Switching Costs, Satisfaction, Loyalty and Willingness to Pay for Office Productivity Software

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Abstract
Despite the availability of several free and lower-cost alternatives, the multi-billion dollar market for office productivity software suites (OPSS) is dominated by Microsoft Office. Theoretical and empirical research has typically attempted to explain such customer loyalty from the perspective of customer’s satisfaction. However, although loyal customers are typically satisfied, satisfaction alone can be an unreliable predictor of loyalty. This research examines how switching costs can impact loyalty in a context where network effects may dominate. Additionally, the research measures how loyalty impacts customer willingness to pay (WTP) using a contingent valuation approach. The results reveal that switching costs do increase consumers’ loyalty and WTP. For OPSS loyalty is a significant contributor to increased WTP. Implications for research and practice are discussed.

1. Introduction
In recent times, competition for customers in office productivity software suites (OPSS) market has increased. For example, Google recently added the ability to create presentations to their line of free online office productivity applications for word processing and spreadsheets called Google Docs. Six days before Google’s targeted release date for the presentation software, Microsoft announced that their “Ultimate” version of Office 2007 is available to all students and teachers for $60 which is just nine percent of the estimated retail price. This also came only days before IBM announced the availability of a free online version of their office productivity software called Lotus Symphony. Although customers are now faced with more viable affordable options to meet their OPSS needs, it remains to be seen whether they will remain loyal to Microsoft Office and why. Recent research shows that new entrants such as Open Office have limited impact on customer’s utility for Microsoft Office (Raghu et al., 2008).

Because of the valuable returns from retaining current customers (Reichheld, 1996), one of the dominant themes of marketing research is how variables such as customer satisfaction lead to repeat purchase behavior and intentions (Luo and Homburg, 2007). Although loyal customers are typically satisfied, customer satisfaction has occasionally been an unreliable predictor of loyalty (Oliver, 1999). To explain this, researchers have explored various moderators of the relationship between satisfaction and loyalty (Seiders et al., 2005) or have used alternative measures to loyalty such as the customer’s willingness to pay (WTP) (Homburg et al., 2005). This research focuses on the influence of switching costs to provide greater insight into the relationship between satisfaction and the outcomes of customer loyalty and WTP. Because of the complexity and compatibility issues of software, switching costs are likely to be particularly salient to customer loyalty and WTP for OPSS (Farrell and Shapiro, 1988; Zhu et al., 2006).

Bresnahan (2002) documented how Microsoft was able to keep customers loyal by increasing switching costs in the form of network externality and

4 September, 18th 2007 http://symphony.lotus.com/software/lotus/symphony/buzzentry.jspa?threadID=2581
compatibility. Since software is only used with complementary products like hardware and other software, if the alternatives are incompatible, a customer may remain loyal to their software despite being dissatisfied (Katz and Shapiro, 1994). In summary, externalities and complements can be major sources of switching cost that affects loyalty and satisfaction with software, but few empirical studies have investigated these effects.

This paper reports the results of a survey administered to 797 OPSS users. The survey measures several types of switching costs including network externality. Additionally, it examines these switching costs as a predictor of loyalty and WTP for OPSS. Section 2 reviews the relevant literature on customer switching costs, satisfaction, loyalty, and WTP used to formulate the hypotheses for the study. Section 3 outlines the research design and methodology used to measure each variable with a special focus on the use of double-bound dichotomous choice (DBDC) contingent valuation to measure WTP. Section 4 reports the results of the study. Section 5 discusses these results including implications for research and practice. Section 6 concludes the research.

2. Literature Review and Hypotheses

Information systems (IS) researchers have examined customer loyalty primarily with online stores and web-based services (Chen and Hitt, 2002; Danaher et al., 2003; Koufaris, 2002; Mithas et al., 2006; Otim and Grover, 2006). In this context, determinants of customer loyalty typically include the vendor website’s perceived usefulness and/or ease of use (Chen and Hitt, 2002; Koufaris, 2002; Gefen et al, 2003), trust (Gefen et al., 2003), and various website characteristics (Chen and Hitt, 2002; Koufaris, 2002; Mithas, 2006; Otim and Grover, 2006). However, the website characteristics that help to evoke trust from the customer are not entirely applicable in the OPSS context where the risks of information privacy during product purchasing are not as salient. Therefore, to accurately formulate hypotheses, the following section reviews the core marketing literature on customer loyalty and WTP.

2.1. Customer Loyalty and WTP

Customer loyalty is usually measured from the perspective of repurchase intentions. Research in this stream has attempted to understand and establish the relationship between customer satisfaction and loyalty (Luo and Homburg, 2007; Oliver, 1999; Seiders et al., 2005). Research has generally discovered that satisfied customers are not necessarily loyal (Seiders et al., 2005). One plausible explanation is that unsatisfied customers may remain loyal due to the influence of switching costs (Burnham et al., 2003; Jones et al., 2000). Additionally, higher switching costs may overshadow the influence of satisfaction and be a stronger predictor of loyalty (Oliver, 1999). In summary, besides the direct effects of satisfaction, there may also be direct and moderating effects of switching costs on customer loyalty leading to the following hypotheses regarding loyalty:

H1: Greater customer satisfaction leads to greater customer loyalty.

H2: Greater customer switching costs leads to greater customer loyalty.

Prior research on the consequences of switching costs focuses primarily on customer loyalty (Burnham et al., 2003; Heide and Weiss, 1993). However, greater understanding of switching costs may come from discovering their impact on the customer’s WTP. In our context, WTP is essentially a measure of the value a customer places on the product in the presence of substitute products. The WTP value is composed of the intrinsic utility of the product to the customer as well as the cost of switching to the alternative products available. In other words, switching costs are positively related to WTP. In essence, by measuring WTP, researchers can begin to understand how loyalty translates to economic value.

Utility-related outcome measures (such as WTP) in product market contexts, especially software products, have been understudied in prior literature (Homburg et al., 2005), and to our knowledge, no research exists on the relationship between switching costs and WTP in particular. Homburg et al. (2005) performed a related study which found that while increased satisfaction does lead to greater WTP, WTP changes most drastically when satisfaction is either very high or very low. The basis for this finding was disappointment theory (Loomes and Sudgen, 1986) which posits that high positive and high negative disconfirmation are much more emotionally charged than confirmation. However, an alternative explanation may be that the customer’s switching costs (rather than emotional charge) lead them to have a high WTP even when they are extremely dissatisfied with the product or service. This leads to the following hypotheses:

H3: Greater customer satisfaction leads to greater WTP.
H4: Greater customer switching costs leads to greater WTP.

H5: Greater customer loyalty leads to greater WTP.

In summary, two causes (satisfaction and switching costs) are measured to understand their influences on two effects (customer loyalty and WTP) and the relationship between those effects. Figure 1 visualizes the hypothesized relationship for this study. H1 and H2 can be considered as re-examination of prior findings in the context of a product with network effects. H3 has received limited attention in prior literature, but will be scrutinized in greater detail in this research. For example, Homburg et al. (2005) studied the effect of satisfaction on WTP, but the present study uses a contingent valuation approach as opposed to a stated value approach. Contingent valuation approaches have been shown to provide more accurate measure of WTP. Finally, H4 and H5 are unique to this study. In the following sections we describe the type of switching costs measured for OPSSs and the research approach.

![Figure 1: Relationships of interest](image)

### 2.2. Switching Costs

While the satisfaction construct has been studied extensively in marketing literature, switching cost is a complex and multi-faceted variable which has received relatively less research attention. According to Klemperer (1995, p. 517), “switching costs result from a customer’s desire for compatibility between his current purchase and a previous investment.” While there are a broad range of switching costs identified in the literature (Burnham et al., 2003), three are particularly salient to the OPSS context. These costs include economic risk costs, evaluation costs, and economic loss costs.

Economic risk cost (ERC) refers to the costs associated with the uncertainty of whether or not the new software will work as expected (Burnham et al., 2003; Klemperer, 1987; 1995). For example, if a user is unsure of their computer expertise, they might worry that switching to a new OPSS will result in some unexpected hassle or that the new software might not work as well as expected.

Evaluation costs (EVC) refer to the time and effort spent in searching for information and evaluating options (Burnham et al., 2003; Shugan, 1980). If OPSSs seem particularly complex to a user, they may decide that switching would require too much time to research the various options and come to a reasonable decision.

Economic loss costs (ELC) are the costs associated with a) not being a part of the network of OPSS users of a particular brand, and b) losing access to the products which are complementary to OPSSs (Farrell and Shapiro, 1987). For example, users who switch from Microsoft Office lose the benefits associated with using the same software as up to 90 percent of other users (Raghunathan et al., 2008). If their new OPSS is not compatible with Microsoft Office, they will not be able to share and transfer files with Microsoft Office users. Similarly, if a user switches to an office suite other than Microsoft Office, they will no longer be able to transfer files to a Windows-based PDA and edit them there. Or, if a customer likes to use Microsoft Visio, but switches to OpenOffice, they will lose the ability to integrate Visio drawings with their word processing software. Like other switching costs, network externalities and complementary products are a form of customer “lock-in” (Farrell and Klemperer, 2006).

### 2.3. Controls

Many studies, including Bhattacharjee’s (2001) study of IS continuance, have shown perceived usefulness to be a significant indicator of both user satisfaction and continuance. Therefore, it is included in this study as a covariate determining both customer satisfaction and loyalty. Demographic variables have also been collected as additional controls.
3. Research Design and Methodology

To test the research model described above, a survey was administered to 797 students in an “introduction to technology” course which is mandatory for all students in the business school of a large public university in the southwestern United States. Table 1 summarizes the descriptive statistics of the demographic and covariate variables tested in the analysis. Before the survey began, the participants were given a brief introduction to the survey and an explanation of OPSSs. This included describing several of the major products, listing their individual applications, and reviewing the current price. For Microsoft Office, the current sale price for students and teachers was $60 to download or $70 for a DVD. Besides Microsoft Office, the participants were introduced to Google Docs, OpenOffice, IBM Symphony, Star Office, and Corel WordPerfect. The students had also been introduced to one or more of these products prior to the survey as part of their course work. While the WTP related questions have been extensively tested in similar settings by the authors, before administering the final survey, the entire survey questionnaire was also pilot tested to elicit feedback on the clarity and readability of the questions.

Table 1: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>&lt; 20 = 78%; 21 to 25 = 19%; over 25 = 3%</td>
</tr>
<tr>
<td>Gender</td>
<td>Female = 51%; Male = 49%</td>
</tr>
<tr>
<td>Employment Status</td>
<td>Part-time = 44%; Full-time = 10%; Not employed = 46%</td>
</tr>
<tr>
<td>Years of experience using MS Office</td>
<td>&lt; 1 yr = 1%; 1 to 3 yrs = 6%; 3 to 5 yrs = 13%; 5 to 7 yrs = 31%; 7 to 10 yrs = 30%; 10 to 15 yrs = 16%; &gt; 15 yrs = 2%</td>
</tr>
<tr>
<td>Number of hours per week using a computer</td>
<td>&lt; 5 = 5%; 5 to 10 = 17%; 11 to 15 = 19%; 16 to 20 = 17%; 21 to 30 = 27%; &gt; 40 = 15%</td>
</tr>
<tr>
<td>Which OPSSs do you currently use?</td>
<td>MS Office = 97%; OpenOffice = 4%; Star Office = 0%; WordPerfect = 2%; IBM Symphony = .5%; Google Docs = 7.4%; Other = 1.4%</td>
</tr>
</tbody>
</table>

3.1. Measures

The survey items measuring switching costs (Burnham et al., 2003; Parthasarathy and Bhattacherjee, 1998), satisfaction (Burnham et al., 2003; Fornell, 1992; Gustafsson et al., 2005), loyalty (Chaudhuri and Holbrook, 2001), and perceived usefulness (Venkatesh et al., 2003) were drawn from or based upon prior research with modifications for the OPSS context. Items measuring externality loss and complement loss switching costs were newly developed for this study, but based on established economic theory on network externalities and complements (Farrell and Klemperer, 2006; Farrell and Shapiro, 1987; Katz and Shapiro, 1985). The items were on a Likert-style seven-point scale. In addition, Traditional demographic measures were collected such as age, gender, and program (graduate or undergraduate) as well as the participant’s current OPSS, employment status, and years of experience with OPSS.

3.1.1. WTP. We define WTP as the amount of income forsaken by an individual in order to make him indifferent between not purchasing and purchasing. WTP estimates may be interpreted in multiple ways - (1) that a consumer is maximizing utility subject to budget constraints or (2) that consumer is minimizing expenditure subject to a given level of utility, or (3) that a consumer is able to choose level of quality in addition to the level of consumption of the market goods. The increase in the number of alternatives to choose from can therefore increase or decrease the mean WTP for the population. Consistent with other contingent valuation studies, the willingness to pay estimates represent the average WTP for the entire sample (i.e., the maximum likelihood estimation does not provide WTP at the individual consumer). The estimation procedure for WTP is described below.

Using a random utility framework such as that developed by Hanemann (1984) we can write the (indirect) utility function of an individual j as

\[ u_{ij} = u_i(y_j, x_j, \varepsilon_{ij}), \]

where \( i \) takes the value of zero for no purchase and takes a value of one for a purchase decision (i.e., \( u_0 \) - no purchase; \( u_1 \) - purchase), \( y_j \) is respondent j’s discretionary income and \( x_j \) represents the vector of relevant covariates. Now, if we ask a respondent if he/she is willing to pay \( S_t \) for purchasing software, an affirmative answer implies:

\[ \Pr(\text{yes}) = \Pr[u_{ij} > 0] = \Pr[u_i(y_j - t_j, x_j, \varepsilon_{ij}) > u_0(y_j, x_j, \varepsilon_{ij})] \]  

We model the WTP function by using a dichotomous choice contingent valuation approach where consumers are asked to respond to a series of sequenced questions following the initial bid. This method is called the Double Bound Dichotomous Choice (DBDC) format, where a DBDC question...
presents respondents with a sequence of two bids and asks them if their willingness to pay equals or exceeds that bid (e.g., Would you be willing to pay $XX?). The magnitude of the second bid depends on the answer (yes/no) to the first bid. Denoting the initial bid as $B_1$, a respondent would be asked whether or not she would purchase the product if it were priced at $B_1$. If the answer is ‘yes’, the respondent is presented with a new bid $B_i$, such that $B_i > B_1$. However, if the respondent’s response is negative, she is presented with $B_i < B_1$. Hence, the four outcomes may be represented as:

- $D_{1i} = 1$ if $WTP_i < B_{1i}$ (no-no) $= F(B_1)$
- $D_{2i} = 1$ if $B_{1i} \leq WTP_i < B_{ii}$ (no-yes) $= F(B_1) - F(B_i)$
- $D_{3i} = 1$ if $B_{1i} \leq WTP_i < B_{ii}$ (yes-yes) $= 1 - F(B_i)$
- $D_{4i} = 1$ if $B_{ii} \leq WTP_i$ (yes-yes) $= 1 - F(B_{ii})$,

where $F(.)$ represents the cumulative distribution function (cdf). Consequently, the (log) likelihood function for the data may be written as:

$$
\ln L = \sum_{i=1}^{n} \left[ \frac{D_{1i} \ln \left( \frac{F(B_{1i} - x_i \beta)}{\sigma} \right) + D_{2i} \left( \ln \left( \frac{F(B_{1i} - x_i \beta)}{\sigma} \right) - \ln \left( \frac{F(B_{2i} - x_i \beta)}{\sigma} \right) \right) + D_{3i} \left( \ln \left( \frac{F(B_{2i} - x_i \beta)}{\sigma} \right) - \ln \left( \frac{F(B_{3i} - x_i \beta)}{\sigma} \right) \right) + D_{4i} \left( \ln \left( \frac{F(B_{3i} - x_i \beta)}{\sigma} \right) - \ln \left( 1 - \frac{F(B_{4i} - x_i \beta)}{\sigma} \right) \right) )}{\sigma} \right]
$$

The vector $x_i$ is operationalized using specific control variables and relevant covariates. The coefficient estimates reveal the marginal impact of these covariates on WTP and the mean WTP for the sample is estimated as $E(WTP) = x \beta$.

The bids require respondents to evaluate their WTP for the latest version of Microsoft Office given repeated choices of whether the participant would buy the application at a given price (e.g., Would you be willing to pay $70?). Prices are presented as a dichotomous choice, incrementing above and below the typical selling price and beginning with an opening bid in each survey. Five distinct price ranges within the typical selling price of Microsoft Office are utilized. Each subject randomly receives bids corresponding to one of the price ranges. An important issue in contingent valuation surveys is one of optimal bid design. Clearly, the distribution of the chosen bids impacts the efficiency of the estimators (the bids enter as regressors and determine the variance covariance matrix), and should therefore be chosen after careful deliberation. A number of studies have derived optimal bidding mechanisms (Hanemann et al., 1991; Alberini, 1995; Kanninen, 1995), but they all require some prior knowledge of the WTP distribution. The consensus in recent studies is to utilize as much information as may be available or inferred about the distribution and to then set the bids around this inferred distribution, for example, these bids may be designed based on focus groups and pretests (Cameron and Quiggin, 1994) or, in the case of new products, they may be based on the price of the existing product. We have set the bid ranges for this study based on the student price for Microsoft Office. The five price ranges are: $20-$35-$50; $35-$50-$65; $50-$65-$80; $65-$80-$95; and $80-$95-$110. The bid starts at the middle. Based on the response the next higher bid is presented, if the response is “Yes,” or the next lower bid is presented, if the response is “No.” For example, in the price range $50-$65-$80– the opening bid is $65, the next bid is $80 for a “Yes” response to opening bid, or $50 for a “No” response. If the response to both bids is “Yes,” the follow up question is: “What is the maximum you would pay for Microsoft Office? If the response to both bids is “No” the follow up question is: “Would you pay anything at all for Microsoft Office?”

### 4. Results

Because of the nature of the WTP measure described above, the entire model in Figure 1 cannot be tested in a single structural equation model (SEM). Rather, maximum likelihood estimation models were developed to test the relationships of switching costs, satisfaction, and loyalty on WTP (H3, H4, and H5). Because all other variables besides WTP were measured using pre-defined and validated survey items, an SEM was constructed to test the effects of switching costs, satisfaction, and perceived usefulness on loyalty (H1 and H2). The SEM analysis is described first.

#### 4.1 Structural Equation Model

As specified by Anderson and Gerbin’s (1988) two-step approach, the measures were first analyzed using confirmatory factor analysis (CFA) (Figure 2) and reliability tests to ensure validity. In other words, although we used items from validated instruments, the CFA was performed to ensure that our adaptation of the questions was still valid. Next, an SEM was constructed to test H1 and H2. Both the measurement and structural models were constructed using LISREL.
### 4.2 Estimation of WTP

Table 3 presents the results of estimating the willingness to pay (WTP) for the three important variables in this study – loyalty, switching cost, and satisfaction. This is demonstrated in Models 1, 2, and 3 respectively. The fourth model includes each of the independent variables in order to better understand the effect of all the relationships together. The average WTP for the sample (n=795) is $73.62. On average, we observe that a unit level increase in loyalty increases WTP by about $8. Therefore, highest level of loyalty (i.e., loyalty = 7) would yield a net change in WTP of about $56. The impact of switching cost and satisfaction are similar and somewhat less than that of loyalty. When all variables are included in the model, only loyalty has a significant impact. This is consistent with the SEM model we presented earlier (with loyalty as a dependent variable). Since switching cost and satisfaction variables impact loyalty, the WTP impact of these two variables would be subsumed in the impact of loyalty on WTP. The WTP estimation clearly supports our initial hypothesis that loyalty impacts WTP. However, the determinants of loyalty (as shown in our earlier analysis) are complex – and include switching costs and satisfaction.

### Figure 2: CFA of model measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOY</td>
<td>1.11***</td>
<td>0.10***</td>
<td>1.05***</td>
<td>0.80***</td>
</tr>
<tr>
<td>SAT</td>
<td>1.11***</td>
<td>0.86***</td>
<td>0.91***</td>
<td>0.96***</td>
</tr>
<tr>
<td>USE</td>
<td>0.95***</td>
<td>0.95***</td>
<td>1.00</td>
<td>0.67***</td>
</tr>
</tbody>
</table>

Reliability: Extracted values are presented as reliabilities. In the CFA, all item loadings were above 0.58 and significant at p < 0.001. Reliability estimates were above 0.65 for each variable (loyalty \( \alpha = 0.73 \), satisfaction \( \alpha = 0.73 \), ERC \( \alpha = 0.73 \), EVC = 0.70, ELC \( \alpha = 0.66 \), usefulness \( \alpha = 0.86 \)).

The CFA model demonstrated adequate fit with a \( \chi^2 \) of 291.76 (degrees of freedom [df] = 137), a root mean square error (RMSE) of 0.039, and a comparative fit index (CFI) of 0.98 (Bollen, 1989). All item loadings were above 0.58 and significant at p < 0.001. Reliability estimates were above 0.65 for each variable (loyalty \( \alpha = 0.73 \), satisfaction \( \alpha = 0.73 \), ERC \( \alpha = 0.73 \), EVC = 0.70, ELC \( \alpha = 0.66 \), usefulness \( \alpha = 0.86 \)). In summary, these results suggest acceptable dimensionality, internal consistency and reliability. The correlations between variables (See Table 2) were 0.60 or below with the exception of loyalty and satisfaction (0.76) which are known to be highly correlated from prior research (Oliver, 1999).

### Table 2: Correlations among Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>LOY</th>
<th>ERC</th>
<th>EVC</th>
<th>ELC</th>
<th>SAT</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOY</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERC</td>
<td>0.55 (14.3)</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVC</td>
<td>0.30 (6.38)</td>
<td>0.60 (16.15)</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELC</td>
<td>0.37 (7.98)</td>
<td>0.49 (11.64)</td>
<td>0.45 (9.98)</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT</td>
<td>0.76 (27.06)</td>
<td>0.47 (12.13)</td>
<td>0.21 (4.60)</td>
<td>0.28 (6.2)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>USE</td>
<td>0.44 (11.33)</td>
<td>0.41 (10.65)</td>
<td>0.17 (3.88)</td>
<td>0.23 (5.2)</td>
<td>0.51 (15.2)</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Notes: t-values are in parentheses below correlations.

Table 2 visualizes the structural model. As demonstrated, the proposed model fits the data acceptably with a CFI of 0.98, RMSEA of 0.043, non-normed fit index (NNFI) of 0.97, and the \( \chi^2 \) degrees of freedom ratio of 2.42 (339.28/140) – all acceptable levels for model fit (Bollen, 1989).
### Table 3: WTP Estimations

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
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</thead>
<tbody>
<tr>
<td>Loyalty</td>
<td>8.08***</td>
<td>---</td>
<td>7.88***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.03)</td>
<td>(1.16)</td>
<td>(1.37)</td>
<td></td>
</tr>
<tr>
<td>ERC</td>
<td>---</td>
<td>3.84***</td>
<td>0.72</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.16)</td>
<td>(1.23)</td>
<td></td>
</tr>
<tr>
<td>EVC</td>
<td>---</td>
<td>-1.04</td>
<td>-1.07</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.14)</td>
<td>(1.13)</td>
<td></td>
</tr>
<tr>
<td>ELC</td>
<td>---</td>
<td>1.59</td>
<td>0.45</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.13)</td>
<td>(1.13)</td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>---</td>
<td>---</td>
<td>5.75***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1.14)</td>
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<td></td>
<td></td>
<td></td>
<td>(1.44)</td>
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</tr>
<tr>
<td>Constant</td>
<td>33.13***</td>
<td>51.70***</td>
<td>43.16***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(5.24)</td>
<td>(5.11)</td>
<td>(6.1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>33.36***</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(7.54)</td>
<td></td>
</tr>
<tr>
<td>Wald Chi-square</td>
<td>61.42</td>
<td>16.56</td>
<td>25.58</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>62.45</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Models were run with demographic variables as controls; no significant effects were found; *p< 0.05, **p<0.01, ***p<0.001

### 5. Discussion and Concluding Remarks

Based on relevant literature and theory on customer satisfaction and loyalty, this study investigates how a customer’s switching costs can influence their loyalty and WTP. The results demonstrate support for each of the five hypotheses (See Table 4).

### Table 4: Summary of Hypotheses and Results

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Greater customer satisfaction leads to greater customer loyalty.</td>
<td>Supported</td>
</tr>
<tr>
<td>H2: Greater customer switching costs leads to greater customer loyalty.</td>
<td>Supported</td>
</tr>
<tr>
<td>H3: Greater customer satisfaction leads to greater WTP.</td>
<td>Limited Support</td>
</tr>
<tr>
<td>H4: Greater customer switching costs leads to greater WTP.</td>
<td>Limited Support</td>
</tr>
<tr>
<td>H5: Greater customer loyalty leads to greater WTP.</td>
<td>Supported</td>
</tr>
</tbody>
</table>

As predicted by H1 and prior research, customer satisfaction with OPSSs is highly related to loyalty as indicated by the factor loading in the structural model (0.66, p < 0.001). The factor loadings also indicated that increases in economic risk (0.26, p < 0.001) and economic loss (0.10, p < 0.05) switching costs lead to increases in loyalty to OPSSs – thus confirming H2. However, evaluation switching costs did not seem to play a significant role in the minds of participants. In other words, the participant’s loyalty to Microsoft Office was driven by the fear that other alternative OPSSs might not perform well and that they would lead to a loss of access to the externalities and complementarities associated with MS office. According to the WTP estimations, H3, H4, and H5 were supported as well (in Models 3, 2, and 1 respectively). However, Loyalty is the strongest predictor of WTP. Given that loyalty is influenced by switching cost and satisfaction variables, it is important to understand the complex interrelationships between these variables. Interestingly, usefulness variable has no significant impact on WTP on its own.

#### 5.1. Implications

Several significant implications can be drawn from the results of this study for practice and research. Perhaps most importantly, this study demonstrates that by generating large network externalities and other switching costs, OPSS suppliers can not only increase their customer’s loyalty, but the amount they are willing to pay for their software. However, the customer’s satisfaction appears to play a more significant role in determining both their loyalty and WTP. Therefore, OPSS producers should not focus solely on increasing switching costs at the expense of their customer’s satisfaction.

Additionally, for those OPSS companies hoping to draw customers away from Microsoft Office, the results suggest that providing better information about their products in order to reduce uncertainty and fear may help to convince customers to switch. Anything a company can do to lower the risk which customers perceived with adopting their product should help to lower the switching barriers. Certainly, by ensuring that their products actually are less risky and can be as reliable and useful as Microsoft Office, its competitors would have an easier time generating this perception.

For research, this study implies that more can be understood about customer loyalty to OPSSs by considering not only satisfaction, but switching costs as well. When explaining customer loyalty or WTP, researchers should identify those switching costs that are salient to their context and include them in their models. In addition, by measuring the actual WTP, IS researchers can obtain richer results about loyalty, continuance, or adoption than simply knowing whether or not a product or service was bought, used, or adopted.
5.2 Contributions

This study makes two primary contributions to research by demonstrating: 1) the detailed effects of switching costs, and 2) the indicators of WTP. First, it demonstrates the impacts of switching costs on loyalty and WTP together which provides a more complete picture of their influence than is currently found in the literature. Similarly, these effects are demonstrated in terms of three separate types (economic risk, evaluation, and externality costs) of switching costs rather than a single general measure as is common in prior switching cost research. In addition, this study provides behavioral evidence to support the economic theory (Farrell and Klemperer, 2006; Farrell and Shapiro, 1987) about how network externalities and complements can influence customer loyalty.

Second, the results provide a theoretical model about the determinants of a customer’s WTP. Prior literature has shown that satisfied customers are willing to pay more (Homburg et al., 2005). However, this study demonstrates switching costs also help to shape WTP along with satisfaction, and that loyalty is a stronger predictor than either switching costs or satisfaction.

5.3. Limitations

This study has several limitations which suggest fruitful areas for future research. First, although the OPSS context is unique to this line of research, it is still limited. For example, there are other types of switching costs which may be more salient in other contexts. Therefore, these results may not generalize accurately to other products or services. Future research should explore the relationships among other products with other types of switching costs and WTP, and in essence better characterizing the impact of product characteristics on WTP.

Another limitation is the use of student participants for the survey. Although students are valid consumers of OPSSs, they may not represent business users and the general population very well. Although, among business users, switching costs may very well be much higher than that of the student participants, which may further strengthen the findings from this study. Future research in this area should be performed with a variety of other OPSS users and business users in particular.

6. References


