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## Travelers' conversion behavior at foreign cash withdrawals: An experimental study



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Previous studies (e.g., Juric, Lawson, & McLean, 2002) showed that travelers use different types of conversion strategies to calculate the attractiveness of products and services denominated in foreign currency. Both the type of conversion strategy and the extent to which travelers deploy these strategies depend on personal and situational characteristics (Pettigrew, Daly, Lee, Soutar, & Manning, 2010). These studies typically relied on interview techniques to reconstruct the different strategies that travelers use and assumed that the purchasing behavior of travelers is performed accordingly. However, research by Baumeister, Vohs and Funder (2007) and Vazire and Mehl (2008) showed that

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behavior may differ from self-reported cognitive processes and ratings. This calls for research on actual conversion behavior to examine whether intended behavior is executed accordingly.

The introduction of dynamic currency conversion (DCC, also known as currency choice) at ATMs provides an ideal testing environment for traveler behavior when confronted with a currency choice. DCC provides travelers with the choice to conduct a transaction in local currency or in their home currency. For example, a British citizen traveling to the Eurozone and making a withdrawal of €100 at an ATM with DCC functionality is confronted with two options on the ATM screen. Firstly, the ‘regular’ option to withdraw €100. In this case, the home bank will convert the cash withdrawal to pound sterling. Secondly, the DCC option, in which the amount is converted to pounds at a specific conversion rate displayed on-screen together with the amount of pounds that will be debited from the bank account. The DCC option thus provides the traveler both additional exchange rate information and certainty about the amount of money that is withdrawn. In practice, the exchange rate against which the transaction is executed differs between both options, with DCC usually being the more expensive option (Keck & Herman, 2005).

This research note is based on a DCC experiment in which travelers were offered the choice between two withdrawal options. Juric et al. (2002) reported that the majority of travelers frequently make conversion calculations. It is therefore expected that travelers are capable of choosing the optimal withdrawal option, especially when the offered exchange rate is highly unfavorable. In addition to the concurrent exchange rate, conversion behavior can also be affected by a reference price (Juric et al., 2002), meaning that consumers evaluate a transaction by comparing it against a pre-existing internal standard. Travelers can use this standard exchange rate when making currency conversions (Juric et al., 2002; Pettigrew et al., 2010). The resulting research question is therefore two-fold. Firstly, to what extent do travelers make the right (i.e., the most cost-effective) choice? Secondly, what role does the internal reference price play in the choice between both withdrawal options?

An iPad application was designed containing a simulation of an ATM cash withdrawal of €100. This application was pre-tested on students from Utrecht University. The target population for this experiment consisted of UK and US travelers visiting Amsterdam, the Netherlands in May 2013. UK and US exchange rates were relatively close to par with the euro, minimizing confounding effects from high or low denomination currencies. In total, 166 respondents participated of which 65 respondents originated from the US and 101 from the UK.

**Table 1**  
The determinants for opting for a DCC transaction.

Variable	Model 1	Model 2	Model 3
Age	0.004* (1.73)	0.005* (1.77)	0.005* (1.79)
Female	0.133* (1.68)	0.138* (1.72)	0.137* (1.71)
Travel experience	-0.016 (-1.18)	-0.015 (-1.11)	-0.015 (-1.11)
Bachelor's degree or higher	0.045 (0.54)	0.038 (0.46)	0.041 (0.49)
Tourist	0.023 (0.24)	0.035 (0.35)	0.038 (0.37)
US traveler	-0.084 (-1.00)	-0.075 (-0.89)	-0.088 (-1.00)
5% markup		-0.156 (-1.40)	-0.137 (-1.18)
10% markup		-0.099 (-0.86)	-0.063 (-0.49)
0% markup; extra info		-0.080 (-0.69)	-0.073 (-0.63)
Actual rate minus reference rate			-0.312 (-0.70)
n	166	166	166
Pseudo R <sup>2</sup>	0.03	0.04	0.04

The research design was based upon four different experimental groups. Two experimental groups were exposed to a significantly worse exchange rate in the DCC option (a markup of 5% and 10%, respectively) as compared to the actual exchange rate. The third group (0% markup and additional information about the regular and DCC process) was used to detect if unfamiliarity with DCC could affect the currency choice. The fourth group served as a control group (0% markup). Prior to the experiment, travelers were asked for their estimation of the exchange rate, serving as the reference price. Next, they proceeded to a screen containing a short explanation of the simulation. Then, they faced an ATM display after which they were confronted with a typical withdrawal screen. On this screen respondents could choose to proceed with a regular transaction or to accept a conversion (i.e., the DCC option). Afterwards, a number of standard control questions were asked.

77% of the respondents were tourists; other purposes included, among others, family visit and business. On average they were 39 years old. 48% of the respondents were females; 63% had obtained a Bachelor degree. Only travel experience differed significantly between UK and US respondents as US travelers had visited the Eurozone more often. The internal reference rate of UK travelers equaled the average exchange rate in the data collection period. US travelers slightly undervalued the euro: the internal reference rate was €0.03 lower than the actual rate of the US dollar. 55% of the respondents used DCC to convert the amount to their home currency. The determinants of opting for DCC were tested with a probit estimation with robust standard errors (see Table 1). The coefficients represent marginal effects; z-values are reported in brackets. An “\*” indicates that the variable is significant at the 10%-level.

Model 1 includes only control variables; Model 2 additionally includes dummies for the three experimental groups; and Model 3 incorporates the difference between the actual rate and the reference rate. Considering Model 1, two variables exhibit statistical significance. For each year of age, respondents were 0.4% more likely to opt for DCC. Gender also mattered, as females were 13.5% more likely to choose DCC. Other variables were not statistically significant. Traveler's rationality is tested in Models 2 and 3. Although the coefficients for both the markup dummies (Model 2) and the difference between the actual rate and the reference rate (Model 3) are in line with expectations, these findings do not exhibit statistical significance.

Summarizing, the level of the markup on the DCC transaction is not associated with DCC usage. Furthermore, the choice at the ATM transaction is unrelated to a traveler's internal reference price, even though this price can be directly compared to a given exchange rate on the ATM screen. The empirical evidence thus rejects rational behavior by travelers. Also the relatively low  $R^2$  of the model can imply that other behavioral factors play a role, as the variables fail to explain the currency choice to a large extent. In this respect, the increased use of DCC by females and elderly people points towards the role of risk taking preferences. Research by [Donkers, Melenberg, and Van Soest \(2001\)](#) shows that females and elderly people are more risk averse. Within the experiment, DCC represents a certainty equivalent as the amount that will be debited from the bank account is directly on display. This, apparently, causes travelers to bypass their own conversion calculations and/or their reference price estimation.

With reference to risk taking preferences, both framing effects and the credibility of the DCC provider may play a decisive role. Travelers facing a currency choice at an ATM of an unfamiliar provider may have a stronger incentive to use a different type of conversion technique (e.g., quick versus exact calculations). In addition, different ways of framing DCC information may influence the chances that people opt for DCC, allowing banks to steer travelers towards the unfavorable option. A limitation of the current setup is the reliance on experimental data rather than on real-life transaction data which may alter a participant's behavior. To get a better understanding of the conversion strategies and choices of travelers under uncertainty, we encourage scholars to use transaction data preferably in combination with psychological characteristics. These variables are expected to more accurately predict conversion choices than the regularly used demographic variables in existing models.

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## Tourism and growth: The times they are a-changing



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This research note investigates the time-varying relationship between tourism and economic growth in Europe. A considerable body of literature attempts to disentangle the connective strands and lines of causality between tourism and the economy. Some authors maintain that tourism leads to economic growth, while others support its antithesis (i.e. it is the economic growth that stimulates tourism growth) (see, *inter alia*, Ivanov & Webster, 2012; Matarrita-Cascante, 2010; Parrilla, Font, & Nadal, 2007). There are also several studies which suggest either a bidirectional relationship between tourism and the economy or no relationship at all (see, among others, Seetanah, 2011; Tang & Jang, 2009).

The aforementioned studies are confined to static analyses. It is only recently that Arslanturk, Balcilar, and Ozdemir (2011), Lean and Tang (2010) and Tang and Tan (2013) questioned the stability of the tourism–economic growth link over time, although only for Malaysia and Turkey. Given that structural economic changes may alter the relationship between these two series, it is imperative to extend this line of research in other countries. In particular, it is important to examine whether and how recent economic events (e.g. the Great Recession of 2007–08 and the Eurozone debt crisis) affect the tourism–economic growth relationship. Therefore, the aim of this study is to examine the time-varying spillover effects between tourism and economic growth in Europe.

To achieve that, we employ the Vector Autoregression-based spillover index approach developed by Diebold and Yilmaz (2009, 2012) for six European countries. We include both fragile economies that have been heavily affected by the Great Recession and the Eurozone debt crisis (Greece, Italy,

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