



Linking loss aversion and present bias with overspending behavior of tourists: Insights from a lab-in-the-field experiment



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HIGHLIGHTS

- We integrate Prospect Theory and hyperbolic discounting into a single framework. We explore the role of loss aversion and present bias in the tourist's overspending behavior.
- The analysis is based upon a unique data set that combines economic experiments and a survey.
- The findings reveal interesting roles of loss aversion and present bias in tourists' behavior.
- Tourists with high loss aversion and high present bias are more likely to overspend. Finally, our study also highlights the role of group identity in de-biasing.
- Individuals are more likely to behave rationally when making decisions in groups.

ARTICLE INFO

Article history:

Received 2 August 2014
Received in revised form
21 September 2015
Accepted 27 September 2015
Available online xxx

Keywords:

Prospect theory
Present bias
Expectation
Over-spending
Lab-in-the-Field experiment

ABSTRACT

Building upon Prospect Theory and Hyperbolic Time Discounting models, we explore how behavioral factors influence the probability of overspending among outbound leisure travelers. We construct our data in two steps. First, we collect demographics and travel-related variables from a random sample of 314 Singaporean tourists across different age groups and income levels. Second, we conduct a field experiment to measure their risk and time preferences, specifically loss aversion and present bias. We then explore the link between the measured preferences to overspending behavior. The findings reveal an interesting link between loss aversion, present bias and traveling expenditure patterns: outbound tourists with high loss aversion and high present bias are more likely to overspend. Finally, our study also highlights the role of group identity in de-biasing. Specifically, individuals are more likely to behave according to standard economic models when making decisions in groups.

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"It's all very well budgeting before you go on holiday, but much harder to do so when you are actually there."

Anonymous

1. Introduction

Tourism is a special kind of consumption. People have numerous expectations about planned vacations (Gnoth, 1997), and develop budget plans accordingly, prior to international travel. Thanks to the Internet and related technologies, tourists nowadays can easily form expectations about the cost of the goods and services they

expect to purchase while on vacation. Yet, it is possible that the actual cost of those goods and services will be higher than expected. If this happens – and tourists adhere to their original plans to purchase the desired goods and services – they will exceed their planned budgets. On the other hand, not purchasing them can lead to feelings of loss and disappointment from unmet, pre-travel expectations. Hence, loss aversion plays a key role in driving the tourist's decision about whether to purchase the desired goods to fulfill their pre-travel expectations, or avoid overspending instead.

As such, overspending behavior depends heavily on the price of the goods and services. A long this line, Nicolau (2007) stresses the importance of reference prices in the formation of price perceptions. Thaler (1980) and Erdem, Mayhew, and Sun (2001), along with many other researchers, have found that reference prices have a consistent and significant impact on consumer behavior. For any given price, the consumers compare it with the reference price.

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<http://dx.doi.org/10.1016/j.tourman.2015.09.019>

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Such a comparison leads consumers to perceive the given price as a gain or loss, depending on whether the actual price is less or greater than the reference price. One of the key concepts in this study is loss aversion, which implies that changes from reference points may be valued differently depending on whether they are gains or losses. Schmidt and Zank (2005) note that loss aversion is an important psychological concept, which has received increasing attention in economic analysis to explain anomalies in traditional choice theory.

In tourism, the analysis of loss aversion is especially relevant because of the high-risk nature of the tourism industry (Cooper, Fletcher, Fyall, Gilbert, & Wanhill, 2008). In addition, Nicolau (2008) notes that tourism is characterized by high consumer involvement with important psychological connotations. Oh (2003) does not find evidence that asymmetric effects of price deviations exist in individuals' judgments of price perceptions, within the context of room prices of an upscale U.S. hotel. While looking at admission fees to a Texas state park, Kim and Crompton (2002) show that economic factors are better explanatory variables for perceptions of admission prices than behavioral factors. Despite the relevance of loss aversion in tourism, Nicolau (2011) notes very few studies that explore its effect on tourists' behavior. We fill this gap in the literature by examining the link between loss aversion, and overspending behavior among travelers.

Closely related to our study, Nicolau and Mas (2006) and Nicolau (2008/2011) have proposed a novel methodology to estimate the loss aversion parameters based on the Random Parameter Logit model. These studies find evidence of loss aversion among tourists, and focus on price as the reference point. Our study is relatively unique in several aspects. First, these above studies estimate the loss aversion parameter by incorporating the reference-dependent model into a Multinomial Logit Model with Random Parameters, which controls for heterogeneity. The estimation is based on structured questionnaires. Evidence in favor of loss aversion emerges when people react more strongly to price increases than to price decreases, relative to the reference price. In this study, we measure loss aversion using a lab experiment that provides participants with real stakes, giving them incentive to reveal their true preferences. In line with Nicolau's insight, we also estimate the loss aversion for each individual to incorporate consumers' heterogeneity into the modeling. Secondly, in addition to the loss aversion parameter, we estimate the present biased parameter. This parameter plays a key role in exploring the impulsive tendency of tourists, which explains their overspending. Finally, we integrate loss aversion and present bias into a single framework to explore tourists' decision making behavior. Overall, we believe that our estimation methods complement Nicolau's novel approach by incorporating behavioral factors into tourism's decision models.

Another factor that can explain overspending behavior among tourists is the desire for instant gratification. Earlier studies use exponential discounting to explain consumption behavior. Yet exponential discount rates tend to decline over time and exhibit a "present bias," or preference for immediate consumption. An equivalent definition of present bias is the tendency to exercise patience in the long-term, but demonstrate impatience in the short-term. A present biased tourist may plan to limit expenditures before travel (the long-term perspective), but may actually spontaneously discard that plan and spend more when they arrive in the destination country (the short-term perspective). Present bias may become evident in the context of tourism due to the exciting and foreign atmosphere of travel. According to Lin and Chen (2013) the fun, fantasy and social or emotional gratification related to travel might trigger an unplanned and spur-of-the-moment decision to purchase goods (McaGoldrick, 1990). Despite its relevance, to our best knowledge no empirical study exists that explores whether

present biased tourists are more likely to overspend. We make a novel contribution to the literature by integrating Prospect Theory and present bias preferences into a single framework, and exploring the role of loss aversion and present bias in tourists' overspending behavior.

2. Methodology

2.1. Aims of this study

Our analysis is built upon a unique data set that combines economic experiments and a travel related survey. The survey data provide us with information on demographic and travel related variables, whereas the experiment enables us to estimate behavioral parameters, including loss aversion and present bias. The advantage of experiments, relative to field and survey methods, is control. Laboratory experiments can be designed to fully manipulate all factors at all desired levels, and to match the assumptions of the analytical model being tested. Additionally, our method uses real stakes to induce real incentives, a strength of our study relative to hypothetical choices utilized in other studies. Croson, Schultz, Siemsen, and Yeo (2013) note that real incentives motivate participants to pay more attention; the resulting behavior may be less noise. Furthermore, decisions that involve risk – which typically happen with tourists – are likely influenced by real incentives.

Regarding theoretical framework, like Nicolau and Mas (2006) and Nicolau (2008/2001), we apply Prospect Theory (PT) instead of expected utility theory (EU), which is the standard model in the literature. These studies highlight that the PT framework is especially relevant to the study of tourism because it captures loss aversion, which is prevalent in the industry, as highlighted above. In EU, risk preferences are characterized solely by the concavity of a utility function for money. But if risky choices are expressions of prospect theory preferences (Kahneman & Tversky, 1979), then utility concavity is not the only parameter influencing risk preferences; nonlinear weighting of probabilities, and aversion to loss compared to gain, also influence risk preferences. Our instruments are designed to measure all three parameters in prospect theory – especially the loss aversion parameter – rather than just one parameter as in EU. The loss aversion parameter plays a key role in our analysis.

Another methodological contribution of this study is that it jointly estimates loss aversion and present bias parameters using the simulated maximum likelihood. This approach to measure behavioral parameters – using incentivized choice experiments – complements and improves upon other traditional methods of measuring behavioral variables, such as self-reported or hypothetically stated preferences.

2.2. Methodological approach

We use a unique data set that combines economic experiments and a survey. Specifically, we recruited a random sample of 314 tourists from different age groups, and education and income levels. We focused on holiday and leisure tourists, and not on business travelers. Additionally, we recruited tourists, whose last outbound travel occurred within the previous 12 months, coinciding with the time period in which we conducted the survey and the experiment. We proceeded with the data collection in two steps. In the first step we collected the tourists' demographic and travel related information. While there are many different types of tourist spending, we focus on shopping expenditures in the destination country.

To measure the Prospect Theory and present bias parameters, we conducted a risk and time preferences experiment with these

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