



# Influences of gender and product type on online purchasing<sup>☆</sup>



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## ABSTRACT

This study examines gender differences in the online purchasing behavior of consumers who purchase digital and non-digital goods. The research model builds upon the extended unified theory of acceptance and use of technology (UTAUT2), adding two key e-commerce variables: perceived risk and trust. Empirical analysis uses data from 817 Spanish consumers' responses to an online questionnaire. Gender differences—not considering product type effect—are significant in relationships between effort expectancy and purchase intention and between social influence and purchase intention. Product type affects the relationship between perceived risk and purchase intention in digital goods, where the influence is significantly higher for women. Significant gender differences don't appear for purchase intention in non-digital goods. Product type significantly influences the relationship between performance expectancy and purchase intention, and between facilitating conditions and purchase intention. Product type significantly influences the relationship between perceived risk and purchase intention for women but not for men.

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## 1. Introduction

Market segmentation is an essential marketing strategy consisting of dividing the market into homogeneous groups with the same purchasing needs (Kotler & Armstrong, 2012). Given recent high online sales growth—109.5% between 2007 and 2012 in Spain (ONTSI, 2012)—retailers realize that they must adapt their segmentation techniques to the online channel to reach their target market. In doing so, retailers can gain sustainable competitive advantage (Fram & Grady, 1995). Digitization is a key enabler of easier and quicker information handling (Chang, 1998). However, some of the Internet's characteristics such as loss of direct contact with the seller and delay between purchase and receipt of products (Qiu & Li, 2008) may cause differences in online shopping behaviors depending on the type of shopper (Ganesh, Reynolds, Luckett, & Pomirleanu, 2010).

Gender is an essential segmentation variable for commercial research. Literature on e-commerce reports that men purchase online more than women do (Dittmar, Long, & Meek, 2004; Hasan, 2010). Nevertheless, annual online sales data show little difference between men's and women's online purchasing. According to

ONTSI (2012), 51.9% of online shoppers are male, and 48.1% are female.

Product type affects consumers' purchasing behaviors. Consumer acceptance of e-commerce differs depending on whether consumers are shopping for goods or for services (Liu & Wei, 2003).

E-commerce research focuses mainly on services (Cho & Park, 2002) and physical goods (Girard & Dion, 2010), but literature on the acceptance of online shopping for digital goods is scant. The lack of literature on acceptance of online shopping is surprising because digital goods' intangibility (Peterson, Balasubramanian, & Bronnberg, 1997) means that the sale and distribution of digital goods is exclusive to the Internet (Kiang, Ye, Hao, Chen, & Li, 2011).

To fill this research gap, the present study addresses two exploratory research objectives. First, the study investigates gender differences in purchasing behavior and online shopping acceptance. Second, the study explores how product type affects online shopping, focusing on the comparison between digital and non-digital goods. The research uses an UTAUT2-based model, with the addition of two variables specific to e-commerce: risk and trust. The simultaneous analysis of consumer and product type is a novelty in e-commerce research.

Section 2 reviews relevant literature. Section 3 describes the empirical method and sample characteristics. Section 4 presents results and analyzes differences between type of shopper and product type. Section 4 also discusses the joint effect of type of shopper and product type via multigroup comparisons. Section 5 discusses results. Section 6 presents conclusions and limitations and outlines future research opportunities.

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## 2. Literature review and research hypotheses

### 2.1. Electronic commerce acceptance

The technology acceptance literature presents several models focusing on antecedents of technology adoption and use. One of the first frameworks to address technology acceptance is the theory of diffusion of innovations (Rogers, 1962), which investigates innovations' characteristics that influence the adoption of a certain technology. The theory of reasoned action (TRA) (Fishbein & Ajzen, 1975) posits that behavioral intention is human behavior's main predictor. The technology acceptance model (TAM) (Davis, 1989) and the theory of planned behavior (TPB) (Ajzen, 1991) extend the TRA's principles. The TAM addresses information technology acceptance and its use in organizations, whereas the TPB adds variables considering internal control of the user (perceived behavioral control). In addition, Davis, Bagozzi, and Warshaw (1992) study motivations to explain user behavior in their motivational model (MM).

Given the lack of an integral view, Venkatesh, Morris, Davis, and Davis (2003) combine previous acceptance models to create the unified theory of acceptance and use of technology (UTAUT). The UTAUT includes four main factors that influence acceptance and use behaviors. These factors are effort expectancy, performance expectancy, social influence, and facilitating conditions. The UTAUT also studies the moderating effect of gender, age, experience, and voluntariness in the adoption process. In the UTAUT2, Venkatesh, Thong, and Xu (2012) revise the UTAUT and adapt the original model to the context of consumer services, adding three new factors: hedonic motivations, cost, and habit. Although some studies validate relationships in the UTAUT (Pavlou, 2003; Van Slyke, Comunale, & Belanger, 2002), the UTAUT's use in online shopping research is scant (Cody-Allen & Kishore, 2006; Ho & Tuan, 2012), and UTAUT2's use in e-commerce adoption research is practically inexistent.

Although little research addresses the UTAUT2, studies validate hedonic motivations' influence on purchase intention, using concepts similar to hedonic motivations such as enjoyment (Ha & Stoel, 2009; Hwang, 2010) and perceived playfulness (Morosan & Jeong, 2008). Nevertheless, introducing habit in the UTAUT2 model to affect purchase intention directly is problematic. Venkatesh et al. (2012) justify including this variable in UTAUT2 by citing Limayem, Hirt, and Cheung (2007) research. However, Limayem et al. (2007) claim that habit plays a complex, moderating role in the relationship between behavioral intention and actual behavior, rather than directly affecting behavior. Likewise, in the context of online shopping behavior, the variable price value does not appear in the UTAUT2 because the use of e-commerce itself does not imply a clear, specific cost. In other words, people consider e-commerce a free consequence of having Internet access—Internet users need not pay any extra charge to be able to buy online (Yu, 2012). In addition to the variables in the UTAUT, prior studies validate perceived risk (Lin, Wang, & Hwang, 2010; Pavlou, 2003) and perceived trust (Chang, 2010; Chen & Dhillon, 2003) as predictors of online purchase intention.

### 2.2. Gender differences in e-commerce

Research on technology acceptance, traditional commerce, and e-commerce acceptance addresses gender differences in purchasing behaviors (Dittmar et al., 2004). Gender appears as a moderating variable of all relationships in UTAUT and UTAUT2. Prior works find that the influence of performance expectancy and hedonic motivations in purchase intention is higher for men. Contrastingly, the influence of effort expectancy, social influence, and facilitating conditions in behavioral intention is higher for women (Venkatesh et al., 2003, 2012).

Regarding variables specific to e-commerce, the influence of risk is higher for female shoppers (Van Slyke et al., 2002) because they

consider the probability of negative consequences in online shopping to be higher than men do (Garbarino & Strahilevitz, 2004). For trust, the study of gender differences yields contradictory findings and is therefore inconclusive (Kolsaker & Payne, 2002; Rodgers & Harris, 2003).

### 2.3. Digital and non-digital goods

Digital goods differ from traditional, non-digital goods in their intangibility and direct distribution via online channels (Laroche, Bergeron, & Goutaland, 2001). Digitizability relates directly to intangibility (Kiang et al., 2011). Intangibility may have a positive effect on purchase intention (Keisidou, Sarigiannidis, & Maditinos, 2011; Lian & Lin, 2008) of digital goods, even though intangibility has a higher influence on perceived product risk in the case of services (Laroche, Yang, McDougall, & Bergeron, 2005). Therefore, no other evidence supports digitizability's influence on any of the other factors influencing e-commerce acceptance, even though digitizability may favor the purchase of digital goods.

## 3. Method

Building on the previous discussion, this study uses the research model that appears in Fig. 1. This research model includes factors from UTAUT2, excluding price value and habit, and incorporates two specific factors of electronic commerce: perceived risk and trust.

The empirical analysis for this study comprises four stages: (1) validation of the model for male and female online shoppers, regardless of product type and differences between groups; (2) comparison of results for digital goods; (3) comparison of results for non-digital goods; and (4) comparison of digital and non-digital goods for men and women separately.

### 3.1. Participants

An online survey yielded data for the empirical analysis. Students from the Universidad Politécnica de Madrid and online shoppers from an internal database completed the questionnaire. A post containing the questionnaire also appeared on the professional social networking website LinkedIn. Data collection took place from April to October 2013. While participation in the study was voluntary, a raffle—the prize was a tablet—encouraged participants not only to answer, but also to send the survey to their personal and professional contacts. Of the 1521 total responses, 704 responses were incomplete and therefore do not appear in the final study. Incomplete responses were most likely a result of questionnaire length: 46 items, 16 of which appear three times (once for every type of product). Hence, the final dataset comprised 817 valid answers. As per Cohen's (1988) work, the whole sample was large enough to consider small effect size and high statistical power (subsamples of male and female online shoppers were five and three times larger, respectively, than the medium effect size threshold). Table 1 displays sample characteristics.

Table 1 shows that respondents' profile is similar to that of Spanish online shoppers in general (ONTSI, 2012). The sample characteristics show that the majority of respondents have been using the Internet for more than a year at least once weekly. Sample characteristics also show that respondents have at least some experience in online shopping, with most respondents having made multiple purchases each year.

### 3.2. Measures

The final survey included 46 items adapted from UTAUT, UTAUT2, and other e-commerce adoption studies: effort expectancy (4 items),

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