Modeling the impact of normative beliefs in the context of online buying: Direct and moderating effects

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Normative beliefs tend to play a significant role in the context of online buying, having both direct and moderating effects. The results of the structural equation modeling indicate a direct effect of normative beliefs on the intention to buy online. Also, the magnitude of the relationship between online trust and perceived risk depends on the level of normative beliefs, showing that the effect of online trust on perceived risk varies as a function of the level of the moderator variable. This findings yield serious managerial implications to the extent that online buying can be stimulated through trust building and referent groups pay a significant role in installing a trust environment.
Keywords: normative beliefs, online buying, structural equation modeling, direct effects, moderating effects
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1.Introduction

Online buying behaviour has been an intensive area of research, especially in the last decade (Li and Huang, 2009). Various models of online buying behavior have been developed based on the Technology Acceptance Model, a model that positions consumers'

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intentions to buy online as a function of consumers' attitude towards buying online and perceived usefulness of online buying (e.g. Chen et al, 2002; Liu and Wei, 2003; O'Cass and Fenech, 2003; Shin, 2004; Shang et al, 2005; Crespo and Bosque, 2008; Shin, 2008; Yoon, 2009; Said, 2011).

Behavioral intentions as a function of attitude and beliefs has its roots in Fishbein and Ajzen's Theory of Reasoned Actions (TRA), a theory with great heuristic value in understanding and predicting certain types of behavior (Park and Levine, 1999). Theory of Reasoned Actions has been successfully applied in various fields, such as psychology, marketing, management, education, technology and medicine (Lin et al, 2011).

TRA begins with the assumption that human beings act in a rational manner in order to obtain favourable results and also not to disappoint the expectations of others (Park and Levine, 1999). Thus, in Fishbein and Ajzen's TRA, the opinions of the individual's referent groups regarding the behavior in question has a direct effect on individual's intention to behave a certain way. They take the conceptual form of normative beliefs and they depend on the individual's motivation to comply with such beliefs (Hale, 2003).

Several validations of TRA support the hypothesis that the approval or disapproval of a certain behavior coming from referent groups (friends, family, and colleagues) exerts a certain amount of pressure on the individual's intention to engage in such behavior (Ajzen and Fishbein, 2005).

Thus, normative beliefs are a strong predictor of behavioral intention, together with attitude toward the behavior (Ajzen and Fishbein, 2005).

Normative beliefs or the social pressure coming from referent groups have been studied in various models of online buying behavior (e.g. Khalifa and Limayem, 2003; Choi and Geistfeld, 2004; Tan et al, 2006; Crespo and Bosque, 2008; Crespo and Bosque, 2010; Lin et al,

2010; Lim et al, 2011). The empirical results of these studies indicate that social pressure, especially pressure coming from family and mass-media (Khalifa and Limayem, 2003) have a significant direct effect on consumers' intention to buy online.

The degree to which referent groups' opinions and motivation to comply with them can and will influence actual behavioral intention varies according to the behavioral situation (Fishbein and Ajzen, 1975, p. 302). There are instances for example, where the expectations of the individual's family will weight heavier than expectations coming from friends or supervisers (Fishbein and Ajzen, 1975, p. 302).

II. Normative beliefs in relation to specific online buying beliefs

According to Fishbein and Ajzen, individual's beliefs refer to "a person's subjective probability judgements concerning some discriminable aspect of his world" (Fishbein and Ajzen, 1975, p. 131). Moreover, an individual's beliefs are coming from perceptions, which are direct experiences with a given object (Fishbein and Ajzen, 1975, p. 132).

In the context of online buying, various consumers' perceptions have been studied, in direct relationship with either attitude or intention formation. A great deal of research has focused on specific online buying attributes such as risk and trust perceptions.

Researchers agree that the level of perceived risk when buying online is higher than the perceived risk in traditional buying situations mostly because consumers are deprived of some basic sensory experiences (taste, smell, touch) and there is a temporal separation between payment for goods and services and gratification (Bhattacherjee and Premkumar, 2004; Kim et al, 2008).

Moreover, there is the perceived risk in relation to the security of online payment and the confidentiality of personal information handed to the online vendor when an online order is placed.

Consumers' perceptions regarding the security of their financial information represent one of the major barrier in adopting online buying (Pechtl, 2003; Khalifa and Limayem, 2003; Rudolph et al, 2004; Suki and Suki, 2007; Suresh and Shashikala, 2011; Delafrooz et al, 2011).

This gives serious research implications, since studies show that perceived risk has a significant negative effect on consumers' intentions to buy online (e.g. Eastin, 2002; Liu and Wei, 2003; Lui and Jamieson, 2003; Shin, 2004; Choi si Geistfeld, 2004; Kim et al, 2008; Crespo and Bosque, 2010).

In uncertain situations, where risk is prevailing, trust comes as a solution to risk reduction (Kim et al, 2008). The direct and positive relationship between perceived trust in online environment and consumers' intention to buy online has been validated in previous literature (Kim et al, 2008; Yoon, 2009; Kim et al, 2011).

But, as Fishbein and Ajzen noted, beliefs' formation goes beyond direct observation: for example, the interaction with other persons may lead to belief formation (Fishbein and Ajzen, 1975, p. 132). These types of beliefs that go beyond direct observation are called inferential beliefs and they are based on a prior inference (Fishbein and Ajzen, 1975, p. 132).

Thus, a consumer may form his or her beliefs about online buying risk and trust not only directly, through perceptions, but also as a result of prior inference from normative beliefs.

Supposing a member of the family or a friend agrees with his or her decision to buy online, the consumer may deduce that online buying is safe and trustful, which will decrease the level of perceived risk and increase the level of trust.

III. Conceptual model

Following Fishbein and Ajzen approach to belief formation and related online buying literature, I assume the following hypotheses of

the study:
Hypothesis 1: There is a direct and positive relationship between normative beliefs and consumers' intention to buy online
Hypothesis 2: There is a direct and positive relationship between perceived trust and consumers' intention to buy online
Hypothesis 3: There is a direct and negative relationship between trust and perceived risk
Hypothesis 4: There is a direct and negative relationship between perceived risk and consumers' intention to buy online
Hypothesis 5: Normative beliefs have a moderate effect on the relationship between trust and consumers' intention to buy online
Hypothesis 6: Normative beliefs have a moderate effect on the relationship between trust and perceived risk
Hypothesis 7: Normative beliefs have a moderate effect on the relationship between perceived risk and consumers' intention to buy online

IV. Methodology

In order to test the hypothesis, the measures of the four conceptual variables were defined and a web survey was employed in order to collect primary data.
Measurements. Indicators from existing literature were employed in order to measure the four latent variables: intention to buy online, normative beliefs, perceived risk and online trust.
"Intention to buy online" was constructed as a first order formative latent variable composed of three items: intentions as expectations, intentions as plans and intentions as wants, following Soderlund and Ohman approach (Soderlund si Ohman, 2006, p. 411).
"Normative beliefs" were constructed following Fishbein and Ajzen approach (Fishbein and Ajzen, 1975) and each referent group's agreement with online buying was ascertained in a first order formative latent variable.

"Online trust" was constructed as a first order formative latent variable, consisting of trust in the online vendor and trust in the reliability of the system to carry a secure transaction (Said, 2011; Crespo si Rodriguez, 2010; Kim si Eastin, 2011).
"Perceived risk" was constructed as a second order formative latent variable consisting of four dimensions of risk: performance risk, delivery risk, security risk and privacy risk (Said, 2011; Crespo si Rodriguez, 2010; Kim si Eastin, 2011).
Data collection. Primary data were gathered by the use of a web survey, available online at consumatorulonline.ro. The survey platform was developed for the purpose of a larger study of online consumer behavior. At the moment of first data extraction (27th of March, 2012), 98 complete and valid responses were gathered.

V. Data analysis and results

The structural equation modeling was conducted with WarpPLS 3.0 software. Data analysis and results section comprises: measures reliability and validity, the PLS-based SEM analysis and model fit.
Measures Reliability. Measures were tested for internal consistency by computing and interpreting Cronbach alpha coefficients, composite reliability coefficients and average extracted variance (AVE) (Bagozzi and Yi, 1988). Nunally suggests that all CR coefficients should be above the value of 0.7 (Nunally, 1978) and Hair et al suggest that all Cronbach Alpha coefficients should be above the critical value of 0.5 (Hair et al, 1998) in order to yield internal consistency. As all conditions are met (see Table 1), I can conclude that the measures are reliable.

Table 1

Measures Reliability (Internal Consistency)

Construct	Composite reliability (CR)	Cronbach Alpha Coefficients	Average extracted variance (AVE)
I	0.924	0.891	0.753
T	0.916	0.878	0.733
R	0.918	0.881	0.737
N	0.887	0.808	0.723
*** I = intention to buy online, T = online trust, R=perceived risk, N= normative beliefs			

Measures Validity. The validity of the measures were tested with both convergent and discriminant validity.

The combined loadings and cross-loadings were employed in order to assess the convergent validity of the constructs, following Jewell approach: indicators among constructs should have high and similar loadings (Jewell, 2011).

Table 2

Combined loadings and cross-loadings

	intent	trust	risk	norm	norm	norm	SE	P value
I1	**0.882**	-0.121	-0.091	-0.067	0.006	-0.012	0.071	<0.001
I2	**0.898**	0.033	0.016	0	0.03	0.015	0.07	<0.001
I3	**0.837**	0.022	0.051	0.015	0.088	0.009	0.082	<0.001

I4	**0.853**	0.069	0.028	0.055	-0.124	-0.012	0.069	<0.001
T1	-0.135	**0.814**	-0.037	0.176	-0.001	-0.042	0.082	<0.001
T2	-0.011	**0.820**	-0.181	0.028	0.041	-0.029	0.083	<0.001
T3	0.082	**0.914**	0.041	-0.109	0.009	-0.038	0.071	<0.001
T4	0.051	**0.873**	0.161	-0.076	-0.046	0.105	0.068	<0.001
R1	-0.037	-0.141	**0.824**	-0.005	0.06	0.012	0.09	<0.001
R2	-0.198	0.136	**0.831**	0.058	-0.087	0.037	0.077	<0.001
R3	0.115	-0.009	**0.902**	-0.151	0.006	-0.022	0.074	<0.001
R4	0.105	0.012	**0.875**	0.106	0.019	-0.024	0.084	<0.001
N1	0.173	0.039	0.167	**0.811**	0.021	0.107	0.077	<0.001
N2	-0.138	-0.05	-0.109	**0.873**	0.023	-0.05	0.07	<0.001
N3	-0.023	0.014	-0.047	**0.864**	-0.043	-0.05	0.079	<0.001
N1*T1	-0.049	-0.029	0.209	0.072	**0.716**	0.309	0.127	<0.001
N1*T2	0.094	-0.205	0.164	0.003	**0.616**	0.085	0.102	<0.001
N1*T3	-0.008	-0.285	0.164	0.157	**0.761**	0.24	0.112	<0.001

N1*T4	-0.127	-0.229	0.184	0.275	**0.719**	0.188	0.128	<0.001
N2*T1	0	0.064	-0.129	-0.026	**0.767**	-0.048	0.11	<0.001
N2*T2	0.134	0.036	0.029	-0.027	**0.698**	-0.222	0.155	<0.001
N2*T3	0.075	-0.005	-0.04	0.086	**0.806**	-0.088	0.15	<0.001
N2*T4	-0.188	0.013	0.097	0.231	**0.780**	-0.025	0.124	<0.001
N3*T1	0.099	0.091	-0.191	-0.233	**0.767**	-0.023	0.119	<0.001
N3*T2	0.124	0.248	-0.03	-0.213	**0.709**	-0.279	0.14	<0.001
N3*T3	0.024	0.12	-0.276	-0.181	**0.829**	-0.109	0.137	<0.001
N3*T4	-0.149	0.133	-0.099	-0.13	**0.776**	-0.005	0.12	<0.001
N1*R1	0.151	0.147	-0.06	-0.09	0.028	**0.743**	0.109	<0.001
N1*R2	0.277	0.071	-0.003	-0.235	0.136	**0.794**	0.127	<0.001
N1*R3	0.292	-0.058	0.032	-0.051	0.088	**0.836**	0.125	<0.001
N1*R4	0.272	-0.006	-0.048	-0.108	0.215	**0.764**	0.151	<0.001
N2*R1	-0.122	0.074	0.104	0.118	-0.122	**0.758**	0.185	<0.001
N2*R2	-0.059	0.091	0.099	-0.164	-0.045	**0.828**	0.178	<0.001

N2*R3	-0.067	0.05	0.063	-0.014	-0.159	**0.847**	0.15	<0.001
N2*R4	-0.167	0.134	-0.07	-0.024	0.012	**0.799**	0.156	<0.001
N3*R1	-0.138	-0.107	0.053	0.257	-0.168	**0.789**	0.135	<0.001
N3*R2	-0.086	-0.082	0.06	-0.003	0.085	**0.843**	0.163	<0.001
N3*R3	-0.095	-0.188	-0.056	0.156	-0.104	**0.860**	0.144	<0.001
N3*R4	-0.232	-0.096	-0.18	0.15	0.047	**0.817**	0.157	<0.001

*** Note that combined loadings and cross loadings are also provided for the moderation effect (product of N items with I items and R items)

Table 2 shows that indicators load more inside the construct than they cross-load with indicators from other constructs.

Divergent validity was assessed through a confirmatory factor analysis, which can be seen in Table 3. The square roots of AVE are shown on the diagonal axis of the table. Following Fornell and Larcker approach, the square roots of AVE of a latent variable is supposed to be greater than any other correlations that imply that latent variable (Fornell and Larcker, 1981).

Thus, results from Table 3 indicate a strong divergent validity among the variables of the study.

Table 3

Latent Variables correlations and square root of AVE

	intent	trust	risk	norm	norm	norm
intent	0.868	0.604	-0.509	0.603	-0.312	0.333
trust	0.604	0.856	-0.498	0.503	-0.135	0.227

risk	-0.509	-0.498	0.859	-0.34	0.27	-0.524
norm	0.603	0.503	-0.34	0.85	-0.055	0.174
norm	-0.312	-0.135	0.27	-0.055	0.747	-0.444
norm	0.333	0.227	-0.524	0.174	-0.444	0.807

*** intent = intention to buy online, trust = online trust, risk=perceived risk, norm= normative beliefs

*** the square roots of AVE are shown on the diagonal

*** Note that correlation and AVE are also provided for the moderation effect

Structural Equation Modeling. The PLS-based SEM analysis was performed using WarpPLS software. The path coefficients and their associated p values are shown in Table 4.

Table 4

Correlation coefficients and associated p value

	intent	trust	risk	norm	norm	norm
intent		0.352 (0.005)	-0.273 (0.024)	0.26 (0.015)	-0.013 (0.44)	0.02 (0.418)
trust						
risk		-0.438 <0.001			0.207 (0.008)	
norm						
norm						
norm						

From Table 5 we can test our hypotheses:

- Trust has a strong positive effect on consumers' intention to buy online with a β coefficient of 0.352 at p<0.01
- Perceived risk associated with buying online has a negative mild effect on consumers' intention to buy online with β coefficient of -0.273 at p<0.05
- Normative beliefs have a positive mild effect on consumers' intention to buy online, with a β coefficient of 0.26 at p<0.05
- In regards to moderating effects of normative beliefs, only the moderating effect on the relationship between online trust and perceived risk is sustained, with a β coefficient of 0.207 at p<0.01

Figure 1

Structural Equation Modeling
(path coefficients and associated p value)

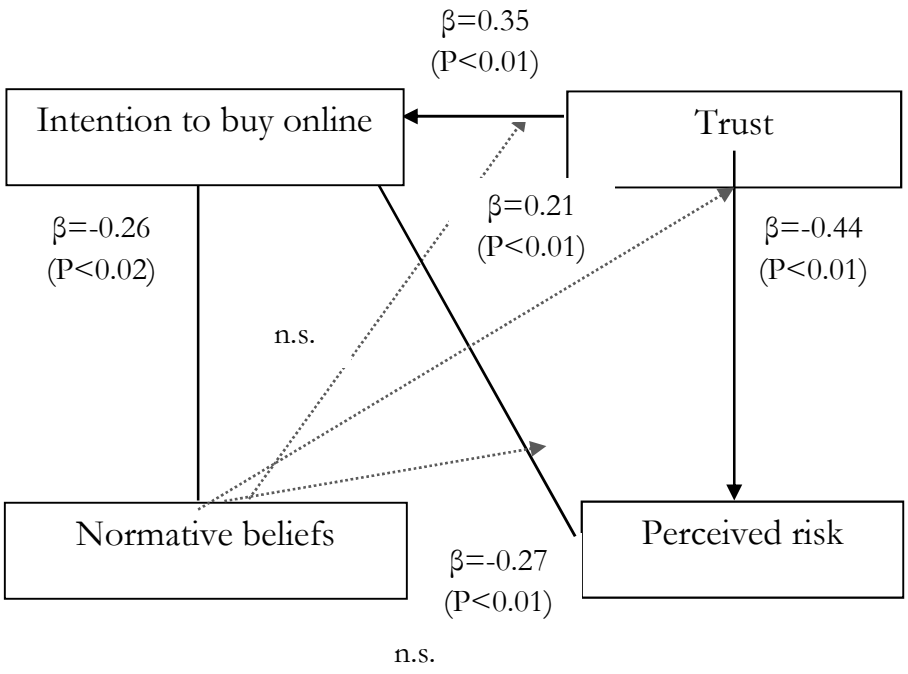


Figure 2, 3, 4 and 5 shows the warped relationship between intention and its main predictors, but also between online trust and perceived risk:

Figure 2

Data points and regression curve between intention to buy online and trust

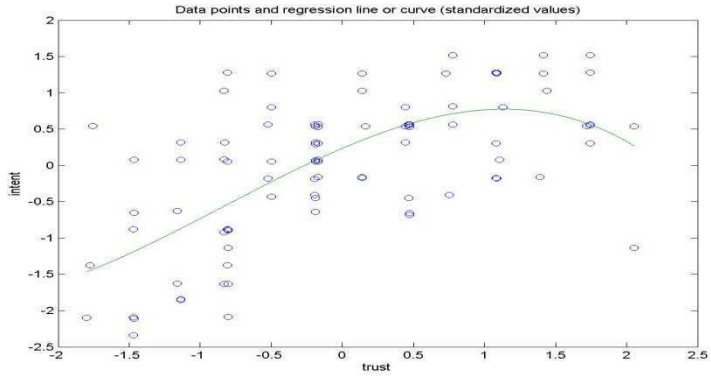


Figure 3

Data points and regression curve between intention to buy online and perceived risk

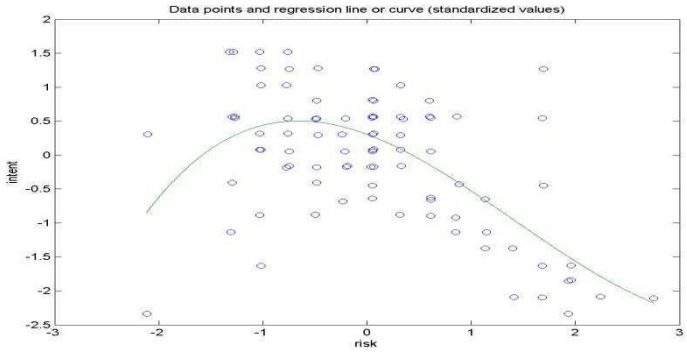


Figure 4

Data points and regression curve between intention to buy online and normative beliefs

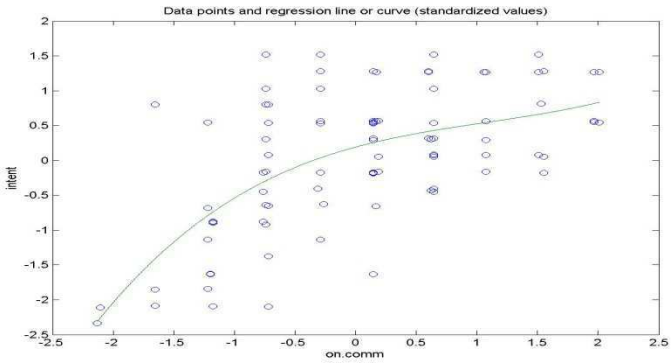
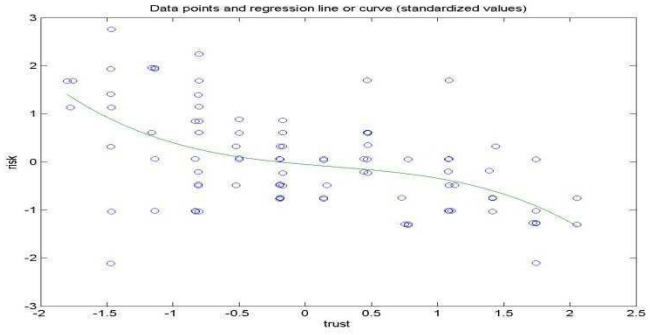


Figure 5

Data points and regression curve between trust and risk



Model fit. Model fit is assessed by several indicators: average path coefficients (APC), average R squared (ARS) and average variance inflation factors (AVIF).

Table 5

Model fit

APC=0.223, P<0.001	Good if p< 0.05
ARS=0.450, P<0.001	Good if p< 0.05
AVIF=1.858	Good if AVIF < 5

Source: Kock, 2011

VI. Conclusions

This study has shown the importance of normative beliefs in the context of online buying dominated by uncertainty. Following Fishbein and Ajzen approach to belief formation, I assumed that normative beliefs would have a direct and positive effect on consumers' intention to buy online but also a moderating effect upon the relationship between intention and other held beliefs.

The results of the PLS-based structural equation modeling confirmed that consumers pay special attention to the opinions of their referent groups. The more their referent groups agree with using the Internet to buy goods and services online, the more they intend to buy online.

This yields serious implications since online vendors could increase consumers' intention to buy online by appealing to consumers' referent groups.

Also, the magnitude of the relationship between online trust and perceived risk depends on the level of normative beliefs, showing that the effect of online trust on perceived risk varies as a function of the level of normative beliefs.

This is in accordance with Fishbein and Ajzen's inferential beliefs. If consumers' referent groups agree with online buying, then consumers deduce that online buying is safe and it should be trusted.

Normative beliefs could be seen as an assurance mechanism in risky situations, such as online buying.

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