



Article

# Green Communication for More Package-Free Ecommerce Returns

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**Abstract:** The existing packed mail-based return mode in ecommerce has a considerable negative impact on the natural environment. In contrast, a package-free return mode accepts unpacked ecommerce returns using return points in-store and is a more eco-friendly service. On the basis of the push-pull-mooring (PPM) framework, this study aims to identify key factors in green communication that contribute to consumers switching from mail return services to package-free return services. A scenario-based online survey was conducted. Structural equation modeling was used to test the hypotheses. Push factors (consumer dissatisfaction) and a mooring factor (mail return habit) only manifested weak effects on switching intention. Regarding pull factors (service convenience and green value), in contrast to previous research, the effect of green value on switching intention was found to be much weaker than the effect of service convenience. Convenience was found to be the key factor in green communication. Our research adds value to green communication and the PPM framework. It updates existing knowledge concerning the role of consumer dissatisfaction, perceived green value, and perceived convenience of return service in green communication. This study also explains why the mooring factor of habit fails to predict switching intention.

**Keywords:** green ecommerce; product returns; pro-environmental behavior



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## 1. Introduction

Product returns, an issue enhanced by ecommerce, has been a growing problem for the environment [1]. It is necessary to make the existing ecommerce returns mode, which is based on a packed mail service, more environmentally friendly. Ecommerce packaging material includes papers, envelopes, cardboard, plastics, woven bags, tapes, and fillers [2], generating massive package waste [2,3]. Furthermore, even if an item was previously in a good condition, when consumers pack it for mailing, the return shipping process can damage it [4]. Sometimes, trashing returned items is the most cost-effective way to handle returns, instead of spending money for them to be cleaned, refurbished, and put back up for sale [4]. The cost of returning an item to the supply chain is usually high [5]. For example, in the UK, it costs between USD 3.31 and 11.04 to pick up and deliver a coat ordered online, and it costs double or triple on the way back (see [5]). As a consequence, with the proliferation of ecommerce, the negative impact of returns on the environment has been staggering: in total, returned items are worth USD 428 billion, 5.8 billion lbs of which end up in landfills, with 16 m metric tons of greenhouse gas emissions resulting from returns shipments [6]. Greening the ecommerce returns mode is essential for the sustainable future of ecommerce [7].

The package-free return mode has thus been developed to make ecommerce returns more environmentally friendly and reduce ecommerce packaging in return shipments. (Notably, not all “package-free” returns are actually package-free. Recently, Amazon offered a convenient return service allowing consumers to return purchased products to a local courier without packing items up. The courier will then pack returns for return

shipment. Obviously, this type of “package-free” return is not in our research scope. We focused on those package-free returns that will be directly examined in store. Additionally, the term “package-free returns” in our study lies at the interface between consumers and stores. It is possible that stores could need to transship nonresalable products in boxes to a destination like a manufactory for refurbishment or reworking.) It relies on the BORS (buy online, return in store) strategy. Under this model, returns are usually made following this procedure: (1) a consumer returns an item to a return point in “store” (e.g., department stores, brand stores, and hypermarkets) without packing it; (2) staff examine the returned item; (3) the e-shopping platform will refund the consumer; (4) returns are transshipped in bulk to a given place (e.g., discount stores, charities, manufacturers, or landfills) (see [7]). Figures 1 and 2 show the packed mail return mode and the package-free return mode, respectively. In the case of the former, returns have to be shipped to the return processing hub for examination and then transshipped to a destination. This troublesome process explains why it is so costly for an item to be returned into the supply chain. The distinguishing features of the latter are that consumers can return items without packing them, and the handling of returns is advanced in the workflow. Returns are processed earlier in the package-free return mode as a result of collecting returns in store. Based on the results of the return examination, returns can be directly reintegrated into store inventory [8] or shipped to destinations such as discount stores, manufacturers, and landfills [7]. The green value of the package-free return service is not just avoiding return packaging materials, but returned items are shipped in bulk for transshipment. As returned items are collectively handled in store, reverse logistics can use reusable boxes to transship returned items. The bulk shipment, compared to previously one-by-one mail shipment, is more efficient for transporting returned items, saves energy consumption, and reduces greenhouse gas emissions in transportation [9].

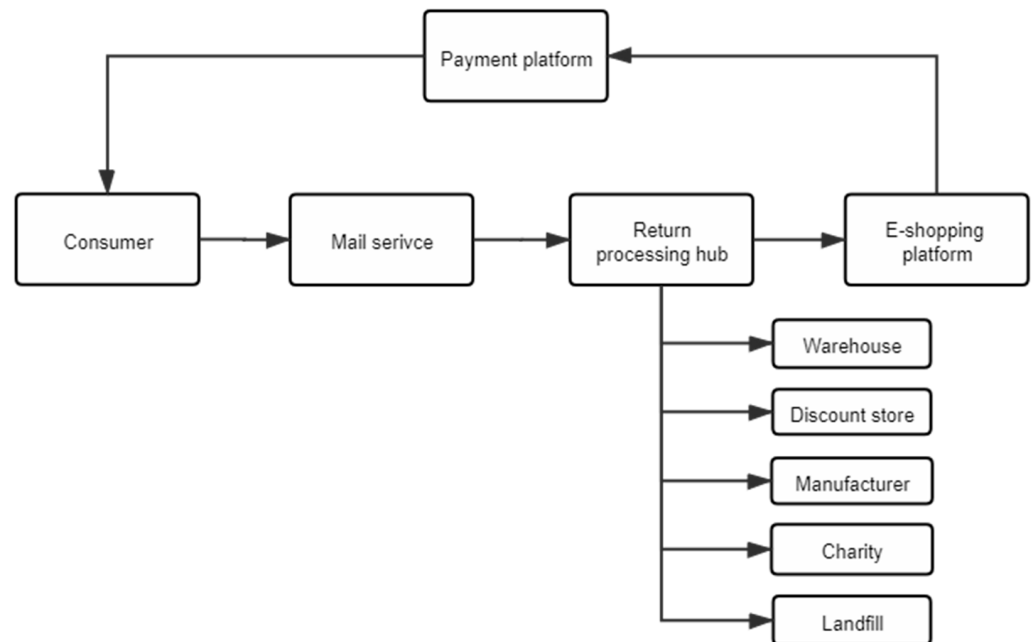


Figure 1. Mail return mode.

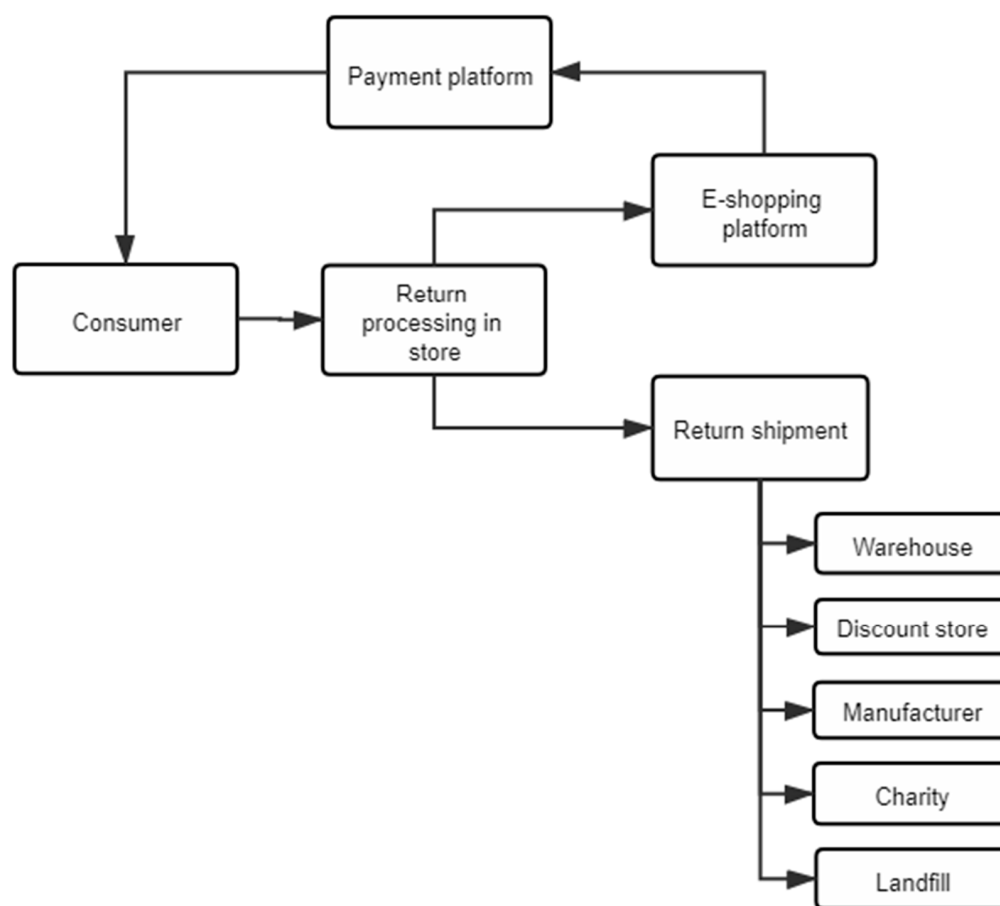


Figure 2. Package-free return mode.

In practice, many retailers, such as New Look, Zara, and Marks & Spencer, do offer a package-free in-store return service for online purchases [10]. Pure ecommerce companies without a store presence can also implement this package-free program by partnering with returns management companies such as Happy Returns and Optoro. Happy Returns launched a package-free returns program for the return of online purchases, with over 2000 return points, using reusable boxes for transshipping returns. This program can help reduce the cardboard waste that has been responsible for the deforestation of over 1 billion trees [10], reduce greenhouse gas emissions (a 0.12 pound reduction in greenhouse gas emission per returned item) [9], and save massive amounts of packaging materials, such as fillers, tapes, and plastics [7]. The green value is not the sole benefit of the package-free return mode. The package-free returns program can help ecommerce firms cut down return-related costs by around one-fifth [11]. The store channel offers a higher salvage value for ecommerce returns than the online channel [12]. Returning in store does not only enhance consumer convenience and satisfaction, but also gives the store a chance to cross-sell and up-sell during a consumer’s patronage [13]. Existing research has indicated that the BORS strategy can achieve a win-win outcome [14]; consumers can enjoy the return service without paying for a return shipment, and firms make higher profits by adopting this strategy [14].

However, mail is still the most common way to return an online purchase [15]. In a recent survey, over 70% of respondents used a mail service to return their online purchases [15]. Research shows that only 10% of consumers returned products in store [16]. This percentage is not compelling, considering that many retailers, ecommerce platforms, and return management companies have launched package-free return services. The planning of a package-free return program requires firms to build a massive return network, which involves considerable expenditure, so firms need to be prudent in decision-

making [7]. One strategy may be to communicate the green value of the package-free return service and encourage consumers to switch to returning items directly in store [17]. The communication that a retailer offers regarding a green return service can help them gain consumer loyalty and can encourage green return behavior [18]. However, green switching behavior is not just triggered by ecological factors [7]. Studying green value and how it works with other factors, such as functional and economic factors, can offer a more profound understanding of pro-environmental behavior [19]. The push-pull-mooring (PPM) framework has been used to reveal consumers' green switching intention (see [20–24]). As this framework does not mandate fixed push, pull, or mooring factors [25], it is necessary to identify more PPM factors relevant to the ecommerce return context. Accordingly, in this study, this framework will be used to predict consumers' intentions to switch from a non-green mail return service to a green package-free return service.

It is necessary and meaningful to study the predictors of online consumers' switching to a green return service from a marketing perspective. First, most relevant studies have been performed from an operations perspective, but this study instead explores the return issue from a marketing perspective to identify key predictors of consumer switching. Existing studies have studied issues related to optimizing operation efficacy and outcomes, such as optimizing reverse logistics [26], refining the reverse logistics system [27], or improving the supply chain network [28]. However, as mentioned previously, the current rate of adoption of green return services is not satisfactory. Therefore, a marketing perspective must be adopted to recognize the "selling point(s)" of the green return service to encourage more consumers to use it [7]. It is necessary to study factors influencing consumers to switch from a non-green return service to a green return service.

Second, as shown in Appendix A, this study also investigates interesting factors that have not been previously addressed. These factors can further enrich the knowledge of consumer switching behavior and green communication, which have attracted much attention from researchers. The cross-channel literature primarily discusses returners' channel-shifting behavior and argues that companies could use monetary return costs (e.g., consumers have to pay a shipping fee for the mail service to make returns) to sway consumers' choice and push them toward returning online purchases in store [8,12]. However, as previously mentioned, consumers' green switching intention could be related to ecological, functional, and economic factors. We have extensively reviewed more of the literature beyond just the ecommerce returns literature using the PPM framework to predict green behavior or cross-channel behavior (see Appendix A). The perceived green value in our model is similar to the environmental benefits mentioned by Hazen et al. [20] and Perez-Castillo and Vera-Martinez [21], and the mail return habit in our model is related to the inertia studied by Wang et al. [24]. However, dissatisfaction with refund speed, dissatisfaction with return cost, and return service convenience have not been addressed by previous research.

Finally, managerially speaking, our research is beneficial to ecommerce companies wanting to promote their package-free returns. On the basis of our research findings, ecommerce companies can recognize key factors in green communication and thus improve the effectiveness of their green marketing campaign.

The article is organized as follows. First, on the basis of a review of the relevant literature, we clarify the PPM framework to be used in this study, initially analyzing what factors could influence consumer switching and developing relevant hypotheses. Second, the study's methodology is introduced. Third, hypotheses are tested and research findings are discussed. Finally, based on our research findings, we conclude with theoretical contributions, managerial implications, and our study's limitations, providing future research directions.

## 2. Theoretical Background

### 2.1. Push–Pull–Mooring Framework

The push and pull factors in the PPM framework come from Ravenstein's "Laws of Migration" [29]. Originally, the PPM framework was widely used in migration research to explain why people migrate from one place to another. Bogue [30] offered a detailed explanation of the push and pull factors in this framework: some migrants are "pushed" out of their place of origin by a set of negative factors that make continued residence unfavorable, whilst others are induced to leave ("pulled" out) by the attractive aspects of the destination. The push–pull components lead to migration behavior after a migrant considers the external forces and interprets their influence on his/her wellbeing [30]. The negative factors at the origin are labeled "push" variables and the positive factors at the destination are labeled "pull" variables [29]. However, the push–pull theory cannot explain some phenomena in migration. For example, even though people could reap more benefits from moving to a place with higher salaries, they may ultimately decide not to move due to social ties. This factor, influencing people to act in ways other than they ordinarily would, is labeled a "mooring" [31]. The push–pull factors are presumably decided by external forces or conditions and are out of the control of the individual [31]. In other words, mooring factors are more related to individuals. Individual-specific factors, such as inertia or habit, have been deemed mooring factors that could impede a person's switching intention [24]. The merit of the PPM framework lies in its addressing of individual switching intentions from multiple perspectives [32], encompassing external and internal factors. Recently, the PPM framework has been widely applied in green behavior research to explain why individuals switch from a non-green mode to a green mode (see [20–24]). In the context of the present study, returning packed products is a non-green return mode, whilst pursuing a package-free return mode is greener. The PPM framework is adopted to explore which factor has a greater impact on online consumers' switching from the non-green return mode to the green mode.

In this section, an analysis is conducted to identify the push and pull factors, contributing to switching intention. In the mail return mode (see Figure 1), consumers need to properly pack the returned item for the mail service to ship it back to the return processing hub. In this process, consumers pay a shipping fee for an item to be shipped back. The return cost is a pain point for consumers, and is associated with higher negative responses [33]. According to a recent survey, 61% of consumers stated that paying for return shipping was frustrating when making returns [34]. Retailers impose a return cost to avoid excessive returns [35], and this is common in today's business practice. For example, Taobao buyers must pay a return shipping fee for returns, unless they have bought return insurance or the sellers have guaranteed a refund for the fee. Therefore, consumers' dissatisfaction with return cost is a push factor. When the return processing hub has accepted the returned item, the e-shopping platform will launch their refund process via the payment platform. The consumer only receives the refund after the wire transfer has been completed. The refund speed is slow, as this return procedure entails several steps. Consumers may wait up to six weeks to be refunded [36]. Therefore, in the eyes of consumers, another pain point in the mail return mode is that consumers have to wait for a long time to get the refund. When consumers have to endure a lengthy wait to receive their refunds because of the company's procedures, they could become dissatisfied, regardless of whether they ultimately receive their refund [37]. This analysis is congruent with a prior survey. According to a global survey of 3519 consumers in the US, UK, France, Germany, and Australia who had made an ecommerce return, dissatisfaction with refund speed was the major complaint [16]. In the present study, consumers' dissatisfaction with refund speed and the return cost involved in the mail return mode are viewed as the push factors.

There are more advantages to the package-free return mode. In the package-free return mode (see Figure 2), consumers must carry the item to a return point in store (such as in malls, brand stores, hypermarkets, convenience stores, etc.) [7]. When the item is accepted by the return point, the consumer is told that their return request has been

approved and they will receive their refund after the wire transfer has been completed by the payment platform. This return procedure is simple and convenient, because return processing is brought forward in the flow. Therefore, the first benefit of the package-free return service is its convenience. Additionally, the green value here lies not only in avoiding return packaging materials, but the returned item can be shipped in bulk to a given place [7]. In contrast, the mail return mode is much less efficient because here, returned items are shipped individually. The green value of the package-free return service has been acknowledged by the existing literature (see [7,9,10,38]). Therefore, the second benefit of the package-free return service is its green value. In the present study, consumers' perception of the convenience of the package-free return service, and the perceived green value, are viewed as the two pull factors.

Below, we will develop hypotheses by developing the PPM framework and performing a literature review, wherein we will discuss why a mooring factor (mail return habit) and a control variable (ecommerce return frequency) should also be included in our model. A graphic presentation of our research mode is depicted in Figure 3.

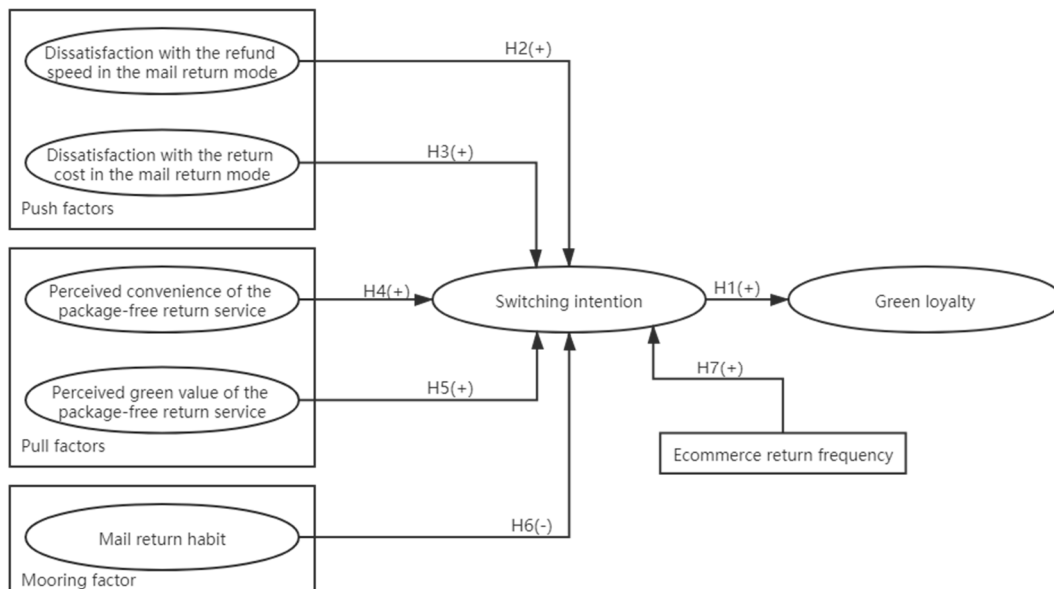


Figure 3. Research model.

## 2.2. Hypotheses

### 2.2.1. The Consequence of Switching Intention: Green Loyalty

Consumer switching and consumer loyalty are often viewed as two negatively related variables [39]. However, in the present study, switching intention is defined as switching from a non-green return service to a green return service, which is distinguished from the intention regarding switching between different suppliers or brands. The loyalty referred to in the article is a specific consumer perception. Green loyalty refers to the extent to which a consumer is willing to conduct loyalty behaviors such as recommendations and repeat purchases with an eco-friendly firm [40]. This loyalty stresses the role of the e-shopping platform's green image as different from the consumer loyalty derived from more aspects (e.g., economic value, novelty value, emotional value, etc.) [41]. As these two constructs are different from previous ones, it is necessary to explore the novel relationship between switching and green loyalty.

Implementing green value in business practice has been considered by many firms, as the protection of the environment is crucial to modern business [18]. A firm's pro-environmental stance optimizes its perceived value in meeting consumers' needs and ultimately helps establish ongoing consumer loyalty [18]. Switching to a package-free return service allows consumers to return online purchases without packaging. This service

can meet consumers' needs related to returning products and protecting the environment. An outperforming service leads to higher consumer loyalty because the service can more effectively meet consumer needs [42]. Therefore:

**H1:** *Consumers who intend to switch to the greener package-free return service are more likely to show higher levels of loyalty to the eco-friendly e-shopping platform.*

### 2.2.2. Push Factors: Dissatisfaction with the Refund Speed and the Return Cost in the Mail Return Mode

Dissatisfaction refers to a consumer's negative affective response to the discrepancy between what is delivered and what is expected [43]. The positive association between dissatisfaction and switching intention/behavior has been documented in the existing literature (see [44–47]). Bhattacharjee et al. [44] revealed that dissatisfaction with the current product or service is predictive of switching behavior. Hino and Levy [45] proved that, in a retail setting, dissatisfaction manifested a positive impact on consumers' store switching intention. Moreover, dissatisfaction has been deemed a crucial push factor in the PPM framework. On the basis of the PPM framework, Xu et al. [47] found that social networking service users' dissatisfaction with their current SNS is positively related to their intentions to switch. Kuo [48] argued that dissatisfaction with the quality of a mobile payment service platform acts as a push effect that drives users away from that platform.

Two dissatisfaction factors are studied here. Consumers could be dissatisfied with the refund speed and the return cost associated with the mail return mode. In the mail return mode, consumers are required to wait up to six weeks [36] because it takes time for the seller to receive and examine the product and approve the return request. Contrarily, in the package-free return mode, consumers are refunded sooner because the seller can accept and examine the returned product in store [7]. The package-free return service can thus be deemed a better service in terms of its return and refund procedure. Previous literature has primarily discussed returners' return channel shifting behavior and argued that companies could use the monetary return cost (e.g., consumers have to pay a shipping fee for the mail service to make returns) to sway consumers' choice and push them to return online purchases in store [8,12]. The costs (shipping fees, for example) associated with the mail return service should be factored into the consumers' choice of return service. Price theory implies that if a service is offered for free, it will usually encounter higher demand than a non-free service [49]. The package-free return service thus seems to be superior to the mail return service, since the cost of shipping items back is saved. Consumers tend to manifest a switching intention when they have been made aware of a better service [44]. Therefore:

**H2:** *Dissatisfaction with the refund speed in the mail return mode is positively related to intention to switch to a package-free return service;*

**H3:** *Dissatisfaction with the return cost in the mail return mode is positively related to intention to switch to a package-free return service.*

### 2.2.3. Pull Factor: Perceived Convenience of the Package-Free Return Service

Service convenience has been deemed "a concept of anything that can be done with ease and minimal effort" [50] (p. 20). In this study, perceived convenience refers to consumers' perception concerning the minimal effort and easiness of a package-free return service. The offering of an ecommerce return service gives the e-shopping platform an opportunity to remedy its relationship with consumers who are forced to carry an unwanted product [51]. Consumers' negative experiences can be nullified and reduced via positive service encounters during a smooth, easy, and effortless return process [52]. Ecommerce returns could involve much effort, such as filling out an online return form, preparing the product for return shipment, packing products properly for mail, and printing out the return label [51]. However, the package-free returns approach is much easier. Consumers can return items directly in store without packing them up [7]. The convenience of the return service is thus a pull factor because the easiness of an ecommerce return is considered

to be positively associated with consumer satisfaction [52]. Service convenience provides the means for reducing the time and effort associated with the acquisition and consumption of a service [53]. Saving time and effort is highly valued by consumers when choosing and consuming a service [54]. Post-purchase service convenience makes consumers more satisfied, and has a significant impact on behavioral intention [55]. Prior research has also indicated that convenience is a significant pull factor in determining users' behavioral intention in the PPM framework [56]. Based on the above discussion, a package-free return service with greater convenience could more effectively satisfy consumers than a mail return service with lower convenience, prompting consumers to switch to the more convenient return service. Thus:

**H4:** *The perceived convenience of the package-free return service is positively related to intention to switch to the package-free return service.*

#### 2.2.4. Perceived Green Value

Research reveals that pro-environment behavior is simultaneously driven by economic and environmental benefits [57]. Perceived green value plays a crucial role in today's pro-environmental business world [58]. The construct is defined as the consumers' overall assessment of a service concerning its perceived environmental and sustainable advantages [59]. As the environment deteriorates, consumers are paying more attention to the green value of a service [60]. The green value of a service benefits consumers through reductions in both environmental harm and natural resource expenditure [57]. The greenness of a service is a sign of service quality, and should be factored into consumers' decision-making process [61]. It has been found that environmental benefits are a pull factor, and are positively associated with switching intention [20].

In the context of our study, package-free return services can benefit consumers by reducing the number of packages for return shipments. When ecommerce returns are collected from the return points, the staff can handle the returns in store, or transship them in bulk to discount stores or a warehouse, making the return shipment more efficient and eco-friendly. Existing studies have revealed that, if ecommerce returns were to be switched to package-free returns, greenhouse gas emissions can be reduced [9], deforestation can be avoided [10], and massive amounts of plastic bags, fillers, and tape can be saved [7]. Hence, the package-free return service is more attractive for consumers than the mail return service because of its greenness, pulling consumers to switch to it. Existing studies have also shown that perceived green value is positively related to consumers' green behavior or behavioral intention in other research settings (see [57–60]). Thus:

**H5:** *The perceived green value of the package-free return service is positively related to intention to switch to it.*

#### 2.2.5. Mooring Factor: Mail Return Habit

Habit denotes an individual's customary way of acting [62]. Habit reflects "the automatic behavior tendencies developed during the past history of the individual" [63] (p. 277). Accordingly, in the present study, habit is defined as consumers' automatic behavioral tendencies related to using a mail service to return online purchases. When a particular behavior is routinized, habit becomes a dominant predictor of switching intention [64]. As previously mentioned, returning unwanted online purchases by mail is a habit for the majority of online consumers. Habits can become barriers in an individual's switching process [65], having benefited consumers in the past and been reinforced by behavior [62], they eventually form "rules of thumb". Furthermore, these "rules of thumb" can replace deliberate analysis in the individual's switching decision process [66]. As a consequence, consumers enact habitual behaviors as the path of least effort [67]. The cognitive inertia incurred by habit means that consumers will continue to use the incumbent service even if it might not be the best one [67]. In the context of switching shopping modes, habit was deemed a mooring factor influencing consumers' switching intention [68]. In



a mobile payment setting, habit is positively related to consumers' "stickiness" with a particular behavior [67]. Based on the above discussion:

**H6:** *The mail return habit is negatively related to intention to switch to the package-free return service.*

#### 2.2.6. The Role of Ecommerce Return Frequency

Ecommerce return frequency is defined as the number of ecommerce returns that a consumer makes during a period. The recurrence of past behavior is different from habit [69,70] because not every behavior that is performed many times becomes a habit [70,71]. In the present study, ecommerce return frequency refers to the number of ecommerce returns made during a recent period, encompassing mail returns and in-store returns, whilst mail return habit refers solely to the automatic choice of using mail to return items. They are thus two different constructs. Consumers show different patterns regarding return frequency, ranging from occasional returners to heavy returners [72]. Product return frequency influences consumers' consumption behavior and retail companies' return-related practices [72]. Consumers who made more returns in the past have a higher probability of making future returns [73]. With respect to the present study's focus, consumers with different return-frequency behaviors could respond differently to the green return mode. For example, the motivation to switch to a greener return mode in consumers who barely ever make returns could be weak because they would not actually be saving many packages. The value of package-free returns is thus limited for infrequent returners. Therefore, the potential impact of return frequency should be controlled when the PPM framework is used to predict consumer switching behavior.

Service-dominant logic [74] can be applied to explain the role of return frequency. According to this logic, the green return service is a vehicle for consumers to co-produce value; service value is not defined in terms of *exchange value* but is instead perceived and determined by the consumer in terms of *value-in-use* [74]. Therefore, in the eyes of the consumer, value is created when the service is used to meet their needs [75].

Infrequent returners barely return online purchases. Consequently, they could not have established value perceptions regarding return services they used in the past. However, frequent returners have to deal with many more returns and often use return services. The positive aspects of the package-free return service are thus more valuable in the eyes of consumers who frequently make returns because the value of the package-free return service is more sufficiently co-created by such consumers [74,75]. Therefore, it may be more likely for consumers who make more frequent returns to switch to a greener, more convenient return service. Prior research also found that past behavior significantly predicts pro-environmental behavior [76], and frequency of past behavior has a positive influence on pro-environmental intention [77]. On this basis, we formed the hypothesis below:

**H7:** *Ecommerce return frequency is positively related to intention to switch to the package-free return service.*

### 3. Method

#### 3.1. Respondents and Procedure

A scenario-based survey was conducted online in China. Chinese online markets are useful for consumer studies. China's e-retail sales in 2020 reached USD 1.64 trillion, which is over double the value from 2016 (USD 0.72 trillion) (see [78]). As of December 2020, the number of online shoppers in China surpassed 780 million, accounting for 79.1% of all internet users in China (see [78]).

First, a professional online survey platform, Wenjuanxing, was employed to collect data. The online platform has completed over 40,000 sampling services and has special expertise in gathering data online. Second, as this study mainly focused on consumers who return online purchases, the survey platform was only required to recruit online consumers with ecommerce return experience. This was the criterion for inclusion. Third, to obtain valid responses, several measures were taken to deal with the misrepresentation issue

that arises in the anonymous online environment, as mentioned by Wessling et al. [79]. In the online survey, respondents were reminded to offer intuitive answers. Several measures recommended by Wessling and her co-authors were adopted, as follows: give each respondent a clear completion time (7 min) at the beginning of the survey; quickly approve the respondents’ work and offer a fair reward (around USD 1.12); state that the respondents’ personal data are protected and only used for academic purposes; and offer contact information for respondents (see [79]). Fourth, the respondents filled out the survey using the online platform. A sample with 665 valid observations was collected. The respondents’ demographic information is shown in Table 1. The male/female ratio and the age distribution agreed with the results from previous research into online Chinese consumers [80].

**Table 1.** Demographic information.

		Number	Percentage
Sex	Male	240	36.1
	Female	425	63.9
	Total	665	100.0
Age	<18	3	0.5
	18–25	167	25.1
	26–30	194	29.2
	31–40	244	36.7
	41–50	40	6.0
	51–60	14	2.1
	>60	3	0.5
	Total	665	100.0
Ecommerce returns in recent three months	0	47	7.1
	1–3	431	64.8
	4–6	117	17.6
	7–10	41	6.2
	≥11	29	4.4
	Total	665	100.0

### 3.2. The Survey Scenario

As previously mentioned, consumers’ adoption of the package-free return service is low. Most consumers do not have detailed, specific knowledge about green return services. As such, it is favorable to design a survey scenario that offers background information about the green return service. This approach has been applied in previous research on ecommerce (e.g., Martínez-López et al. [81]) and service (e.g., Wolter et al. [82]). The scenario-based method is suitable for our research as the scenario creates a controlled situation (Wolter et al. [82]) that precludes noise factors, such as the reputation of the shopping platform and the product category. The scenario can be seen in Appendix B. A fictitious e-shopping platform, Pingfeng, was used to avoid the potential extraneous effects related to using a known, real platform. The returned item in the scenario was a pair of shoes. This product category has been studied in prior product return research (see [83]). The return rate of shoes purchased over the internet is around 20–35% [84], which is relevant to our ecommerce return context. Furthermore, consumers’ choice of return service is inevitably affected by the ease of access of each. For example, when the return effort is too high (e.g., carrying a heavy desk to a store by hand) or the travel distance is too great (e.g., traveling two hours to a store to return an item), consumers would prefer to use the mail return service, involving a courier picking up the item from the consumer’s location. It is not appropriate to suggest a package-free return service when the return effort involved is too high or the travel distance is too long. Therefore, in the scenario, we specifically informed respondents that there was a return point in a store near their home.

The designed scenario is relevant to our research purpose. Realistic return management practices were considered when designing the scenario. The information concerning

both the mail return service and the package-free return service was simultaneously presented. The information related to the mail return service and the package-free return service was adapted from information about Amazon's return management practice for the sake of realism. The ecological outcomes of the package-free return service were adapted from existing research (see [7,9]). Furthermore, the negative aspects (the push factors) of the mail return service and the positive aspects (the pull factors) of the package-free return service were included in the information. Finally, we observed how consumers' switching intentions were influenced by push, pull, and mooring factors.

### 3.3. Measurements

Apart from ecommerce return frequency, all the measurements were adapted from previous measures employed in existing research. The items, measurement approaches, and references can be seen in Appendix C. Concerning ecommerce return frequency, the respondents were told to indicate the number of ecommerce returns they had made in the last three months (from 0 to over 11). This approach was also adopted in previous research measuring the frequency of past behavior (see [85]). Concerning the measurement of dissatisfaction with the return cost in the mail return mode, the return cost is the shipping fee that consumers pay for a courier to pick up the items from their location. The return shipping fee is a common feature of China's major ecommerce platforms, such as Taobao and Pinduoduo.

### 3.4. Statistical Analysis

Covariance-based structural equation modeling (CB-SEM) and partial least square structural equation modeling (PLS-SEM) are the two most widely applied SEM methods. CB-SEM was chosen for two reasons. PLS-SEM is preferred for developing theory, whilst CB-SEM is suitable for theory testing and confirmation [86]. The present study seeks to confirm the hypothesized relationships based on the PPM framework and other relevant theories. CB-SEM is preferable over PLS-SEM in terms of parameter consistency and parameter accuracy when the sample size exceeds 250 observations [87]. The present study had 665 observations, which is far beyond the threshold. The Mplus software was employed in the structural equation modeling analysis. The estimation method MLMV (maximum likelihood parameter estimates with standard errors and a mean- and variance-adjusted chi-square test statistic) was used to analyze the data. This method is robust to nonnormal data [88]. The SPSS software was used to calculate Cronbach's  $\alpha$  and detect the severity of common method variance.

## 4. Results

### 4.1. Scale Validity and Reliability

First, a CFA (confirmatory factor analysis) was conducted to confirm each scale's construct validity. An initial measurement model was constructed. One item of perceived green value (VP1) and one item of habit (HA1) were removed because of their low factor loading in the measurement model. The measurement model was then constructed without these two items. The model showed a very good fit:  $\chi^2/df = 2.014$ , RMSEA (root mean square error of approximation) = 0.039 and CFI (comparative fit index) = 0.964. The  $\chi^2/df$  ratio is acceptable when smaller than 5 [89]. The CFI value should be greater than 0.9 [90]. The RMSEA should be smaller than 0.06 [91].

Second, it recommended to report CR (construct reliability), Cronbach's  $\alpha$ , and AVE (average variance extracted) to assess the reliability of measurement [92], so they were reported in Table 2. The values of AVE, CR, and Cronbach's  $\alpha$  were above the conventional cutoffs (AVE > 0.5; CR  $\geq$  0.7; Cronbach's  $\alpha$   $\geq$  0.7; these cutoffs can be seen in Martínez-López et al. [92]). Although CP's AVE was 0.456, which is slightly lower than the 0.5 cutoff, its CR and Cronbach's  $\alpha$  coefficient were good, implying CP's adequate convergent validity.

Finally, we adopted the approach suggested by Martínez-López et al. [92] to examine the discriminant validity. As depicted in Table 3, the square root of the AVE for every

construct in our study was greater than the maximal correlation between each construct and the rest of the constructs. Therefore, it was not risky to assume discriminant validity in our study. Additionally, the Harman’s single factor test was employed to detect the severity of common method variance. The dimension reduction function in SPSS was used to extract one factor from all the measurement items. The total variance extracted by this factor was 23.94%, which is much smaller than the recommended 50% cutoff (see [93]). Based on this analysis, common method bias was unlikely to be a serious concern for the present study.

**Table 2.** Factor loadings, Cronbach’s  $\alpha$ , AVE, and CR.

	SW	LO	RM	CM	CP	VP	HA
SW1	0.830						
SW2	0.816						
SW3	0.854						
SW4	0.778						
LO1		0.767					
LO2		0.845					
LO3		0.778					
RM1			0.898				
RM2			0.928				
RM3			0.865				
CM1				0.832			
CM2				0.833			
CM3				0.919			
CP1					0.662		
CP2					0.592		
CP3					0.741		
CP4					0.697		
VP2						0.803	
VP3						0.848	
HA2							0.800
HA3							0.789
HA4							0.868
HA5							0.793
HA6							0.822
AVE	0.672	0.636	0.805	0.744	0.456	0.682	0.664
CR	0.891	0.839	0.925	0.897	0.769	0.811	0.908
$\alpha$	0.890	0.838	0.925	0.895	0.764	0.810	0.907

SW: switching intention; LO: loyalty; RM: dissatisfaction with the refund time in the mail return mode; CM: dissatisfaction with return cost in the mail return mode; CP: perceived convenience of package-free return service; VP: perceived green value of package-free return service; HA: mail return habit.

**Table 3.** Discriminant validity.

	SW	LO	RM	CM	CP	VP	HA
SW	<b>0.820</b>						
LO	0.376	<b>0.797</b>					
RM	0.237	0.050	<b>0.897</b>				
CM	0.161	0.106	0.422	<b>0.863</b>			
CP	0.576	0.621	0.230	0.192	<b>0.675</b>		

**Table 3.** Cont.

	SW	LO	RM	CM	CP	VP	HA
VP	0.445	0.548	0.250	0.265	0.609	<b>0.826</b>	
HA	-0.033	-0.023	-0.053	-0.011	0.015	0.046	<b>0.815</b>

The bold values along the diagonal line are the square root of the AVE for the construct in the respective column. Below the diagonal line are the standardized correlation coefficients between constructs. A negative sign indicates that the two constructs are negatively related. SW: switching intention; LO: loyalty; RM: dissatisfaction with the refund time in the mail return mode; CM: dissatisfaction with return cost in the mail return mode; CP: perceived convenience of package-free return service; VP: perceived green value of package-free return service; HA: mail return habit.

4.2. Hypothesis Testing

A structural model encompassing all hypothesized relationships was constructed. The model’s fit was satisfactory:  $\chi^2/df = 2.402$ , RMSEA = 0.046, and CFI = 0.945. The R-square of switching intention was 0.387 (S.E. = 0.038,  $p < 0.001$ ). The R-square of loyalty was 0.171 (S.E. = 0.031,  $p < 0.001$ ). The results of hypothesis testing are shown in Table 4. A significant positive influence of switching intention on loyalty was found (standardized estimate = 0.413,  $p < 0.001$ ). H1 was thus supported. A significant positive influence of dissatisfaction with refund speed on switching intention was found (standardized estimate = 0.086,  $p < 0.05$ ). H2 was thus supported. No significant influence of dissatisfaction with return cost on switching intention was found (standardized estimate = -0.006,  $p = 0.881$ ). H3 was thus not supported. A significant positive influence of perceived convenience on switching intention was found (standardized estimate = 0.490,  $p < 0.001$ ). H4 was thus supported. A significant positive influence of perceived value on switching intention was found (standardized estimate = 0.149,  $p < 0.05$ ). H5 was thus supported. No significant influence of habit on switching intention was found (standardized estimate = -0.041,  $p = 0.206$ ). H6 was thus not supported. Finally, a significant positive influence of return frequency on switching intention was found (standardized estimate = 0.073,  $p < 0.05$ ). H7 was thus supported. In general, the effects of push factors were weaker than those of their counterpart pull factors. The effect of one push factor, dissatisfaction with return cost, was insignificant. The effects of pull factors were strongest when used in the PPM framework to predict switching intention. Surprisingly, the mooring factor of habit did not show a significant relationship with switching intention. It is meaningful to include the control variable, return frequency, in the model, because this variable was found to have a significant, though small effect.

**Table 4.** The result of hypothesis testing.

Hypothesis	Standardized Estimate	p-Value	Result
H1: SW→LO	0.413	***	Support
H2: RM→SW	0.086	*	Support
H3: CM→SW	-0.006	0.881	Not supported
H4: CP→SW	0.490	***	Support
H5: VP→SW	0.149	*	Support
H6: HA→SW	-0.041	0.206	Not supported
H7: RF→SW	0.073	*	Support

\*\*\*:  $p$ -value < 0.001; \*:  $p$ -value < 0.05; SW: switching intention; LO: loyalty; RM: dissatisfaction with the refund time in the mail return mode; CM: dissatisfaction with return cost in the mail return mode; CP: perceived convenience of package-free return service; VP: perceived green value of package-free return service; HA: mail return habit; RF: return frequency.

5. Discussion

5.1. Theoretical Discussion

The negative relationship between consumer switching and green loyalty has been documented in previous research (see [39]). However, a positive association between green switching and green loyalty was found in this study. This is primarily because the definition

of switching intention in the present study was different from that in previous research. Previous research focused on switching brands or suppliers, whilst the switching intention in the present study involved shifting from a non-green service to a green service, both of which are offered by the same platform. The positive relationship between this switching intention and green loyalty shows that consumers who indicate an intention to switch to a green return service should be more loyal to the given e-shopping platform.

From a green marketing perspective, our study offers new insights into green communication and the PPM framework and reveals the effects of factors that have not been addressed by prior research.

First, green value is an important aspect in the communication of service value to consumers, but its effect is not dominant in green communication related to package-free returns. In the literature, green value has been deemed a key factor in communicating value to consumers, and elicits greater green behaviors or behavioral intentions in consumers [57–59]. However, this effect of green value was not as large as the effect of perceived convenience. This finding is congruent with prior green communication research, which argues that green communication becomes more effective when green value and functional value are simultaneously conveyed [61].

Second, return service convenience, which is a key functional attribute of package-free return services, is a dominant factor in green communication related to package-free returns. Convenience is taken as a pull factor in the PPM framework and elicits greater behavioral intention in consumers [56]. However, a relatively weaker effect of perceived convenience was documented in Handarkho and Harjoseputro's [56] article. That said, in the present study, the effect of perceived convenience was strongest when compared to the other factors. This might be explained by the different research context. The effect of convenience in the PPM framework was examined previously by Handarkho and Harjoseputro in the context of mobile payments. Our ecommerce returns context is rather different. The payment service arises at the point in the consumers' purchase journey at which they have not yet completed the purchase. The return service arises in the consumers' post-purchase journey, at which point they have received the product and want to return it [94]. The consumers' mindsets in the two situations are completely different because of the different circumstances. Therefore, the different effects of perceived convenience in this context are to be expected.

Third, marketers should be cautious about the effectiveness of "pain point" marketing in green communication related to package-free returns. Although the significant effect of one push factor was found (H2), our study reveals that the effects of push factors were relatively weaker than the effects of pull factors. This implies that consumers are mostly attracted to switch by the green service, rather than being forced to switch because of the negative aspects of the non-green service. The PPM framework has been applied in green communication and in research predicting consumers' pro-environmental behavior. There was no conclusive result regarding the effects of push factors. Research has indicated that push factors are very predictive of consumer switching in a circular economy context [20], but other studies have found that push factors are not so predictive in pro-environmental contexts [21–24] or in cross-channel settings [95]. Our study helps determine the effects of push factors in predicting consumer switching in an ecommerce return context. Additional discussion is needed regarding the statistical non-significance of the "dissatisfaction with return cost → switching path" coefficient. This feeling of dissatisfaction may not be sufficiently strong for a consumer to abandon the easy mail return service [96]. Despite the fact that monetary return cost has been suggested in previous research to steer online consumers toward the offline return channel [8,12], only a very weak effect of consumers' dissatisfaction with cost was discovered in our study. This finding indicates that consumers' switching intentions are not driven by a cost-saving motive, but by other factors instead. This echoes the idea mentioned at the beginning of this article: consumers' green behavior may not be motivated by economic- or cost-related factors alone.

Fourth, habit was deemed a factor predictive of switching intention, but the influence of this could vary in different contexts. In existing PPM research, habit is a mooring factor predictive of switching intention [64,68]. However, in our study, the effect of the mail return habit on switching intention was quite weak. This finding encourages the rethinking of the PPM framework related to migration research. Originally, the PPM framework was used to predict individuals' migration behavior [30]. Mooring factors have been included in the framework as switching barriers to better predict migration behavior [31]. However, migration is quite different from service switching. Migration decisions are much harder than service switching because migrants may have to "burn the bridge" with the past and rebuild their social connections in a new place. Based on our study's results, both the mail return service and the package-free return service can facilitate consumers' needs to return online purchases. There were no "penalties" when consumers chose the less favorable mail return service. Hence, the weak effect of habit in the present study is expected.

Finally, it is necessary to include potential control variables in the PPM framework. A significant positive effect of ecommerce return frequency on switching intention was found in our study. This significant effect indicates that the PPM framework can be extended and further optimized. The original PPM framework does not consider factors beyond the push, pull, and mooring factors. In reality, factors such as behavioral frequency should be considered. The service-dominant logic argues that service value is created in a "value-in-use" context [74]. The more frequently a service is used, the more valuable it becomes for consumers. Therefore, the frequency of service use can also be predictive of service switching intention. However, to the best of our knowledge, no attempts have been made so far to extend the PPM framework by applying the service-dominant logic. Our research demonstrates that the PPM framework can be extended by adding the factor of behavior frequency.

Our research adds value to green communication and the PPM framework. It updates existing knowledge concerning the role of consumer dissatisfaction, perceived green value, and perceived convenience of return service in green communication. This study also explains why the mooring factor of habit fails to predict switching intention. It has uncovered the imperfectness of the original PPM framework and shown how this framework can be extended by considering the frequency of past behavior.

## 5.2. Managerial Implications

This study is helpful to ecommerce companies wanting to promote their package-free return service. First, companies need to know that encouraging consumers to switch to a green service can benefit them by increasing consumers' green loyalty. Our findings imply that green communication not only prompts pro-environmental behavioral intention, but also creates *green business value*, from which companies can reap long-term benefits.

Second, return service convenience should be prioritized in green communication; the green value of the service comes second. On the basis of our empirical results, it is clear that service convenience is most influential in green communication; companies should thus focus on this "selling point". For example, on the return policy webpage, the convenience of the return service should be highlighted so consumers notice it more easily. The green value of the service can be mentioned at a lower priority. For example, the pro-environmental outcomes of the service can be mentioned after the convenient return process. Marketers should be cautious about the effects of push factor or pain point marketing in green communication, as our study has indicated that the effectiveness of such pain point marketing could be relatively low.

Third, habit-changing initiatives are not recommended when advocating for more package-free returns. Habit-changing initiatives or interventions are commonplace in marketing campaigns [97]. However, based on our finding, the mooring effect of habit on switching intention is very weak. Companies cannot simply repeat their normal practices in marketing campaigns. The ecommerce return service is just one component of the entire

value proposition of ecommerce. Companies can focus on other aspects when promoting the green return service.

Finally, additional attention should be paid to consumers with different return frequency behaviors. Even though the effect of ecommerce return frequency on switching was small, it was found to be significant in our study. Therefore, companies may need to pay additional attention to consumers with different return frequency behaviors. Previous research has indicated that consumers with higher return frequency behaviors could provide more profits than consumers who barely ever make returns [98]. Companies may need to increase the accessibility and usability of the green return service for frequent returners. For example, on the basis of return data, package-free return points can be assigned to communities with many frequent returners.

## 6. Future Research Directions and Limitations

On the basis of an analysis of the package-free return mode, we have considered push factors most relevant to the package-free return service. However, other potential factors may also be considered to nudge consumers to switch to the green return service. The in-store benefits of package-free returns were not included in our model because such benefits, such as in-store exchanges or try-ons, are uncertain. For example, omnichannel retailers such as Zara allow consumers to return online purchases in store, but on their return policy webpage, they do not guarantee that all returned items can be exchanged for products in the store. Future research might study how in-store benefits, as a push factor, influence consumers to switch.

The return procedure used in our survey scenario is based on current return management practice. It relies on store associates examining and processing returns. As mentioned previously, the accessibility of the package-free return service is the key to growing this business. In the future, the proliferation of return technology can enable further developments in the ecommerce return model. For example, Happy Returns have created a self-service return solution for retailers to address the pain point of physical stores relying on manpower [38]. Consumers no longer need to wait in a line for store associates to process their returns and instead use a self-service return kiosk to return their items themselves [38]. Hence, future return behavior research could examine the antecedents of green switching in a context in which frontier return technology is adopted.

China is a country with a huge population from various cultural and regional backgrounds. Therefore, our research sample may not be sufficient to represent all kinds of Chinese consumers with various consumption behaviors. Future research targeting a specific segment of Chinese consumers (e.g., consumers from rural regions) can re-examine the variable relationships found in our study.

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**Institutional Review Board Statement:** Because of the observational nature of the study, and in the absence of any involvement of therapeutic medication, no formal approval of the Institutional Review Board of the local Ethics Committee was required. Nonetheless, all subjects were informed about the study and participation was fully on a voluntary basis. Participants were ensured of confidentiality and anonymity of the information associated with the surveys. The study was conducted according to the guidelines of the Declaration of Helsinki.

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** The data are not publicly available due to privacy restrictions.



**Conflicts of Interest:** The authors declare no conflict of interest.

**Appendix A. Relevant Studies Using PPM Framework**

Author(s)	Switching from A to B	Push Factor(s)	Pull Factor(s)	Mooring Factor(s)
Hazen et al. [20]	From purchasing new products to purchasing remanufactured products.	Price	Government incentive Environmental benefits	Attitude
Sajjad, Asmi, Chu, and Anwar [22]	From motorized vehicles to electric vehicles	Environmental quality Strict regulative environment	Alternative attractiveness Supportive normative environment	Self-efficacy Willingness to pay for electric vehicles
Sajjad, Chu, Anwar, and Asmi [23]	From motorized vehicles to green vehicles	Smog knowledge Smog health risk Regulative environment Perceived environmental threats	Alternative attractiveness Normative environment	Self-efficacy Switching cost
Wang et al. [24]	From private vehicles to green vehicles	Perceived inconvenience Financial risk Performance risk Psychological risk Extent of external information search	Green transport policies and campaigns Green transport system Environment quality Service quality Need for touch	Inertia
Widodo et al. [99]	From online channel to offline channel	Product fit uncertainty Purchase involvement	Alternative attractiveness	Internet experience
Haridasan et al. [95]	From one channel to an alternative channel	Higher price of brand new products	Government incentives Environmental benefit	Multi-channel self-efficacy Switching costs
Perez-Castillo and Vera-Martinez [21]	From purchasing new products to purchasing remanufactured products.	Dissatisfaction with the refund speed in the mail return mode Dissatisfaction with the return cost in the mail return mode	Perceived convenience of the package-free return service Perceived green value of the package-free return service	Attitude toward remanufactured products Green purchase behavior
The authors of the present study	From mail return service to package-free return service			Mail return habit

**Appendix B. Scenario for Survey**

Imagine you find a pair of shoes on an e-shopping platform, Pingfeng. You buy it. After being delivered home, you are dissatisfied with it and then you want to return it and get the money back. The e-shopping platform informs you that they add an alternative return service, Package-Free Returns, to the existing Return by Mail service. The content of the two services can be seen below:

*Appendix B.1. Return by Mail*

If this return option is chosen, a courier will be sent to your place to pick up the product. Pingfeng reminds you that returned items must be well-packaged. If the returned product was not deemed as resalable (including damages caused by shipment), your return could be denied by the ecommerce platform. Since it takes time for the shipment sector to pick up and deliver the item and the e-shopping platform needs time to receive and process the item and return the money, it takes around 2 weeks for the e-shopping platform to make the reimbursement.

### Appendix B.2. Package-Free Returns

If this return option is chosen, the e-shopping platform indicates that it has a return point in a store near to your home. The platform will send you a QR code; then you can directly bring this code and the product to the return point without packing it up, and your return will be examined by an associate and then your return is completed. You do not need to pay any fee for returning the item. When the return is accepted on the spot, the e-shopping platform immediately makes the reimbursement for you. Pingfeng states that if all of their returns are made via the package-free return option, massive delivery packages are reduced, and the greenhouse gas emissions reduction amounts to 54.4 tons and 6596 trees are saved per year (see [7,9]).

### Appendix C. Measurements

Dissatisfaction with the refund speed in the mail return mode (adapted from [100])  
(All items are measured from 1: strongly disagree, to 7: strongly agree.)

In the mail return mode, since it takes time for the shipment sector to pick up and deliver the item and the e-shopping platform needs time to receive and process the item and return the money, it takes 2–6 weeks for the e-shopping platform to make the reimbursement. To which extent you are dissatisfied with the refund speed?

1. I feel unhappy about the refund speed in the mail return mode.
2. I am not pleased with the refund speed in the mail return mode.
3. I am not satisfied with the refund speed in the mail return mode.

Dissatisfaction with the return cost in the mail return mode (adapted from [100])  
(All items are measured from 1: strongly disagree, to 7: strongly agree.)

In the mail return mode, if the e-shopping platform (Pingfeng) told you that you need to pay a shipping fee for the return shipment when you choose the mail return option, to which extent you are dissatisfied with paying the shipping fee?

1. I feel unhappy about paying the shipping fee for mail returns.
2. I am not pleased with paying the shipping fee for mail returns.
3. I am not satisfied with paying the shipping fee for mail returns.

Perceived convenience of the package-free return service (adapted from [101])  
(All items are measured from 1: strongly disagree, to 7: strongly agree.)

1. The package-free return service is very convenient to use.
2. It does not take much time to make a package-free return.
3. This e-shopping platform (Pingfeng) provides ease procedures of making package-free returns.
4. A first-time returner could use the package-free return service without much help.

Perceived green value of the package-free return service (adapted from [102])  
(All items are measured from 1: strongly disagree, to 7: strongly agree.)

1. The package-free return service provides more benefit than the cost (returning items to the return point takes time and effort) of getting it [Dropped].
2. The package-free return service pays more attention to the natural environment than the mail return service.
3. The package-free return service is more beneficial to the natural environment than the mail return service.

Mail return habit (adapted from [103])

(All items are measured from 1: strongly disagree, to 7: strongly agree.)

When I return products bought online, returning by mail is something that . . .

1. . . . gives me a strange feeling when I do not return items by mail [Dropped].
2. . . . I do totally automatically.
3. . . . I do without thinking about it.
4. . . . is part of my routine to process returns.

5. ... is typical for me to make returns.
6. ... does not require any deliberation.

Switching intention (adapted from [104])  
Semantic scale (point 1 to point 7).

In the past, you use the mail return service to return items bought from Pingfeng. It is \_\_\_\_\_ that I would switch from the mail return service to the package-free return service when I plan to return purchases from the e-shopping platform.

1. Unlikely/Likely
2. Improbable/Probable
3. Impossible/Possible
4. Uncertain/Certain

Green loyalty (Adapted from [40])

(All items are measured from 1: strongly disagree, to 7: strongly agree.)

1. I would recommend this e-shopping platform to my friends or others because it is environmentally friendly.
2. I would like to come back to shop on this e-shopping platform in the near future because it is environmentally friendly.
3. This e-shopping platform shop would be my first choice over other e-shopping platforms because it is environmentally friendly.

Ecommerce return frequency

How many ecommerce returns you made in recent three months?

1. 0
2. 1–3
3. 4–6
4. 7–10
5.  $\geq 11$

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