 2023), the R^2 for SN was significantly higher, which can be attributed to the inclusion of the construct of religious norms in their research—something not considered in our study. Similarly, in both studies, the construct PBC was explained by EC and CON but still yielded a low R^2.

The pilot verification of hypotheses yielded unexpected results, differing significantly from those reported by (Amirudin et al., 2023). The main differences include: (1) the non-significance of the construct PI in explaining ATT and SN, (2) the non-significance of the construct EC in explaining PBC, (3) the non-significance of PBC in explaining INT. These findings highlight the minimal impact of information regarding the planned deposit system in Poland. The non-significance of PBC for intention is not surprising, as the system is still in the planning stages. It is plausible that PBC will become significant once the system is implemented, and the Polish society has the opportunity to use it. An additional unexpected result was the significance of SN in predicting the intention to use the deposit system. Previous studies (Zdonek et al., 2024) indicated that SN is typically insignificant for newly introduced ecological innovations. A similar conclusion can be drawn from the findings of (Mularczyk et al., 2022). However, the widespread awareness of environmental pollution in Poland may have led to strong societal approval of initiatives aimed at reducing it, making social pressure a significant factor. This conclusion aligns with the findings from (Zdonek, Jaworska, 2024).

The pilot verification of the hypotheses also showed the consistency of our research with the results of other researchers. First, our research confirms the significant impact of ecological awareness on attitudes towards the deposit system and subjective norms. This result is consistent with the work (Amirudin et al., 2023; Juliana et al., 2022; Wang et al., 2021; Liao, Xing, 2023). The influence of environmental awareness is stronger on attitude than on social pressure. Therefore, the personal decision to use the deposit system, in the light of our research, is more determined by attitude than by social pressure. Moreover, we also validated the importance of public information and convenience on perceived behavioural control. This conclusion is consistent with the works (Amirudin et al., 2023; Soomro et al., 2022). The impact of convenience is stronger, so it is one of the most important factors determining the decision to use the deposit system.

Practical implications

The practical implications of this study are primarily associated with the validation of the presented measurement scales. While two scales require redevelopment, the remaining scales can be employed in future studies of the deposit system. Such research will likely gain momentum following the system's implementation. Due to the fact that during the pilot we

verified the hypotheses regarding the factors determining the use of the deposit system, during the final verification it will be possible to check whether we will obtain similar results.

Research limitations and directions for further work

The main limitation of the research is its pilot nature. We did not select the research sample in a representative way. Moreover, the research sample is not very large. This results from the purpose of our article, i.e. validation of measurement scales and preliminary verification of hypotheses regarding the factors determining the intention to use the deposit system in Poland. Another limitation of our research is that it was conducted at a time when the deposit system in Poland was not yet universally applicable. Therefore, the directions for further work include re-conducting research after the introduction of the deposit system in Poland.

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