Retail Return Policy, Endowment Effect, and Consumption Propensity: An Experimental Study

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Abstract

The impact of retail return policy on consumer behavior has not drawn enough attention from researchers. Lenient return policies insure consumers against having regret after purchasing, so they may increase consumers' likelihood of purchasing. The behavioral theory of endowment effect suggests that consumers may then have a harder time returning purchased goods because people value objects more highly once they own them. We conducted a test of our hypotheses on how return policy and endowment effect influence purchasing tendency and return rate. This experiment proved that endowment effect did affect the returning behavior of consumers. It showed that lenient return policies significantly increased initial purchasing tendency but did not increase return rate. This suggests a potential to increase consumption by adopting lenient return policies.

KEYWORDS: retail return policy, endowment effect, consumption propensity

1. INTRODUCTION

This paper examines how retail return policies affect consumers' likelihood of purchasing goods and of returning those goods. In particular, we propose that consumers' likelihood of returning purchased goods may be affected by the *endowment effect*, which refers to the tendency for people who own an object to value it more highly than those who do not own it (Kahneman et al., 1991). This implies that consumers will be reluctant to return goods once they have purchased them. The combination of endowment effect and the *signaling effect* of a lenient return policy has the potential to increase the net purchasing rate and the consumption levels.

A lenient return policy allows consumers to return goods with money-back guarantees. Previous studies have shown that manufacturers can use lenient return policies to signal the quality of their products (Moorthy and Srinivasan, 1995). Lenient return policies also allow consumers to sample the products before deciding their preferences about them (Che, 1996). They are likely to increase consumers' purchasing propensity. This is because consumers are faced with uncertainty and incomplete information at the time of purchasing.

Most of the existing research on return policy has focused on the business side, especially on profit implications of return policies (Chang and Pao, 2007; Pasternack, 1985). The impact of return policy on consumer behavior has not been researched much. The studies on the signaling effect of return policy have been mostly theoretical. The fact that retail industries in different countries practice very different return policies makes it worthwhile to study empirically the impact of these differences on consumer behavior and even on the economy as a whole. It is possible that lenient return policies widely practiced in a country contribute to higher consumptions and lower savings in that country. To provide insight into this issue, we begin with a modest experiment with everyday consumable goods. This serves as an exploratory study before further research can be done along this line.

We tested our hypotheses about return policy and endowment effect with an experiment in China. The experiment structured the return policy in three levels: two return-guaranteed conditions with different return deadlines, and one no-guarantee condition. This study contributes to the literature on endowment effect, retail return policy, and consumer behavior in the following ways. First,

our experiment directly tested whether consumers' tendency to purchase goods was higher under return-guaranteed policies than under no-guarantee policy. This provides an empirical testing of signaling effect of return policy.

Second, we tested endowment effect in varying ways. Earlier studies of endowment effect have mostly focused on the differences between buyers' willingness to pay and sellers' willingness to accept immediately after the buyers are endowed with an object. We replicated the existence of this endowment effect with Chinese subjects in a typical setting of buyer and seller comparison. We also put endowment effect into a real-world policy application by examining how it affected the buyers' tendency to return objects purchased under different return policies. We allowed the buyers to own the object for a longer time, one day or two weeks, before deciding on whether they wanted to return the object. This made it possible to test endowment effect in a more realistic setting of economic activity and to test the duration effect of ownership. Furthermore, with a novel design for our experiment, we were able to compare the buyers' returning behavior under a lenient return policy to the "regret" level of the buyers who were not given return guarantees at the time of purchase. If the buyers under these conditions returned at similar rate, it means that those who increased purchases under a lenient return policy were reluctant to give up their extra purchases.

Finally, our experiment showed that, due to signaling effect and endowment effect, lenient return policies could increase the net purchasing rate of consumers.

The rest of this paper is organized as follows. The second section reviews the literature on return policies and the endowment effect, and derives the hypotheses to be tested. The third section describes the experimental method and design. The fourth section discusses the results. The fifth section concludes by discussing the policy implications and future research.

2. BACKGROUND AND THEORY

2.1 Return Policy

The roles of return policy for consumers can be summarized as signaling and regret avoidance. Consumers value lenient return policies that allow them to change their minds, give them the flexibility of returning products at variable

times, and give them full and undisputed refunds. Since managing product returns involves transaction costs, retailers have low incentive to provide money-back guarantees for low-quality products[1]. Therefore, lenient return policies can signal a high-quality product. Zeelenberg and Beattie (1997) also stressed that regret expectation is important for decisions, and people are regret-minimizing rather than risk–minimizing. Under restrictive return policies, consumers should engage in greater deliberation (Janis and Mann, 1970) or avoid the decision altogether (Luce et al., 1997). Therefore, lenient return policies should increase consumers' purchasing propensity.

While retail managers may use a lenient return policy to signal the quality of their products, they may also have concerns that a lenient return policy can result in high returns and excess costs (Davis et al., 1998). They also worry about possible abuse of the return policy by some consumers (Reynolds and Harris, 2008; Harris, 2008). Most research on return policy is from the business strategy perspective. Hess and Mayhew (1997), for example, explored a method to control returns by identifying either customers or products with high returns. Not much has been done to examine the impact of return policy on consumer behavior.

The conflicting roles of return policy may have resulted in the wide range of return policies in different countries. In some developed countries, like the U.S., retailers tend to offer lenient product return policies as part of their marketing strategy. According to Blodgett et al. (2006), retailers in the U.S. offer the most lenient return policies compared with other countries. The "no-questions-asked" full refund policy is common among U.S. retailers. In many other countries, especially developing countries, returns are not normally accepted (except under very restrictive conditions). For example, in China, the general return policy is that products can only be returned within 7 days and only if the products are defective. The obvious difference between these two types of policies is that one is based on the standard of "satisfaction" and the other is based on the standard of "quality." For some products, consumer preferences are not affected simply by the quality of the product. Che (1996) defined a group of products as "experience goods" for which consumer preferences depend on their sampling the products to gain more information about them. This means that even

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[1] It is assumed here that managers are not aware of the endowment effect on consumers. Research has shown that people usually underestimate the endowment effect on others (Van Boven et al., 2003).

if a product is not defective, consumers may experience preference change or regret.

The differences between the economies of the U.S. and China in their retail management policies, including return policies, may have had a nontrivial impact on their consuming and saving behavior, but this has not been researched on. Most economic studies of consumption propensity are based on traditional theories of rational decision-making (Modigliani and Cao, 2004); they may be limited in explaining actual consumer behavior. A survey conducted by Wang and Wang (2008) in China suggests that restrictive return policies could reduce consumer likelihood to purchase. Consumers in the survey rated the factors that might influence their consumption likelihood, including some financial factors and other factors related to shopping experience. These factors included income, social insurance program, interest rate, retailer credibility, shopping environment comfort, the retail return policy, and so on. Among nine factors, consumers rated a lenient return policy as the highest in importance. Consumers in the survey estimated that their consumption would increase by an average of 27% if a lenient return policy had been available, ranging from 20% for durable goods to 30% for apparels. Consumers indicated that they gave up purchasing opportunities 43% of the time due to uncertainty. It seems that lenient retail policy can play an important role in increasing purchasing propensity. Our experimental study will complement the survey findings.

2.2 Endowment Effect

"Endowment effect" describes the tendency for people to value an object more because they own it. This can reduce the number of trades in a market. For example, in Knetsch's (1989) experiment with mugs and chocolate bars, undergraduate students were much more likely to keep the good they were endowed with when they were given the opportunity to trade: 89 percent of those originally endowed with a mug chose to keep the mug, and 90 percent of those endowed with a chocolate bar decided to keep the chocolate bar. This has also been tested in experiments by comparing the difference between the buyer's willingness-to-pay (WTP) and the seller's willingness-to-accept (WTA) (Kahneman et al., 1991). The endowment effect can be derived from loss aversion, as incorporated in prospect theory (Kahneman and Tversky, 1979).

Some have debated that the cause of the WTP-WTA discrepancy is general loss aversion instead of endowment effect (Brown, 2005); others have shown that endowment effect was attenuated by the experience of traders even when their experience was in trading different types of goods (List, 2003; List, 2004). Our take on these debates is that endowment effect is consistent with loss aversion;[2] the absence of endowment effect among experienced traders does not rule out its impact on the general consumers.

Most of the experiments on endowment effect have examined the instant endowment effect that is experienced immediately after an object is obtained. Strahilevitz and Loewenstein (1998) extended the analysis to include adaptation and duration effects. The value of gaining an object for an individual who does not possess it is smaller than the value of not losing it for an individual who already possesses it and has adapted to such possession. The adaptation may take time to take effect fully. If people adapt to ownership gradually, an individual's buy-back price for a previously owned object will increase as a function of how long the person has owned the object. This was referred to as the "duration-of-current-ownership-effect." Their experiment validated such an effect by varying endowment durations ranging from 20 minutes to 1 hour. In real situations, ownership durations can be much longer than these treatments.

Endowment effect has implications for marketing. If consumers are reluctant to return goods once they are purchased, then the retailers' worry about excess product returns under lenient return policies may be unwarranted. The duration effect of ownership further implies that a long return period may reduce return rate more than will a short return period.

The only behavioral study we found that examined endowment effect under return policy was Wood's (2001) experiment on remote purchasing. In particular, Wood's study tested how return policy and endowment effect influenced consumer deliberation time for decision making: first, when they ordered a product, and then when they received the product and decided on whether or not to keep the order. The lenient return policy guaranteed full refund, while restrictive return policy did not refund shipping costs for returns. The endowment effect was facilitated by the time lag between product order and product receipt. Wood's main proposition was that, through reducing decision

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[2] Endowment effect is also consistent with status quo bias or laziness, but for the purpose of this study, we include them all in endowment effect.

conflict and allowing the flexibility of return, lenient return policy would reduce consumer deliberation time at the ordering stage. With no endowment effect, consumers would then need to compensate this with a longer deliberation time for decisions at the keep-or-return stage. With endowment effect, however, consumers would fail to give sufficient deliberation to the decision to keep or return the product because of their sense of ownership. The experiment confirmed that lenient return policy reduced consumer deliberation time at the stage of ordering and increased their rate to order the product, but it did not increase consumer deliberation time at the stage for keep-or-return decisions.

The above experiment also showed that greater lenience in return policy created higher quality expectations that remained higher than in restricted conditions even after the subjects received the products. Subjects under a lenient return policy were also less likely to continue product search for competing alternatives. This evidence should reduce, if not get rid of, managers' worries that casual orders of products under a lenient return policy would lead to higher returns at later stage. Wood's experiment, however, did not formally test the return rates in different conditions.

2.3 Hypotheses

This section explains how our study complements the existing studies on return policy and endowment effect and outlines the hypotheses tested in our experiment.

While Wood's experiment provided evidence of positive effects of lenient return policies on remote purchasing and endowment effect in consumers after remote ordering, it failed to find similar results in their brick-and-mortar conditions. Wood concluded that the positive effects of lenient return policies were unique to remote vendors. We believe that this is due to the special characteristics of food products used and the design of their experiment. Food is easily evaluated by tasting, and consumers do not need the flexibility of returning food products after tasting. Consumer evaluations of most other kinds of products cannot be made as quickly as with the tasting of food. Research on this issue with other products would be worthwhile.

The design of Wood's experiment was to ask the subjects to make the keep-or-return decision immediately after receipt of the product. This way, the

subjects in the brick-and-mortar condition did not have enough time to own the product before making the keep-or-return decision. This does not seem to reflect the real-world return environment where consumers usually take home purchased goods and then make the decision to keep or return after some time. In fact, we can also consider consumer decisions for regular store purchasing as being made in two stages: stage one is to decide whether to purchase a good in the store; stage two is to decide, after taking the product home, whether to return the product before the return deadline. Our experiment consists of two sessions on different days that reflect these two stages of decision-making by consumers.

Our study differs from Wood's experiment in a few aspects. First, our study is of "in-store" purchasing of everyday consumable goods when consumers have the opportunity to examine the product in person, but not as far as tasting a food product. Second, we provide three possible return policies: full return guarantee with a long return deadline, full return guarantee with a short return deadline, and no return guarantee. We consider it important to include the condition of no return guarantee, which may better reflect the retail practices in China. Our experiment does not include shipping costs or other costs for returning a good. Third, we examine the effect of return policy on consumers by using purchasing rates and return rates that were not formally tested in Wood's experiment. Deliberation time is probably not a complete measure of how carefully consumers make decisions across different conditions. Decisions can be made with varying degrees of caution within the same amount of time. Therefore, the purchase and return decisions themselves are also important to study.

Our experiment contributes to the research on endowment effect in the following ways. First, while most of the existing studies have been done in Western countries, our experiment at the first stage helps to show whether the same behavioral pattern exists with Chinese subjects in a typical setting of buyer and seller comparison. Second, and more importantly, our two-stage experiment puts the study of endowment effect into a real-world policy application. The buyers at the first stage evaluate the objects under three different return policies. This not only tests the signaling effect of return policies, but also offers the opportunity to test whether return policy serves as a mechanism to break the status quo of buyers and attenuate the gap between buyers' and sellers' valuations. After some buyer-subjects have bought the goods under different return policies, they decide whether they want to keep or return the goods some

days later. This makes it possible to test endowment effect with duration of ownership. The duration of one day or two weeks is more realistic for consumers' return decisions than the duration offered in Strahilevitz and Loewenstein (1998). A longer duration of ownership may adapt the consumers more to a product, thus they will find it harder to part with a purchased product.

Based on the above analyses and the two-stage model with three policy alternatives, we test the following hypotheses. The first two hypotheses are tested on the first stage of the experiment when seller-subjects are endowed with an object and buyer-subjects are not. They are both asked to evaluate the object. Buyers' purchasing decisions are subject to one of the three return policies.

> H1: *Instant endowment effect*: People who are endowed with a good will value it higher than will those who are not endowed. Therefore, buyers' WTP is lower than sellers' WTA.
> H2: *Signaling effect*: Buyers' initial valuations of the good are higher under a lenient return policy than under a stringent return policy. Furthermore, a long-return deadline may have a stronger signaling effect, so the initial WTP values of buyers in the long-return treatment are higher than those in the short-return treatment.

We call this positive effect on purchasing likelihood the "signaling effect" even though it may include a combination of other factors such as assurance against regret or preference reversal that can increase option values for consumers.

The next three hypotheses are tested in the second stage of the experiment when buyers (consumers) are asked to evaluate whether they would like to return the purchased goods after a long or a short return period.

> H3: *Duration effect*: Final evaluations by consumers are higher and return rate is lower in a long-return period than in a short-return period.

Figure 1 helps explain the rationale of our test of the endowment effect on return behavior. The horizontal axis represents the two stages of the buyers' decisions. The vertical axis represents purchasing rate. The bottom line in the figure represents decisions of those buyers under no return guarantee. Their initial

purchasing rate is lower than those buyers under lenient return policies. After purchasing at the first stage with incomplete information about the product, some of them would have regret or change their preferences after experiencing the product. If these buyers are not allowed to return the goods, they would have to live with their "remorse". The special design of our experiment makes it possible to measure the likelihood of regret for these buyers. After they make initial purchasing decisions under the no-return guarantee, we tell them later that our return policy has changed so that they can return their purchases. Those buyers with regret would now return their purchases at the second stage. The right end of the line, representing final purchasing rate, is lower than the left end of the line. The difference between the two ends of the line represents the return rate.

The top solid line and the middle dotted line in Figure 1 represent decisions of the buyers under lenient return policy with endowment effect or without endowment effect. Their initial purchasing rate is higher because these buyers can inflate their valuations without costly regret. In case of no endowment effect, represented by the middle dotted line, these buyers would return more goods to correct their higher initial purchasing rate due to inflated initial valuations. Assuming the buyers' true preferences for the good (without endowment effect) have the same distribution across condition groups, the lenient policy group would return to the level that makes their final purchasing rate the same as those under no return guarantee. With endowment effect, however, the buyers will not return the extra purchases. Assuming here that the endowment effect makes the buyers keep all extra purchases due to policy signals, they will only return to the same level as the regret level of those under no-return guarantee[3]. This will lead to a higher final purchasing rate under lenient return policy, as represented by the top solid line. This can be seen more clearly with our experiment design in the next section. The endowment effect discussed above can be expressed by the following hypotheses.

H4: *Endowment effect in return*: The likelihood for buyers under a lenient return policy to return purchased goods is the same as the likelihood for buyers under a no-return policy to regret their purchase.

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[3] This will make the two solid lines parallel. In real life, the endowment effect is likely to make the buyers keep some of the extra purchases but not all, so the top solid line is likely to be steeper than the bottom solid line.

H5: *Net purchasing*: More lenient return policies lead to higher rates of net
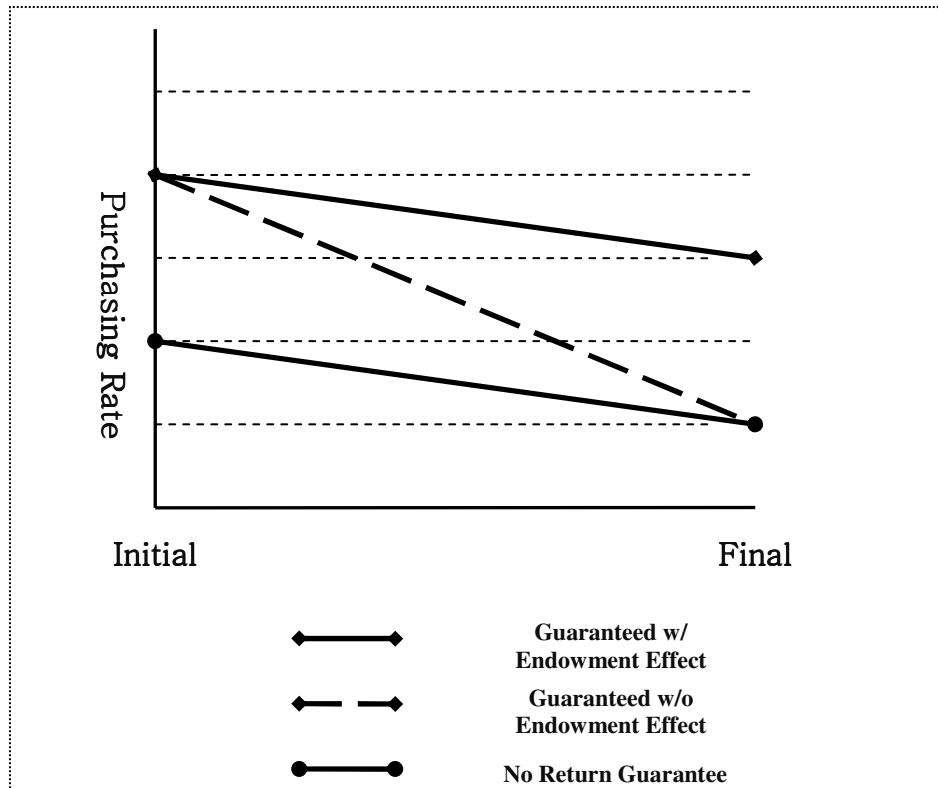purchases and consumptions.

Figure 1. Influence of Return Policy and Endowment Effect on Initial
and Final Purchase

3. METHOD

The experiment was run at a university in Beijing, China. Two classes of first year
undergraduates taking an economics course participated in the experiment in three
treatment groups. The experiment was used to demonstrate psychological
influences on consumer choice. The first class had 50 students in one treatment
group while the second class had 87 students divided into two treatment groups.
Since all the subjects were first year undergraduate students majoring in
economics, it's reasonable to assume that the three groups were not much

different in general consumption propensity for the small goods (highlight markers and cups) used in our experiment.[4]

Each treatment group participated in two stages of the experiment on different days, each taking place before a class lecture. The first stage resembled the shopping stage in a store, where about one-third of the subjects (sellers) were randomly endowed with a small good, while others (buyers) were not. The purpose of the unequal number was to have more buyers so that we could test return behavior. For each treatment group, we conducted the experiment with two different goods as the endowment, first with highlight markers, and then with cups,[5] but no subjects received two goods. These two products were colorful and were attractive to the students. Since we tried to distribute the good evenly across the classroom, those who were not endowed with the good had the chance to inspect it by looking at that of their neighbors. Everyone was then given a form to fill out (see Appendix A). Those endowed with the good were asked the minimum amount they were willing to accept (WTA) to give up their endowed good. Those not endowed with the good were asked the maximum amount they were willing to pay (WTP) to obtain the good, which they didn't own.[6] After the forms for the highlight markers were collected, the second good, cups, was distributed to another third of the subjects.

The price of the good was predetermined and sealed in an envelope. The subjects were told that their valuations had no influence on the price, so it was in their best interests to state their true values. If a buyer's WTP was greater than the price of the good, the buyer obtained the good and paid the predetermined price to

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[4] To make a stronger argument, it would be helpful to provide summary statistics of the subjects such as gender, age, income, etc. We know from China's enrollment system that the ages of freshmen students are almost always the same. We did not have the income information, but the enrollment of students was not expected to be dependent on their income levels. The class of 50 students met twice a week, making it possible to expose them to the short-return treatment to be discussed later. The class of 87 met in the morning of the same day as the other class, except one at 8:00am and the other at 10:00 am. We did not expect this to cause the students behave differently in the experiment. Gender is likely to affect the subjects' preferences for certain products or the degree of endowment effect. We provide the gender distribution in our design and analysis later on.

[5] Before the experiment in these two classes, we ran a pilot experiment in another class with highlight markers and wallet-size cardholders, to test whether the goods we chose were reasonably desirable to the subjects. The cardholders received low evaluations, but we still found a significant endowment effect in the pilot experiment.

[6] The students were told to bring cash to class for the experiment so that they were not likely to be budget-constrained. Also, they could get loans from the instructor if they didn't bring cash.

the experimenter. If a seller's WTA was lower than the price, the seller gave up the good in exchange for cash. The buyer's purchases were subject to different return policies in each treatment. Exchanges and payments were processed with the experimenter after forms for the second product – the cups – were collected. This process was explained to the subjects at the beginning.[7] Because the experiment was conducted in class, the subjects did not receive a "show up fee."

The return policy for the buyers was the main treatment variable. In the long-return treatment, buyers were told they could return the good within two weeks during which the class would meet twice. In the short-return treatment, buyers were told they could return the good the next day in class. In the no-return treatment, buyers were told at the first stage that goods purchased could not be returned; in the next week, however, they were told that the return policy had changed and they could return the purchased goods in the second week. The policy change in the third treatment from no-return to could-return was important for testing our hypotheses. The no-return part in the first stage allowed us to examine the signaling effect of return policy. The change to could-return in the second stage made it possible to examine the likelihood people regretted the purchase or changed their minds when they, faced with no return guarantee in the first stage, had supposedly made more careful decisions. This would provide a benchmark of return rate for comparison with the return rate in the lenient return treatments.

Even though the subjects were not restricted to class time to return unwanted goods, it's natural that nobody chose to make returns outside class time. In the class, when the return deadline was up, all subjects were asked to fill out a form that elicited their current valuation of the object, i.e., WTP for those who did not own the goods at the moment and WTA for those who owned the goods at the time. Those who bought a good earlier were asked whether or not they wanted to return it. Those who returned their purchase were refunded with cash. Table 1 summarizes the experiment design. The gender distribution in each treatment group is shown in Appendix B.[8]

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[7] To avoid the possible confusion that the trading might be between the owners and non-owners, the instructions did not use the words "buyers" or "sellers" to describe the subjects' roles. Therefore, the subjects should have clearly understood that they would exchange the payments or goods with the experimenter rather than with the other subjects. They would not have an incentive to take a bargaining position.

[8] We did not try to balance the gender distribution beforehand.

Table 1. Experiment Design

	1. Long-Return	2. Short-Return	3. No-Return
Return Guarantee	Yes	Yes	From No to Yes
Return Deadline	Two weeks	One day	Two weeks

Table 2. WTP and WTA Comparison for Markers

Values in CNY[a]	Long-Return Policy	Short-Return Policy	No-Return Policy	Pooled
WTA[b]	5.41	5.19	2.76	4.69
(std. dev.)	(3.12)	(3.06)	(1.36)	(2.93)
(n)	(14)	(15)	(9)	(38)
WTP	2.60	3.46	1.97	2.73
(std. dev.)	(1.04)	(2.49)	(0.69)	(1.73)
(n)	(30)	(28)	(22)	(80)
Difference	2.81	1.73	0.78	1.97
p-values for Pr > |t|	0.0053	0.0518	0.1313	0.0004

Note: When a test confirms equality of variance between variables, pooled t-test is reported. Otherwise, Satterthwaite t-test is reported. [a.] "CNY" represents the Chinese Yuan. [b.] A couple of seller outliers gave valuations higher than 15 in the long-return and short return conditions. We truncated them into 11. The same was true with cup sellers. This did not change any of our conclusions.

4. RESULTS

4.1 Instant Endowment Effect

The first part of the experiment examined whether the endowment effect as documented in previous literature can be replicated among Chinese subjects. The instant endowment effect measures the differences between the buyers' WTP and sellers' WTA values of an object immediately after the sellers were endowed with that object in the first stage. Hypothesis 1 (H1) predicts that WTA values should be higher than WTP values.

Table 3. WTA and WTP Comparison for Cups

Values are in CNY[a]	Long-Return Policy	Short-Return Policy	No-Return Policy	Pooled
WTA	6.81	4.65	2.78	4.95
(std. dev.)	(3.11)	(3.00)	(2.84)	(3.32)
(n)	(13)	(15)	(9)	(37)
WTP	1.83	2.16	1.51	1.86
(std. dev.)	(1.28)	(1.09)	(0.78)	(1.12)
(n)	(31)	(28)	(22)	(81)
Difference	4.98	2.49	1.27	3.10
p-values for Pr > |t|	0.0001	0.0068	0.2213	<0.0001

Note: When a test confirms equality of variance between variables, pooled t-test is reported. Otherwise, Satterthwaite t-test is reported. One or two extremely high WTA values in the long-return and short-return conditions were truncated to 11. [a.] "CNY" represents the Chinese Yuan.

Table 2 shows the result for the highlight markers including the mean evaluations, the difference between sellers and buyers, and the significance level of the difference. In all three treatments, WTA values of sellers were much higher than WTP values of buyers. The difference between the two as shown in the fourth row is statistically significant in the first two treatments ($p < 0.005$ and $p < 0.05$) and nearly significant in the third treatment ($p < 0.13$). The smaller difference in the no-return treatment might be explained by the smaller sample size in this group. When pooling together all three treatment conditions, the mean WTA values were higher than WTP values by ¥1.966 ($p < 0.0004$). The results are consistent with the prediction of Hypothesis 1. The results for the cups are shown in Table 3, which displays similar patterns for the cups as for the markers.

The above results are consistent with the findings of previous research. The difference between the buyers' WTP and sellers' WTA is mainly due to the sellers' unwillingness to part with their endowment, rather than the buyers' unwillingness to part with their cash (Kahneman et al., 1991). The sellers' WTA values in our experiment were much higher than the market prices of the goods (about ¥2.00-3.00), while the buyers' valuations were not that much lower than the market prices. To examine whether there is a gender difference in endowment

effect, we compared female and male subjects in their valuations. We found that there was no difference between the female and male subjects in their WTP values for either good or their WTA values for cups, but male marker sellers' WTA values (5.9) were much higher than female marker sellers' WTA values (3.5) ($p < 0.01$). It seems that male sellers were more reluctant to part with their endowed markers.

4.2 Signaling Effect

Hypothesis 2 (H2) predicts that a lenient return policy would increase the subjects' initial valuations of the objects at the first stage. Results for both markers and cups are shown in Table 4. The second column reports the mean of buyers' evaluations with long-return and short-return policies pooled together: 3.02 for markers and 1.98 for cups. We pooled them together because we found no significant difference between a long-return policy and a short-return policy, both considered lenient return policies. The third column was the mean valuation under no-return guarantee. The mean valuations under lenient return policies were higher than those under no-return policy for both markers and cups ($p < 0.0006$ and $p < 0.04$). This confirms the prediction of H2.

Although our main focus for the signaling effect was on the buyers, the sellers' WTA values were also higher under full return conditions as indicated in Table 2 and Table 3. The mean of WTA values for the marker under full return conditions was 5.3, compared with 2.8 under no-return condition ($p < 0.001$). Similarly, this difference was significant for cups ($p < 0.02$). This might be because we announced the return policy publicly and the lenient return policy had a signaling impact on the sellers as well as the buyers.

Table 4. Return Policy and Initial Valuations

Values in CNY[a]	Long-Return and Short-Return (n=58)	No-Return Policy (n=22)	Difference	Pr > |t|
WTP for Markers (std. dev.)	3.02 (1.92)	1.97 (0.69)	1.04	0.0006
WTP for Cups (std. dev.)	1.98 (1.20)	1.51 (0.78)	0.48	0.0408

Note: [a.] "CNY" represents the Chinese Yuan.

4.3 Final Evaluations and Duration Effect

At the return deadline, subjects were again asked to fill out a form and indicate their current evaluations of the highlight markers or the cups. However, the evaluations at this stage were not given incentive with cash payments, so we have to keep this in mind when interpreting the results. We used two methods to study the duration effect: first we compared final valuations between groups; second we examined the changes of valuations over time.

Figure 2 compares the subjects' evaluations of the markers in long-return and short-return policy treatments. The marker buyers and sellers in Figure 2 were the current owners who either bought the marker or were originally endowed with the marker. It's obvious and natural that their valuations were much higher than those who did not buy the markers. The comparison between buyers in the two treatments can be seen as the duration effect since they both guaranteed full returns. Their average valuation was 3.4 in the long-return treatment and 3.1 in the short-return treatment, but the difference was not significant (p=0.62).
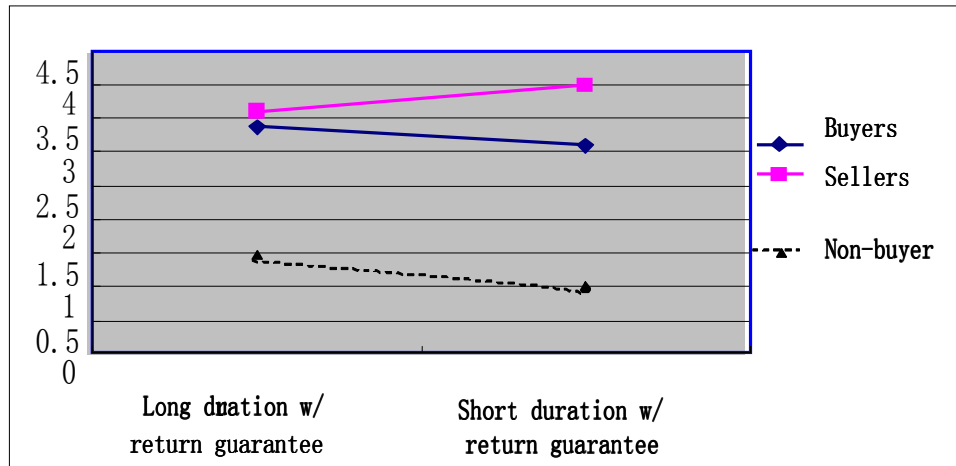
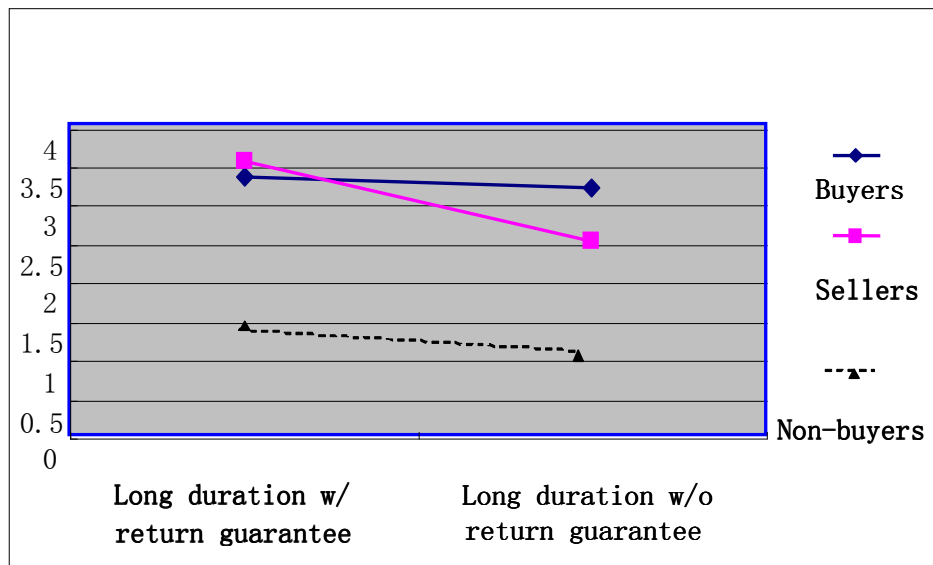Figure 2. Final Evaluation of Markers – Duration Effect

Figure 3. Final Evaluation for Markers – Return Policy Effect

Figure 3 compares the subjects' final valuations of the markers under the long-return condition and the no-return condition. Since both treatments had the same duration of two weeks, their difference could be the result of the policy difference. Their mean valuation was 3.3 in the no-return condition and 3.4 in the

long-return condition, which is not a significant difference (p=0.83). The results for cups were similar in pattern to that of the markers.

Another way to examine the duration effect of ownership is to look at the changes of valuations by object-owners from the first stage to the final stage. For this purpose, the most appropriate valuations to use are from those who bought the goods at the first stage. As shown earlier, due to instant endowment effect, the sellers' valuations were much inflated at the first stage. Those who bought the goods could experience changes of valuations in two directions. On one hand, information revealed after the purchasing of the goods might change the preferences and lower the owners' valuations; on the other hand, the duration effect of ownership might increase the valuations. We found that the valuations of those who bought the goods did not change significantly (mean change was -0.56; p=0.17), but the valuations of those who bought cups increased nearly significantly (mean change was 0.58; p<0.09). In contrast, buyer subjects who did not buy the goods either reduced their valuations significantly (mean change was -0.27 for markers; p < 0.004) or did not change their valuations (mean change was -0.134 for cups; p=0.23).

To control for the effect of preference changes, comparing changes in valuations between groups with different durations is more helpful in detecting duration effect of ownership. Table 5 reports valuation changes of subjects by the duration of their ownership for those who bought the marker or the cup. The long duration (two-week) group included those in the long-return and no-return conditions, while the short duration (one-day) group was from the short-return condition. In general, valuations increased more for buyers in the long duration group than for those in the short duration group. The difference is nearly significant for marker buyers (p<.08), but not significant for cup buyers (p=0.26).

The above analyses of valuation changes provide some support for Hypothesis 3 (H3) for duration effect with either the markers or the cups. A larger sample size may strengthen the support.

Table 5. Change of Buyers' Valuations

	Long Duration	Short Duration	Difference	Pr > |t| [a]
Marker Buyers (n)	0.14 (21)	-1.33 (19)	1.47	0.08
Cup Buyers (n)	0.94 (21)	-0.06 (18)	0.99	0.13

Note: [a.] Satterthwaite t-test was reported since equality of variance test was rejected.

4.4 Purchasing Rate, Return Rate and Endowment Effect

We tested Hypotheses 4 (H4) and 5 (H5) by examining the subjects' initial and final purchases, and return rates under different policies. The test rationale is explained by Figure 1 in Section 2.3. Returns in the no-return condition measured the regret level from revealed information or preference changes.

Table 6 and Table 7 show the initial purchases, return rate, and net purchases for markers and cups, respectively. As shown in the first row, the number of initial purchases was much higher under the full-return policies than under the no-return policy. Initial purchasing was essentially determined by buyers' initial evaluations of the good reported in Table 2, Table 3, and Table 4, so we omit the comparison tests for initial purchase rates.

The second row reports the number of returns and the return rate. Since both duration and return policy may affect a buyer's tendency to return goods, it makes sense to compare these three treatments separately. Hypothesis 4 predicts that, because of endowment effect, return rate under the long-return condition is the same as the return rate under no-return condition. After the same two-week duration, the return rate for markers was 6.67% under the long-return policy and 33.33% under no-return policy (p=0.18); for cups, it was 8.33% under long-return policy and 10.00% under the no-return policy (p=0.71). The return rates did not differ significantly across the two conditions. This is consistent with Hypothesis 4. However, because the return rate was generally low, the sample size might have been too small for a significant test for these differences. Further experiment with a larger sample would help improve the test. The fact that subjects from the

no-return policy condition did return goods when they were allowed to return proved that people did experience regret or changed their preferences even after careful decisions. The fact that those under a full-return policy did not return goods at a higher rate provided evidence that these subjects did not return more to correct their inflated valuations from the initial purchasing stage. This implies the presence of an endowment effect, and is consistent with Hypothesis 4.

Table 6. Purchases and Returns of Markers

	Long-Return Policy (n=30)	Short-Return Policy (n=28)	No-Return Policy (n=22)
Initial Purchase (rate[a])	16 (53.33%)	20 (71.40%)	8 (36.36%)
Number of Return (rate[b])	1 (6.67%)	3 (15.79%)	2 33.33%
Net Purchase (rate[c])	15 (50.00%)	17 (60.71 %)	6 (27.27%)

Note: [a.] The initial purchasing rate was computed by the number of buyers who bought the good divided by the total number of buyers. [b.] The return rate was computed by the number of returns divided by the number of initial purchases. Students who missed the class were not counted when the return rate was computed, including one in the long-return condition, one in the short-return condition, and two in the no-return condition. The return rate for the three conditions was respectively 1/15, 3/19, and 2/6. [c.] The net rate was the number of final purchases divided by n, the initial total number of buyer subjects.

In the long-return and no-return treatments, each had one subject who expressed a desire to return the marker a week earlier but forgot to bring the marker; each had two subjects who expressed a desire to return the cup but forgot to bring the cup.

Table 7. Purchases and Returns of Cups

	Long Return Policy (n=31)	Short Return Policy (n=28)	No Return Policy (n=22)
Initial Purchase (rate)	15 (48.39%)	18 (64.29%)	10 (45.45%)
Returned (rate)	1 (8.33%)	5 (27.78%)	1 (10%)
Net Purchase (rate)	14 (45.16%)	13 (46.43%)	9 (40.91%)

Comparing the short-return and the long-return, the mean return rate was 15.79% for markers and 27.78% for cups under short-return treatment; 6.67% for markers and 8.33% for cups under long-return treatment. The p-values for Fisher's exact tests of the differences between the two treatments were 0.40 for markers and 0.20 for cups, indicating no significant differences.

The net purchasing rate in Table 6 and Table 7 represents the net result of the policies' signaling effect, change of preferences from acquired information, and endowment effects on return. The results indicate that the net purchasing rate under a full-return policy was either higher than or the same as that under a no-return policy. For markers, the net purchasing rates of 50.00% and 60.71% in the two full-return conditions were significantly higher than 27.27% in the no-return condition, with p-values of 0.086 and 0.019 respectively for Fisher's exact test. This is consistent with Hypothesis 5. For cups, the differences were not significant (p= 0.49 and 0.46).

5. CONCLUSION

This study examined how return policy and endowment effect affected consumers' purchasing and returning behavior. We proved that the positive signaling effect of lenient return policy on purchasing likelihood found in Wood's remote purchasing environment is also strong in our "in-store" environment. With our two small consumable goods in the experiment, the stakes were relatively low and the features of products were easy to see at the initial inspection. With higher stakes in real life or more complicated features in the goods, the quality issue can be expected to be more important for consumers, so the signaling effect can be even stronger.

Our experiment tested hypotheses about endowment in the setting of returning purchased goods. We first confirmed the existence of an endowment effect among Chinese subjects through the gap between WTA and WTP. This has been the main focus of many existing studies on endowment effect. We focused more on two other ways of testing. One was the duration effect of ownership. We found weak support for the following: those who bought the cups increased their valuations at the final stage compared with the first stage; those who bought the markers in the long duration conditions increased their valuations more than those in the short duration condition. More importantly, our experiment design made it

possible to examine whether buyers under lenient return policy, with their higher initial purchasing rate, returned more than under no-return policy. The switch of policy in the no-return condition allowed us to benchmark the return or "regret" level of buyers when initial valuations were not inflated. With very low return rates in general, we found weak support that return rate under lenient return policy was similar to the return rate of buyers in no-return policy. One limitation of our experiment is the relatively small sample size for analyzing return rate. The results of the tests might be stronger with a larger sample size.

The combination of signaling effect and endowment effect resulted in increased or similar net purchasing rate for the goods in our experiment under lenient return policies compared with no-return policy. If the results can be generalized, they have implications for marketing strategy of companies as well as for public policy concerning consumer protection and aggregate consumption. There are a few reasons why some retailers are not providing a lenient return policy. First, retailers may underprovide lenient return policies because they have monopoly power and fail to internalize the consumers' benefits (Che, 1996). Second, they may underestimate the endowment effect on consumers (Van Boven et al., 2003). Third, retailers can reveal less information to consumers and cheat more easily by practicing a restrictive return policy. If this is the case, then public policy interventions that govern return policies may have the potential to increase general consumption levels in economies like China that are characterized by extremely high saving rate and low consumption rate.

There are several directions for future research. A field experiment in retail industries similar to our design would help to further test our hypotheses. The changing retail environment in China may provide such an opportunity. A cross-country study can examine if the same degree of endowment effect is observed among consumers in countries where different return policies have been practiced. Are consumers less affected by the endowment effect after a long exposure to lenient return policies? More studies should also examine the reasons why retailers in different cultures offer different return policies for similar products and what the consequences are for the economy.

APPENDIX A

INSTRUCTIONS[8]

For those endowed with a highlight marker in short-return treatment:

> You now own the highlight marker that you can keep and take home. You have the option of trading it for money. Please fill in the blank below to specify the amount of money you are willing to trade for it. We have predetermined a money amount for the cardholders. The amount is written on a slip of paper in the envelope. When everyone has completed the forms, the amount will be revealed. If the money amount we reveal is higher than or equal to the amount you specify below, then you will give up the highlight marker and we will give you the money. If the amount we reveal is less than the amount you specify below, then you will keep the highlight marker. All trades will take place immediately after the two sessions of the experiment. Please note that what you specify will not affect the amount written in the envelope. Therefore, it is in your interest to indicate what the highlight marker is truly worth to you.

> If the amount of money in the envelope is higher than or equal to _____, I will give up the highlight marker and take the amount revealed in the envelope.

For those not endowed with a highlight marker in the short-return treatment:

> You see we have some highlight markers you do not own now (we will give you some other goods to own later in the second session of the experiment). You have the option of getting it by paying money for it. Please fill in the blank below to specify the amount of money that you are willing to pay to get the highlight marker. We have predetermined a money amount for the highlight markers. The amount is written on a slip of paper in the envelope. When everyone has completed the forms, the amount will be revealed. If the money amount we reveal is less than or equal to the amount you specify below, you will take home the highlight

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[8] This was translated from Chinese.

marker and pay the amount of money revealed. If you do not want to keep the highlight marker afterwards for whatever reason, you can return it in the next class (tomorrow) and we will refund your payment. *If the amount we reveal is higher than the amount you specify below, then you will not get the highlight marker.…*Therefore, it is in your interest to indicate what the highlight marker is truly worth to you.

    If the amount of money in the envelope is less than or equal to_____, I will get the highlight marker and pay the amount revealed in the envelope.

For those not endowed with a highlight marker in long-return treatment:

…If you do not want to keep the highlight marker/cup for whatever reason, you can return it in the next two classes (within 13 days) and we will refund your payment.

For those not endowed with a highlight marker in no-return treatment:

…Once you've bought the marker, you will not be able to return it.

This last restriction was actually relaxed one week after the first stage had occurred.

APPENDIX B

GENDER DISTRIBUTION OF THE EXPERIMENT

		1. Long-Return	2. Short-Return	3. No-Return
Marker Buyers	Female (%)	23 (77)	15 (54)	9 (41)
	Male (%)	7 (23)	13 (46)	13 (59)
Marker Sellers	Female (%)	7 (50)	7 (47)	5 (56)
	Male (%)	7 (50)	8 (53)	4 (44)
Cup Buyers	Female (%)	20 (65)	12 (43)	11 (50)
	Male (%)	11 (35)	16 (57)	11 (50)
Cup Sellers	Female (%)	10 (77)	10 (67)	3 (33)
	Male (%)	3 (23)	5 (33)	6 (67)

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