Modelling Consumer Aversion and Trade – offs towards Pre-Purchase Risk Factors in Online Second-hand Goods Market

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Doctoral Thesis Summary

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Modelování averze a kompromisů spotřebitelů k faktorům předkupního rizika na online trhu s použitým zbožím

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ABSTRACT

The market for second-hand goods continues to record strong growth in most economies around the world. However, as the second-hand market evolves, especially with the adoption of online e-commerce platforms, consumers' inclination for second-hand goods have also become complex. Whiles online transactions pose several risks to the consumer, the addition of used goods intensifies the risks to the user. As the risk factors brought about by online second-hand goods transactions persist, the relative importance or the level of aversion of these risks (weights) to the consumer have not clearly emerged. In view of this, this thesis proposes a model that would aid second-hand vendors to study and analyze the relative importance of pre-purchasing risks factors that consumers consider in online second-hand goods market. The model focused on understanding consumer aversion to pre-purchasing risk factors in online second-hand goods transactions in a trade-off setting. Thus, what risk factors are consumers willing to trade-off when contemplating on purchasing used goods online? Furthermore, the influence of perceived risk factors is studied across different demographic profiles to understand the uniqueness of the online used goods purchaser and their preferences. Both qualitative and quantitative research methods (mixed) were adopted; whiles primary and secondary data collection approaches were adhered for gathering information. The findings from this research did not only add to stock of existing theory, but also has the potential of assisting managers to understand the complexities involved in the online second-hand goods market. Hence, to take the cue of the value proposition of customers so far as risk to avert the customer is concerned. The managerial implication is that the competitive and sustainable ability of a company is positively related to its ability to realize and measure the weighty role individuals'/customers' risk plays in consumer decisions making. Thus, for online used goods vendors to be successful in consumer markets, they do not have to concentrate only on their internal activities, but also, they must understand and take precautionary measures regarding risk factors that might avert the customer from patronizing their business.

ABSTRAKT

Trh s použitým zbožím zaznamenává silný růst ve většině ekonomik po celém světě. Nicméně, jak se trh se second-hand zbožím rozvíjí, a to zejména po adoptování on-line platformy elektronického obchodování, tak se inklinace spotřebitelů k použitému zboží také stala komplexním procesem. Pokud online transakce představují pro spotřebitele určité riziko, přidává se pro spotřebitele další riziko, které plyne z prodeje použitého zboží. I když rizikové faktory, které přinášejí second-hand online transakce, přetrvávají, relativní význam nebo úroveň averze těchto rizik (váhy) pro spotřebitele nebyla zjišťována. Z toho důvodu je v této práci navržen model, který by napomohl prodejcům second-handu studovat a analyzovat relativní důležitost faktorů, které spotřebitelé považují za riziko při koupi použitého zboží přes internet. Model je soustředěn na pochopení averze a kompromisům spotřebitelů k faktorům předkupních rizik při online transakcích s použitým zbožím. Tudíž, které rizikové faktory jsou spotřebiteli považovány za kompromis, když uvažují o online nákupu použitého zboží? Proto, aby bylo možné porozumět jedinečnosti. Aby bylo možné porozumět jedinečnosti a preferencím nakupujících použitého zboží online, byl mimo to studován vliv vnímání rizikových faktorů napříč různými demografickými profily, byly využity jak kvalitativní, tak kvantitativní výzkumné metody (smíšené); byly dodrženy přístupy při shromažďování primárních i sekundárních informací. Závěry z tohoto výzkumu přispěly nejen jako přídavek ke stávajícím teoriím, ale mají rovněž potenciál napomoci manažerům k porozumění složitostem, které se vyskytují na online trhu s použitým zbožím. Z toho důvodu by mělo být pamatováno na hodnotu nabídky zákazníkům, zvláště pokud jde o riziko ztráty zákazníka. Důsledky pro manažery spočívají v tom, že konkurenceschopnost a udržitelnost společnosti je pozitivně spojena s její schopností realizovat a měřit váhu rizikových faktorů, které ovlivňují rozhodování jednotlivých spotřebitelů. Proto, aby prodejci použitého zboží (second-handu) byli na spotřebitelských trzích úspěšní, nemohou se soustředit pouze na své vnitřní aktivity, ale musí rovněž pochopit a přijmout preventivní opatření týkající se rizikových faktorů, které by mohly zákazníky odvrátit od podpory jejich podnikání.

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1. INTRODUCTION
1.1 Research Background

Around the globe, the market for second-hand goods and in particular used vehicles, continue to record high annual growths, in terms of patronage (Clerides, 2008; Czaga & Fliess, 2004; Heese et al., 2005; Singh, 2015). This runs contrary to a growing global trade restriction on certain kinds of second-hand goods. This implies that the market does not seem to be nearing an end anytime in the foreseeable future (Czaga & Fliess, 2004). International trade of second-hand goods, though, used to target poor under-developed and developing countries as their destinations, according to (EBay, Amazon, Taobao, OLX, Alibaba) etc. the emergence of several e-commerce platforms have changed the dynamics of destination of such second-hand goods (Singh, 2015; Lewis, 2011; Ghose, 2009). Testaments to this state of affairs have been given by Heese et al., (2005) and Ghose (2009) in the literature by way of explaining the booming intra U.S trade for used vehicles (cars). Williams & Paddock (2003) have also in a survey explicated that 40% of consumers in the U.K had bought various kinds of used goods during the last 12 months when the survey began. This establishes the fact that though poor nations are often beneficiaries of used items, for differing reasons, there is a growing interest in the trade in the developed world as well.

The growing interest being exhibited in used goods, according to Austin (2015) and Shevlin (2008), could partially also hinge on the emergence of goods that have been made up or refurbished. Despite the fact that the rationale for refurbishing the good or commodity is not disclosed often, buyers are lured to purchase them with relatively low price, good physical condition and the fact that a certified manufacturer has reconditioned the good or commodity (Kogan, 2011) as baits. Shevlin, (2008) has argued further that refurbished or done-up goods unlike completely used goods remain products that were once recalled either by the manufacturer or the vendor for various reasons. Such goods or commodities that are recalled are tested, repaired, remanufactured or reconditioned for subsequent further sale (Oraiopoulos, Ferguson, & Toktay, 2012).

In spite of the pertinent reasons listed above that propels the customer to buy used goods or refurbished specifically online, there still exists a threat to avert the customer in engaging in that transaction (Kwarteng et al; undated). This is devoid of the geographical area or region or country the consumer is coming from. As a matter of fact, risk aversion toward the patronage of used goods online differs significantly among consumers in terms of age and sex, educational background etc. with several reasons given the internet and its infrastructure backbone of that particular country or region.

In relation to the Czech Republic as an emerging economy, it is a tacit knowledge that a proportionate amount of second-hand goods outlet remains a part of the country's economy. According to reports from Statisticstimes (2016), Czech Republic ranks 24th in Europe in terms of second hand goods contribution to GDP Per capita (nominal) with an amount of 19,855 euro and 19,563 euro in 2013 and 2014 respectively, compared to its sister countries like the United Kingdom, France, etc. which are ranging from 35,102 euro and above in terms of per capita GDP (Nominal). On this ground of GDP per capita exhibited from the data, there is an indication of a proportionate amount of patronage in the purchase of second-hand goods in the Czech Republic. Some of the items mostly bought through second-hand outlets are electronics, vintages, and antiques used clothes among others. Different types of second goods patronized by the population of the study will form part of the analysis in the mainstream research. In the Czech Republic, there is a huge market for such used goods (retail shops) with notable e-commerce sites that deal with used goods. Some of the popular e-commerce websites that offer used goods in the Czech Republic are http://www.aukro.cz, http://www.bazos.cz, and http://www.ikup.cz/.

In fact, various studies have attempted to detect a difference as well as the motivational and behavioral factors towards purchasing used goods. However, consumer behavior and the risk factors that inhibit (avert) the customers purchasing decision on used or second goods online relative to the weights attached by the consumer in question has not been studied extensively. Hence, a study geared towards modeling pre-purchasing risk governing consumer behavior on used goods online is relevant.

1.1.2 Statement of the Problem

The market for used goods has become a recognized component in the Gross Domestic Products (GDP) computation in most economies around the world, be it developed or developing countries. For instance, in 2015, the used goods market in Canada added a record value of $36 billion to the economy (CBC, 2016) representing a 2.2% share of the annual GDP. Similarly, in the USA, the market for used goods generated an annual sales figure of $9 billion in 2007 registering an increase of 20% from the figures recorded in 2002. In Europe, there continues to be a booming market for used goods, particularly in the automobile, antiques, vintage items and electronic goods in general. In the Czech Republic, there continues to be an increasing market for used goods. According to the reports from Czech Statistical Office (CSO), the total number of retail companies is recorded to be 127,117 in 2013 (Czech statistical Office, 2016). Out of these retail stores, there is an estimation of approximately over 32% operating basically on used goods (Czech statistical Office, 2016). Additionally, the revenue generated out of the whole retail stores to GDP was 882,515 million Czech Crowns in 2013 and predicted to increase more in the years

ahead. Out of this total sale generated in 2013, about 27% is from the sale of used goods to the revenue computation of GDP in the Czech Republic. These sales figures can be explained by the advent of electronic commerce platforms that provide the medium for the sale of used goods.

While online transactions pose several risks to the consumer, the addition of used goods, exacerbate the risks to the user. Notwithstanding the several risk factors brought about by online used goods transactions and the relative importance (weights) the consumer attaches to these factors, a scientific research in the area is very limited. This research would focus on the relative aversion-importance of pre-purchasing risks that consumers consider in online used goods transactions (market). The modeling of user perceptions and aversions to the purchase of used goods online would be conducted in a trade-off environment where there is a limited set of options or profiles for the consumer to choose from.

2. STATE OF THE ART AND RELATED LITERATURE WORKS

This section highlights and outlines the state of the art as well as literary works relating to the study. This will unearth pertinent gaps in literature for the sake of this dissertation and ultimately go ahead to fill such gaps within the framework of the dissertation.

2.1 Overview of online shopping behaviour

Online shopping behaviour (also called online buying behaviour and Internet shopping/buying behaviour) refers to the process of purchasing products or services through the Internet. The process of buying via the internet is made up of five steps similar to those related with traditional shopping behaviour (Liang & Lai 2000). In the classical online shopping procedure, when a customer sorts to the need for some commodities or service, he/she goes to the Internet and makes a thorough research on the needed information on that particular product. On the other hand, rather than searching keenly, at times potential customers are enticed by information about products or services in connection with the felt need. They then assess alternatives and choose the one that best fits their criteria for meeting their demands. Lastly, a transaction is conducted and post-sales services offered to the customer in question. Online shopping attitude basically is meant for consumer's psychological, emotional, socioeconomic and demographical state in the light of making Purchases on the Internet.

The Figure 1 below represents decision making of online buying of customers coupled with its antecedents of trust, perception, beliefs, and attitudes as against online shopping.
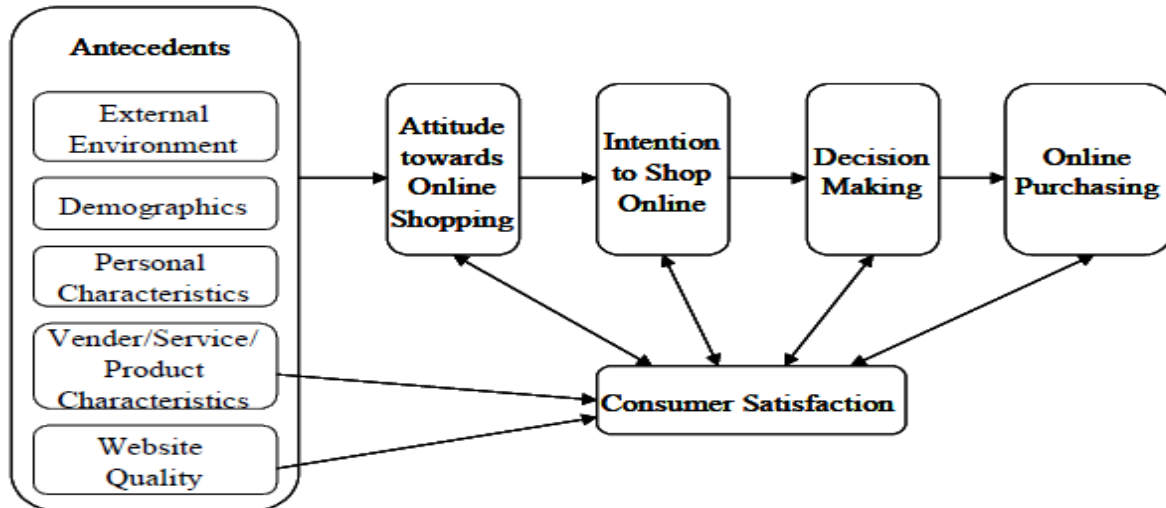
Figure 1: Research model of consumer's online shopping and buying attitude
Sources: Li & Zhang (2002)

2.1.1 Second- Hand Goods Market Vs. Online Shopping Behavior

The term second-hand goods as defined by Lane, Horne and Bicknell, (2009) is the one that is being purchased by or perhaps relocated to another user. A second-hand good is often attributed to a good that is not in the same shape as and when it was originally purchased before relaying to the current user (Charbonneau, 2008). In as much as the good in question has been used by someone or first owner and handed over to second-hand retailers (market), it leaves its original position as it was purchased. This gave birth to the higher proliferation of such second-hand market businesses we see today, mostly touted as affordable, ready to go, with different varieties of goods situated there. The second-hand market is made up of all consumer durable neglected, sold or bartered with or without any transitional party, after discarding by the consumers (Stroeker and Antonides,1997). Second-hand retailers are mostly made up of physical stores like vintage shops/boutiques, consignment stores, charity shops among others. Lately, second-hand markets are seen as informal and are attributed to small or midsized business enterprises (Hansen, 2004; Williams and Paddock, 2003) shapeless retail setups (Gregson and Crewe, 2003) and a beneficial market in the western part of the world (Mhango and Niehm, 2005). As a matter of fact, there is a trending rise of interest, globally, in refurbished and second-hand goods/used goods market. Table 1 presents literature of some related works on second –hand goods transactions.
. Table 1: Review of work on second-hand goods online (Source: Author)

S/N	TOPIC	AUTHOR (S)	METHODOLOGY(S)	DATASET
1	Consumers' initial trust toward second-hand products in the electronic market	Sang M and Sang J (2005)	Structural Equation modelling	College students

2	Second-Hand Spaces: Restructuring Retail Geographies in an Era of E-Commerce	Parker & Weber(2013)	Qualitative Enquiry	Survey and Interview from Chicago retailers
3	Internet exchanges for used books: An empirical analysis of product cannibalization and welfare impact	Ghose and Smith (2006)	Qualitative Enquiry	Repository of Amazon.com
4	Internet exchanges for used goods: An empirical analysis of trade patterns	Ghose (2009)	OLS Regression models	Panel Data from Amazon

2.2.1 The Czechs and the Online Used Goods Market

In the Czech Republic, online customers were not particularly enthused to hook up on the internet in search of used goods. They rather preferred walking into the local outlet to catch a feel for the good of their interest. However, it could be conveniently asserted that the online used goods market gained the needed prominence in the early days of internet penetration as far as the Czech Republic is concerned. The irony here is that Czechs saw it a very daunting task to shop via online and also to buy solid and exact used goods via notable or so-called big online websites that deal with the sale of both used or brand new items such as the Amazon's, the eBay's among others. Nonetheless, as the internet has kept on springing, it has also become difficult for vendors of the used goods market to broaden their horizon in terms of publicizing their goods online. The inventory in Table 3 below clearly buttresses this assertion. Again, a recent report put in the public domain by Equa Bank (2017) has revealed that almost 9 out of 10 Czechs in one way or the other sell or buy second-hand goods using the online mode. The report further went on to explain that the ordinary Czechs buy clothes and other households with more than 500czk on a single purchase in these second-hand outlets. Clearly, the traditional notion of the ordinary Czech not voluntarily throwing things out remains the most vital rationale behind this view. Other extracts from the survey carried out by Equa Bank (2017) have shown that used goods online are becoming rampant in the Czech Republic. This according to the report emanates from the affordable price tag on such goods especially mobile phones and electrical appliances. Almost 93 percent (93%) of Czechs sell their own second-hand items through online platforms. And one-fifth of Czechs are also of the view that to get rid of unsuitable gifts it would be better to push them through second-hand online platforms for sale (Equa bank, 2017). Apart from the affordable price tag influencing the patronage of second-hand goods on online platforms, it was revealed in the survey that second-hand purchases for children were the best-especially clothes and sports equipment. The basic reason according to the report is that when getting such goods, it does not pay to get new ones and close to 43 percent (43%) of the respondents shared this view. Contrary to

this perspective by the respondents, is the one that proposes that people will not want to give out money to items that have a shorter span. In view of this, the Czechs are labelled as far-sighted and fear-provoking country, as seconded by the executive director of Equa Bank, Jakub Pavel.

As evidenced from the Table 2 of inventory taken on used goods traded online on the Czech market, it can be attested that more possible outlets are on the verge of coming into the Czech market. According to the research of Equa Bank (2017), the most widely selling and shopping online outlets are Aukro.cz with exactly 33 percent (33%) of their respondents connecting to that portal for purchase. Similarly, one-third of their respondents buy second-hand goods on other notable online platforms. Some respondents also echoed their claims by connecting via social media sites (Facebook, LinkedIn, etc.) for their demand for such used goods. In line with the report presented by Equa Bank, diverse millennial age groups engage in shopping over the internet for second-hand goods such as books, while ages above 54 are more attached to their usual traditional style of shopping at a particular retail shops purposely for goods like antiques and so forth.

On justification of clarity and significance of the present study, Table 2 presents an inventory of used/ second-hand goods electronic outlets traded online in the Czech Republic, giving an insight into the different regions in the Czech Republic with their kind of used electronic goods traded online, along with their respective websites. It must be noted that not all second-hand goods traded online have been listed as inventory for the discussions, this is because of an upcoming ones and others that do not offer adequate descriptions on the kind of second hand goods to enable customers make specific inquiries

Table 2: Inventory of used goods outlets traded online in the Czech Republic (source: Author)

Names	Websites	Type of goods	Regions
Z druhé ruky	https://elektro.zdruheruky.cz/		Moravskoslezský kraj
Diskontní nákupy Otrok	https://www.diskontni-nakupy.cz/		Zlínský Kraj
2jakost	https://www.2jakost.cz/		Středočeský kraj
OKAY	https://www.okay.cz/maxisleva-rozbaleno/		Moravskoslezský kraj
MALL CZ	https://www.mall.cz/listy/bazar		Hlavní město Praha
Bazar - Miloslav Dundy	http://www.bazarliben.cz/		Hlavní Město Praha
Elektro Solid	http://eshop.elektrosolid.cz/katalog/iijakost-52/		Hlavní Město Praha
Damil elektro	http://www.damil.cz/cs/shop/		Liberecký kraj
ACE elektro	https://www.ace-elektro.cz/		Hlavní město Praha
DOMO elektro	https://www.domo-elektro.cz/kategorie-155-vyprodej-rozbalene-zbozi-2-jakost		Plzeňský kraj
Rozbaleno.cz	https://www.rozbaleno.cz/	Electronic goods	Hlavní město Praha
Giga Computer	https://www.gigacomputer.cz/b-kategorie/		Ostravský
Repasy EU	https://www.repasy.eu/		Plzeňský kraj
IT Bazar	https://www.it-bazar.cz/		Hlavní Město Praha
Promo Comp, s.r.o.	http://www.promocomp.cz/		Hlavní Město Praha
Eurotech trade, a.s.	https://www.eurotech.cz/		Pardubický Kraj
Slach CZ, s.r.o.	https://www.superlevnapc.cz/		Jihočeský kraj
Giga CZ, s.r.o.	https://www.terastore.cz/		Hlavní Město Praha
Mader, s.r.o.	https://www.mader.cz/		Liberecký kraj
Correct Computers, spol	https://www.c-c.cz		Plzeňský kraj
Mobil pohotovost, s.r.o.	https://www.mp.cz/		Hlavní Město Praha
Počítárna, s.r.o.	https://www.pocitarna.cz/		Moravskoslezský kraj
SUPPORT GROUP s.r.o	https://www.repasovnik.cz/		Olomoucký kraj

As previously indicated, used goods traded online in the Czech Republic are presented in this sections (table 2) by providing an updated summary of used goods

outlets currently trading together with their respective online platforms(websites). Table 2 provides adequate understanding of the name, type of goods, as well as the region situated in the Czech Republic. Overall, Hlavni Mesto Praha, being the capital of the Czech Republic recorded most of the second-hand outlets with specifically trading used goods in the category of clothes, books, furniture, art, jewellery, used cars. Zlinsky region had the most recorded second hand good regarding antiques.

2.3 Theory of Perceived Risk

The theory of perceived risk embraced in literature for academic works today was first coined by R. A Bauer (1960). His notion on this academic realism was stemmed from the fact that consumers are seen as a role of *uncertainty* and its *consequence* (i.e. Bauer's two-dimension theory of risk). According to the works of Bauer (1960) consumer behaviour is characterized with an unknown risk, in the sense that consumers' actions and inactions towards the purchase of a product will eventually lead to the concerns emanating from predicting the outcome. Sometimes, such occurrence tends even to get in the bad taste for the consumer in question. In the broader sense, perceived risk related to consumer behaviour may in some way thought of as the consumers' idiosyncratic perception and belief geared towards a loss at a particular time; which intends affects his/her decision to embark on a transaction.

3. RESEARCH OBJECTIVES AND METHODOLOGY

The chapter talks about the objectives of the research and the methodology applied. Hypotheses are also proffered and the research design presented.

3.1 Objectives of the Study

The general aim of the research would be to expand knowledge on consumer online buying behavior. In particular, the dissertation would focus on modeling consumer aversion to pre-purchasing risk factors in online used goods transactions in a trade-off setting. The following is an outline of the objectives of the dissertation:

1. To identify relevant attributes (factors) and their respective levels using expert knowledge (interviews) and the literature in relation to pre-purchase risk factors in online used goods transactions.
2. To design a conjoint analysis model that adequately represents consumers' pre-purchasing hesitancy (aversion) intentions towards online transacted used goods.
3. To understand the other risk factors consumers would be willing to trade-off as they contemplate on purchasing used goods online.

4. To examine the influence of perceived risk factors on the decision to purchase of second-hand goods online.
5. To determine choices of each sociodemographic group in relation to the aversion (utilities) assigned to each of the risk factors.

6. To analyze the magnitude of association of risk inherent in the customer regarding the purchase of second-hand goods online.

The above objectives would be realized through an exploratory study of consumers of used goods in the Czech Republic.

3.2 Research Questions

According to Maceviciute (2007), cited in Alison Jane Pickard, research questions are stated to propel a research design into the specific study. In this research, the author will make use of the following questions to guide the study.

a. What order of relative weights do consumers attach to pre-purchase risk factors in the Online transaction of used goods?
b. What is the consumers' most averse characteristic profile regarding purchases of used goods online?
c. Which risk factors are consumers willing to a trade-off in their quest to purchase used goods online?
d. Do risk factors influence the decision to purchase second-hand goods online?
e. What socio-demographic profiles are behind each set of risk factors?
f. How are risk factors associated with the penchant to purchase second-hand goods online?

3.3 Hypothesis Formulation

i. There is a relationship between risk factors and the tendencies to purchase used or second- hand good online
ii. Risk factors associated with online transactions have a negative impact on the type of second-hand goods purchased.

4. CONCEPTUAL FRAMEWORK OF THE THESIS

The conceptual framework is developed with the requisite literature detailing the roadmap and the structure along with the empirical analysis used in the dissertation. Find below, in Figure 5 the comprehensive conceptual Framework for the dissertation.
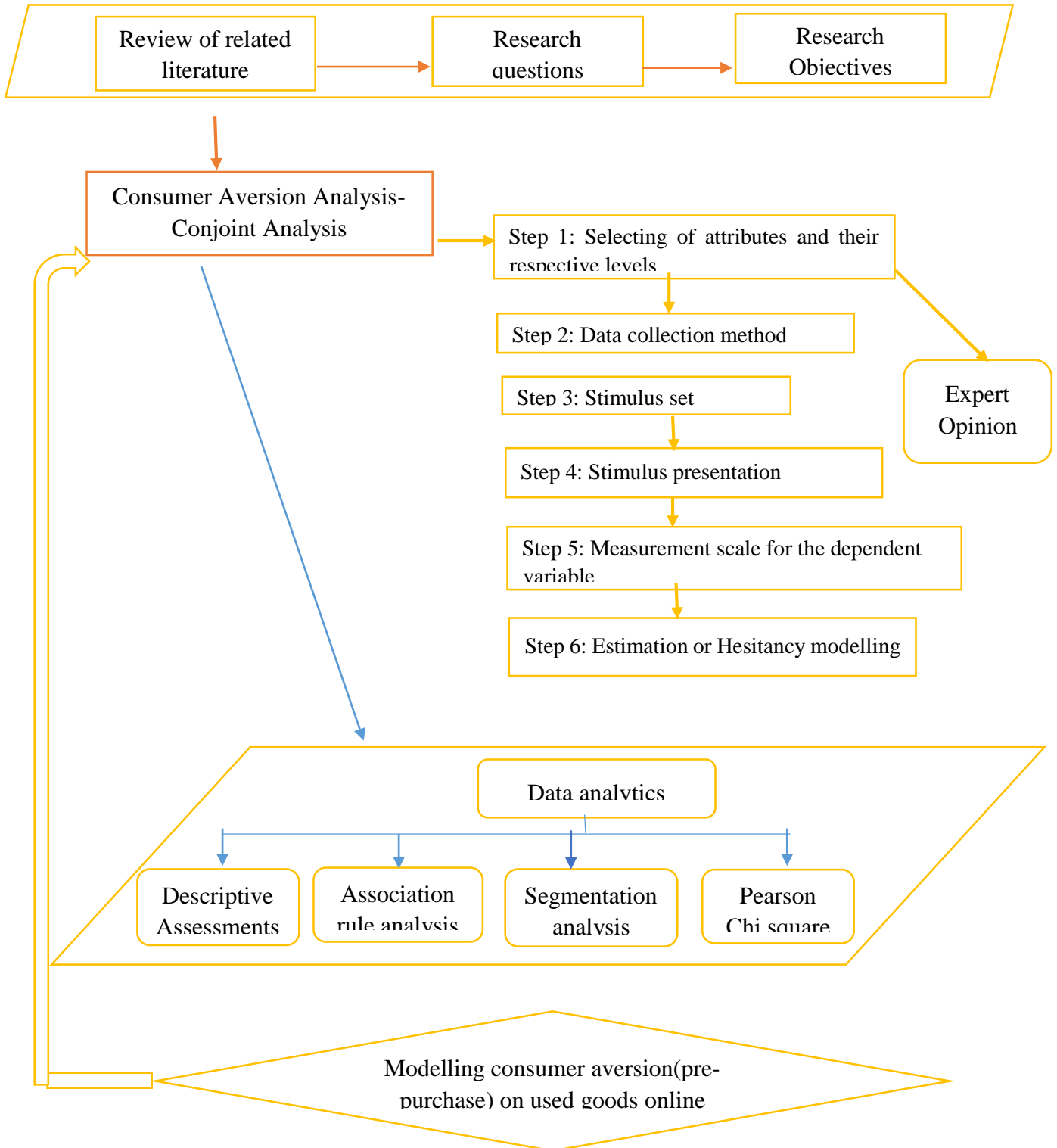

Figure 5: Conceptual Framework of the thesis, Source: Author

5. SELECTED PROCESSING METHOD

This chapter of the present study provides the chronological methodology used for the dissertation. It systematically presents an overview of the technique embarked upon to fill the gap in the literature, ranging from the design, how data is collected and subsequently furnish readers with how the data will be analyzed in tandem with the goals of the dissertation.

5.1 Research Design

It cannot be gainsaid that any appropriate research follows a comprehensive research design. The present study is unarguably seen from both explorative and descriptive perspective. In that, an explorative design was used in delving into the respondents' perceptions and behaviours but with widely acclaimed advanced marketing technique (conjoint analysis) to survey respondents. Apart from indirectly exploring the perception of respondents with the conjoint analysis technique that has been used by researchers over the years, specifically in marketing studies (see Green and Srinivasan.1968 etc.). The research went on to employ both descriptive and casual designs in the dissertation. As part of the conceptual framework (see Figure 4) of the present thesis, the present study elaborated the designs embarked upon to answer the questions posed. A step by step approach (conjoint) of the thesis is highlighted in the subsequent section of the thesis. Whiles, other designs to achieve the objectives set follows suit.

5.1.1 Research Approach

The research was centered on both theoretical and empirical analysis reflecting on the framework outlined in Figure 4 above. As can be evidenced from the framework of the thesis, the dissertation embarks on Conjoint Approach (CA) to tackle the problem. As a sequel, the Traditional conjoint analysis (TCA) as a category of conjoint analysis was used in the entire the study. This was chosen for the study because it provides accurate and vivid results compared to other types of conjoint (Kuhfeld, 2005) and as such easier to grapple and understand its operations (Orme, 2006). Conventionally, the CA method works by breaking down preference data of respondents and computing part-worth utility values for each level under each attribute. Concurrently, the trade-offs made in the decision-making process can also be examined between the different attribute levels. The result of the modeling assigns large part-worth utilities to attribute levels that are most preferred whiles least preferred levels receive small part-worth utilities (Kuhfeld, 2005). The part-worth utilities are subsequently aggregated to determine the relative importance (*Herein referred as Aversion*) decision makers (the respondents) attach to the attributes and their levels.
Mathematically, the TCA works as:

The part-worth utilities are then aggregated to determine the relative importance (Herein referred as Aversion) decision makers (the respondents) attach to the selected risk attributes and their levels. In practice, the traditional conjoint analysis (TCA) method models CA as a simple-effects analysis of variance (ANOVA) but with a specialized set of outputs. This is mathematically expressed in Eq. (2) where an individual respondent's stated preference regarding a set of risks attributes measured at various levels is shown.

$$Y_{c=} \mu + \propto_{c1} X_1 + \dots + \propto_{ck} X_k + \dots + \propto_{cK} X_K + \varepsilon_c \tag{2}$$

where Y_c denotes an individual respondent's utility regarding an attribute (X_k) and μ signifying the general mean. The expression $\propto_{c1}$ is the coefficient utility (risk) for a particular level expressed by an individual respondent and ε_c is the error term. Since the CA method studies the joint effect of a set of independent variables measured on a dependent variable, the attributes (X_k) denote the independent variables, the choice (judgements) is the dependent variable (Y_c) whiles the $\propto'^s$ represent the part-worth utilities signifying the parameter estimates from the ANOVA model (Rao, 2014). Subsequently, the total utility of an attribute representing the value assigned by the entire respondents, is derived by aggregating the part-worth utilities of all decision makers (Herein as respondents). In view of this, Eq. (3) expresses an additive format of an individual respondent's utility U regarding an attribute (X_k).

$$U(A_i) = \sum_{i=1}^{m} \sum_{j=1}^{m_j} \propto_{ij} G_{ij} \tag{3}$$

where $\propto_{ij}$ denotes the part-worth utility (risk) estimate on the *j*-th level of the *i*-th factor (*i*=1, 2,…n and *j*=1, 2,…*m*), and G_{ij} indicates the presence of the *j*-th level of the *i*-th attribute. The relative importance (*Herein referred as Aversion)* of each risk attribute is a function of the total utility assigned by all the respondents. The attribute importance (*Herein referred as Aversion)* is essentially the weight W_j of each attribute as judged by the respondents. This is expressed in Eq. (4), where W_j is the relative importance of attribute (X_k) ; Max($\propto_{ij}$) denotes the maximum utility assigned to the attribute (the most preferred attribute level). On the other hand, Min($\propto_{ij}$) represents the minimum utility, which means the least preferred level (Green & Srinivasan, 1978; Kuhfeld, 2005).

$$W_j = \frac{Max(\propto_{ij}) - Min(\propto_{ij})}{\sum_{j=1}^{t}[Max(\propto_{ij}) - Min(\propto_{ij})]} \times 100 \tag{4}$$

5.2 Stimuli Construction

According to the pioneering works of (Van der Pol and Ryan.1996; Rao, 2008) and seconded by the conceptual framework of the present thesis. The stimuli design of CA follows three rigorous stepladders. These are (a) selection of attributes and their accompanying levels (b) Compiling the attributes and levels via profile generation (c) Designing questionnaire out of the profile generated with either rating or rankings procedure (d) and finally modeling preference from respondents (*Herein referred as Aversion)*

5.3 Compilation of pertinent attributes and their levels

The pertinent attributes used in this dissertation was sought from literature accompanied by expert opinions of some selected used/ second hand outlets in the Czech Republic (See Table 5). It must be noted that review was made to produce possible risk components in the pre-purchase aversion that might likely deter the customer to purchase used/second good online. But not all of these were used for the hesitancy model. This was on the premise that some selected review of the likely risk had no connection with the customer and also the customer has no control over. For instance, although the risk of product defects (performance risk) is a risk component that might deter the customer to engage in online transaction specifically used. Implicit knowledge of the customer in question should attest to the fact that, already the good is a second hand/used so there might be the likelihood that it has some defect. So it was automatically taken out of the attribute for the hesitancy modelling. These critical assessments were made to select possible attributes that really measures the tendency of pre-purchasing risk and to desist from long and impractical questionnaire design. (Orme, 2010; Green et al.1998). Table 4 presents selected attributes and their levels.

Table 4: Pertinent risk attributes in online second-hand goods transactions

Attribute (criteria)	Levels	Resources
I: Financial Risk	A_{11}: Not concerned A_{12}: Indifferent A_{13}: Highly concerned	Lawrence and Junnarkar, 2002, Bhatnagar et al. (2000); Jarvenpaa and Todd, 1997, Vijayasarathy and Jones, 2000), Crespo et al, 2009
II: Security Risk	A_{21}: Confidentiality A_{22}: Integrity A_{23}: Availability	Miyazaki and Fernandez , 2001; Hoffman et all, 1999; Wang et al, 1998; Afful-Dadzie and Vesely (2013)
III: Psychological Risk	A_{31}: Information Asymmetry A_{32}: Appearance of goods	Ghose, A., Smith, M. D., & Telang, R. (2006), Lewis, G., 2011
IV: Health Risk	A_{41}: Not reusable (recyclable) A_{42}: Contracting a disease(from previous owner)	Alam, M. D. (2015); Chipambwa, W., Sithole, L., & Chisosa, D. F. (2016).

As seen from the table 4 above and in **response to question 1** of the dissertation, the study settled on four attributes based on literature support and expert knowledge as mentioned earlier on. These 4 attributes *are (Financial Risk, Security Risk,*

Psychological Risk, and Health Risk). The meaning behind each attribute reviewed is expatiated below:

- **Financial Risk**: *This attribute was selected with the view and literature support as well as the expert opinions. Thus, Fear of losing money along the way. That is credit card fraud and other unseen deductions of consumer's money is of a concern to customers. In other words, the trust- worthiness in purchasing through the web/the network cost will increase the expenditure probably higher than expected*

- **Security Risk**: *The tendency that information provided as a matter of purchasing online will be kept in a safer place without any harm afterwards. Thus, likelihood of information used in transaction will be hacked or viruses aiding to security problems. Again, the risk associated to the fact that customers account may be illegally used.*

- **Psychological Risk**: *This risk dwells on the uncertainty of transactions in making online transactions or payment. Customers are sometimes not certain until the final delivery is made or sent to them. The trauma or mood the customers find himself/herself in, in a bid to embark on online transactions. The pressure and the anxiety the customer gets himself pose a risk to the customer. Again, it poses a risk of higher psychological trauma when the consumer is uncertain about the information on the site*

- **Health Risk**: *The risk of contracting health problems as a result of the used good in question purchased via online. The customer is not explicitly aware of how the good in question was used previously before displaying it online for sales. Tacitly, buying used goods online poses risk of diseases and hence some health problems especially used clothes.*

Subsequently, after determining the attributes, appropriate levels were identified for each attribute as measurable properties relevant for this study. (see Table 5). These levels attempt to capture the joint effect of a respondent's aversion in light of the limited options placed before the respondent to select from. For instance, the levels of Psychological Risk explain whether respondents/customers view *Psychological risk* from the point of *Information Asymmetry* or the *appearance of the good* in question traded online when contemplating to embark or initiate online transaction of used goods. The levels under each attribute are of significance, especially when respondents/customers decide to make trade-offs to hook up online for used goods. A carefully selected attributes making up the profiles through the experimental design refers to the magnitude of limited options for the customer to choose from (See Table 3)

In line with the objectives and the conceptual framework elaborating the descriptive assessment of the dissertation (See Figure 5). Other relevant variables that will aid in the empirical analysis of the study includes: ***Age, Gender, Educational level,***

Region in the Czech Republic, shop online, Type of online customer, purchase second hand online, consideration of risk factors in online transaction, Type of second goods purchased, Risk factors considered, Reasons of not purchasing second hand online, Risk factors as an influence of purchasing second hand online, Risk influence of what kind of used goods online, Risk factors ready to trade-off, affected by any risk factor, most risky factor impeding the zeal to purchase used goods online, Possible solutions to these risk factors

5.4 Generating scenario combination (profile)

As earlier mentioned the TCA approach was used in this study. The TCA approach is a multiple regression problem where preference rankings or ratings on a set of stimuli (products/services) are regarded as observations on the dependent variable. The characteristics of the product or attribute levels become the observations of the independent variables (Orme, 2010). In the experimental design to select the number of profiles, the fractional factorial design was used instead of a full profile design. This is because full design burdens respondents and tends to give unreliable results. For example, in this study, the 4 attributes at given levels attributable to factor, gives a total of $(3 \times 3 \times 2 \times 2) = 36$ possible sets of profiles. It is practically impossible to get accurate and reliable responses from respondents when opting for a full design of 36 profiles. To lessen the burden on respondents, a smaller but optimized set of profiles is used in an experimental design (Rao, 2014). In this study, we opted for a total of 12 profiles in the fractional factorial design (see Table 6). In addition, the thesis also adopted 'ranking' as the preference scale and Monotone Analysis of Variance (MONANOVA) estimation method to generate the part-worth utilities (risk). The MONANOVA was ideally chosen because it generates relatively better scores than other part-worth estimation methods (Orme, 2010). In respect of the attributes used and in **response to question 2** of the thesis, the basic conjoint analysis model is as defined in Eq. (5) below:

$$Y_{c=} \mu + \propto_{c1} (Financial\ Risk) + \propto_{c2} (Security\ Risk) + \propto_{c3} (Psychological\ Risk) + \propto_{c4} (Health\ Risk) + \varepsilon_c \qquad (5)$$

where the aggregated $\propto'^s$, the part-worth utilities(aversion), become the weights of the attributes. This part of the study used XLSTAT software (Addinsoft, 2014) in generating and analyzing the results.

5.5 Sampling and Questionnaire Design

Irrespective of the nature of any research design, thus adhering to either qualitative or quantitative nature of the study, a requisite sampling technique is initiated for that research. (Bryman and Bell, 2007). Reflecting on the theme of this research, both probability (simple random technique) and partial non-probability sample technique (purposive technique) as supplement or elicit expert information from second hand

vendors across the regions of Czech Republic were used. The questionnaire was designed in two forms with both English and Czech format.

However, as with the case of present study that applied the Traditional conjoint technique, it is recommended to used sample above 150-1200 respondents from a larger population for the hesitancy (aversion) modelling (Green and Srinivasan,1978; Ormes,1998; Orme, Alpert and Christensen, 1997). That notwithstanding, an appreciative or increment in sample size beyond the minimum baseline as suggested by pioneering scholars of the conjoint study therefore have a direct impact on the validity or generalisability of the results.

5.5.1 Data Collection

Originally, the questionnaire was prepared with google docs application software. Hence, the distribution of questions and later retrieved from respondents were then keyed into the software. However, some selected students from the Tomas Bata University, Zlin, Czech Republic; mostly Bachelor students aided in disseminating the questionnaire to different regions in the Czech Republic. This was to ascertained a balance response rate devoid of bias as a representative of the entire population in the Czech Republic. A duration spanning 2 months were used in gathering data for the study (Between January –March 2018). Thanks to these Bachelor students who served as representatives in distributing the questionnaire through a hard copy. A grand total of 511 questionnaires was established as the sample size for the study and disbursed. However, a total of 342 questionnaires were received of hand to key-into or keypunched into the (google doc's application software). apart from the respondents who filled directly via emails. Out of the 342 questionnaires received of hand from these voluntary representatives, only 13 questionnaires were discarded and was not included in the key-in because respondents did not fill the questions in the right way. Some of them just filled some part and left the others unfilled, some respondents were also filling almost every section of the questionnaire. And so they were immediately shredded away without much delay. In all, 329 questionnaires were accurately filled and qualified for the analyses.

6. MAIN RESULTS AND DISCUSSIONS

The results, analysis and a thorough discussion of the analysis is presented in this chapter. The processes leading to the data analyses are detailed in the chapter.

6.1 Descriptive summary and socio demographic profiles of respondents

Detailed output of the questions elicited from respondents seen in Table 8 Indicates that out of the 329 responses accurately received for evaluation, Male respondents recorded 55 percent (55%) ahead of their Female counterparts with 45 percent

(45%). It can also be seen that majority of the respondents were captured in the Zlinsky Region with 40 percent (40.4%), followed by respondents in Jihomoravsky region 7.0 percent (7. 0%).There is a clear indication of most of the respondents emanating from the Zlinsky region with the simple reason that the researcher is basically situated in that region. It can also be seen that respondents with bachelor's level of education patronized in the research with 47 percent (47.7%) with High school levels graduate following suite on 39.5 percent (39.5%) response rate. Moreover, a sizable number of the respondents had shopped online and purchased used good online before with 92.7 percent (92.7%) and 49.2 percent (49.2%) respectively. Quite surprisingly, 49.2% of the respondents' had the feeling of some risk that might likely avert them from initiating online transactions most specifically used goods. On the bases of the two hypothesis tested, it was deemed necessary to present the phi and Crammer's test as a yardstick of signifying the strength of the association between the tendency of respondents to shop or otherwise for online used/second-hand goods, in rebuttal of some objectives of the dissertation. Quite in part, most of the respondents were personal users engaging on online transactions representing 90.6 percent (96.6%) of the entire respondents. Table 7 below presents the summary descriptive statistics of respondents.

6.2 Conjoint Analyses Results

One of the fundamental and distinctive features of the conjoint analyses used in this dissertation is its ability to indirectly unravel user utility or preference (herein referred as aversion) into utility scores. This so-called utility scores (part worth utility) are then summed up to denote the relative importance (weight of risk) as exemplified in sub section 5.3 given the selected factors or attributes and their corresponding levels. The evaluation method adhered for this study was Monotonic Analysis of variance (Mononova) as earlier stipulated, this was specifically chosen for the evaluation of part worth utility because of its ability and the tendency to generate a better part-worth utility scores as opposed to the other methods (Ormes, 2010). I must emphasize that the part- worth utility and its relative importance (herein referred to as aversion) in this study provides the value proposition of customers' in respect of the magnitude of risk coupled with the importance of such risk to the customer in question. This is carried out in a trade of environment of online used goods transactions in the Czech Republic.

Table 8. Part-worth utilities (Risk) and relative importance (Risk) of Attributes

Attribute (criteria)	Levels	Part-worth utilities	Std. deviation	Relative importance (Risk %)
A_1: Financial Risk	A_{11}: Not concerned A_{12}: Indifferent A_{13}: Highly concerned	**0.6908** 0.2555 -0.9463	1.6772 1.2555 2.1620	31.39[2nd]
A_2: Security Risk	A_{21}: Confidentiality A_{22}: Integrity A_{23}: Availability	-0.3722 **0.3461** 0.0261	1.3407 1.3502 1.1042	17.10[3rd]
A_3 Psychological Risk	A_{31}: Information Asymmetry A_{32}: Appearance of goods	-0.4430 **0.4430**	1.0434 1.0434	11.80[4th]
A_4: Health Risk	A_{41}: Not reusable (recyclable) A_{42}: Contracting a disease(from previous owner)	**1.6577** -1.6577	1.5856 1.5856	39.71[1st]

R2 = 0.9743.

In **response to Objective 3** of the study, the results show that (results labeled in the last column of table 8), *Health Risk* (39.71%) as one of the basic tenets of risk aversion in online transactions of used goods, adjudged the most riskier attribute considered by customers. This is seconded by *Financial risk* (31.39%), and Security risk attribute (17.10 %). However, the *Psychological risk* attribute recorded the least most riskier attribute by respondents in the Czech Republic with (11. 80%). It can be generally attested that respondents in the Czech Republic seeking not to connect via online in search of used/second-hands goods considering the aforementioned characteristics is basically attributed to the following: In terms of *Financial risk* (A_1) respondents are *Not concerned,* Security wise (A_2) respondents seek for their *integrity*, psychologically (A_3), respondents are keen on the *Appearance of the used good while in Healthy* (A_4) situations respondents are much particular about *the recyclable nature of the used good* in question. It must be worthy of note to second hand vendors that, respondents' aversion is stemmed from the preceding variables enumerated and tested.

It can also be seen from Table 8 that, there was a higher internal consistency in respondents' aversion to connecting via online in search of used goods representing an R-squared of (0.9743). Again, the standard deviation values (seen from Table 8 on the 4 column) gives credence to the reliability of the relative importance of (sample mean) in line with the risky components stimulated from respondents'; as a precondition or yardstick or in reflexive of the actual mean from the population of the present study.

Table 9: Average relative importance (risk) in online used goods transactions based on demographic profiles

Demographic profile of respondents	Financial risk	Security risk	Psychological Risk	Health Risk
Gender				
Male	29.7	29.5	22.1	18.7
Female	28.9	28.7	22.6	19.8
Age (yrs.)				
18-25	31.1	30.8	21.3	16.9
26-35	26.4	26.3	24.2	23.2
36-45	25.6	25.6	24.6	24.2
46+	25.6	25.5	24.5	24.3
Highest Educational Level				
High School	28.4	28.2	22.9	20.5
Bachelor's degree	29.8	29.6	23.2	20.2
Master's degree	26.0	25.9	24.3	23.6
Doctoral degree	25.1	25.1	25.0	24.9
Type of online customer				
Business person	25.7	25.6	24.7	24.2
Personal user	32.8	32.5	20.2	14.6
Other	0	0	0	0
Respondents located in the Czech Republic(Regions)				
Hlavni Mesto Praha	25.3	25.3	24.8	24.5
Jihocesky Region	25.3	25.3	24.8	24.5
Stredocesky Region	25.5	25.5	24.7	24.3
Karlovasrky Region	25.4	25.4	24.7	24.4
Ustecky Region	25.3	25.2	24.9	24.6
Liberecky Region	25.4	25.3	24.7	24.5
Kralovehradecky	25.3	25.2	24.9	24.6
Pardubicky Region	25.4	25.3	24.7	24.5
Vysocina Region	25.5	25.4	24.7	24.4
Jihomoravsky	25.7	25.6	24.7	24.2
Olomoucký Region	25.4	25.4	24.7	24.4
Zlinsky Region	28.5	28.3	22.9	20.4
Moravskoslezský	25.4	25.3	24.7	24.5
Plzeňský Region	25.3	25.2	24.8	24.6
Shopped Online				
No	25.6	25.6	24.6	24.2
Yes	32.9	32.6	20.1	14.3
Purchased used good online before?				
No	27.3	27.0	23.5	22.0
Yes	31.3	31.0	21.1	16.5
Do you consider Risk factors?				
No	27.4	27.3	23.5	21.8
Yes	29.2	29.0	22.4	19.3

As seen from Table 9 and in **response to Objective 5**, the study segmented and elicited the (utility scores of risk) to exhibit how respondents' demographic profiles affected the demographic group in relation to the aversion (utilities) assigned to each of the risk factors. A quick glance of the Table 9 indicates that, even though health risk was seen as the riskiest scenario averting the respondents from connecting via online in pursuit of used goods, most of the demographics perceive financial risk as

relatively riskier. For instance, at the gender level, male respondents viewed financial risk (29.7%) as against the overall adjudge health risk level of (18. 7%). Alternatively, some demographics like the age group (36-45) of respondents regarded both financial and security risk situations as relative important (weight of risk) compared to other risk attributes. Among the educational levels, it can be seen that almost all the levels had financial risk as the main impediment preventing them from embarking on online transactions specifically used goods.

6.3 Hypothesis testing

In line with the conceptual Framework of the thesis (see section 5.0) and **in response to objective 4** of the thesis posed in the thesis, two hypotheses were tested. The Pearson chi-square test was initiated to evaluate the hypothesis with the aforementioned criteria seen in (subsection 7.1).

Hypothesis 1

The ideal hypothetical test was to estimate whether there is a relationship between risk factors and the tendencies to purchase used or second hand good online. The null and alternative hypothesis are stated as:

Table 15: Association between purchase of goods online and risk factors (Source Author)

		Do you consider Risk factors			
		Yes	No	NA	Total
Purchase second hand goods online	**Yes**	157	84	0	241
	No	8	3	77	88
Total		165	87	77	325

Chi-Square Tests			
	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	289.535[a]	2	.670
Likelihood Ratio	307.877	2	.310
N of Valid Cases	329		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 19.90.

Symmetric Measures			
		Value	**Approx. Sig.**
Nominal by Nominal	**Phi**	.944	.000
	Cramer's V	.944	.000
N of Valid Cases		329	

H0: *There is no relationship between risk factors and the tendencies to purchase used or second hand goods online*

H1: *There is a relationship between risk factors and the tendencies to purchase used or second hand good online*

Test results in Table 15 shows that the asymptotic significance value (P value), .670, of the Pearson chi-square (since it satisfies criteria 3 in subsection 4.3.2) is greater than the significance level ($\alpha = 0.05$). The null hypothesis is refused to be rejected, hence I can conclude that the risk factors does not determine the tendencies or the penchant of the customer to hook up via online for the purchase of used goods.

Hypothesis 2

The second hypothesis aimed at evaluating whether risk factors associated with online transactions have a negative impact on the type of second hand goods purchased. Based on the designed null and alternative hypothesis below, the test results in Table 16 are evaluated.

H$_0$: *There is no association between risk factors and the type of second goods purchased online*

H$_1$: *There is an association between risk factors and the type of second goods purchased online*

Table 16: Relationship between risk factors and type of goods purchased (Source: Author)

	Risk factors influence type of second goods to purchase		
	Yes	No	Total
Purchase second hand Yes goods online	155	87	242
No	64	23	87
Total	219	110	329

chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.602[a]	1	.107		
Continuity Correction[b]	2.193	1	.139		
Likelihood Ratio	2.673	1	.102		
Fisher's Exact Test				.114	.068
N of Valid Cases	329				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 29.09.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.78 4	.000

Cramer's V	.554	.000	
N of Valid Cases	329		

With all frequencies less than 5, the Pearson chi-square was used to evaluate the hypothesis. The P-value of Chi-square (0. 107) is more than the significance level, α. The null hypothesis is therefore accepted. The conclusion garnered from the data is that, the zeal to purchase used goods online is associated with some risk factors. This conclusion is in line with initial findings in the summary and demographic profiles of respondents' view on risk factors in online transactions (seen under section 5.2.1).

6.4 Cluster Analysis

In line with the conceptual framework seen under (subsection 5.0) and the data analytics perspective of the dissertation. Non-hierarchical cluster analysis was employed to assess the descriptive phenomenon of the data concerning the pre-purchasing risk factors in online used goods transactions as earlier stipulated. Given the application of cluster analyses in (sub section 2.3) and its accompanying equations in the same section 2.3. The K means was selected for the analyses. The validity was thus supported by the Davies Bouldin: 0.676 which signifies the potency of the clusters generated.
The cluster (k) prototypes for the 4 clusters are presented in table 17.

Clusters	0	1	2	3
*No of items (*pre-purchasing risk factors in online used goods transactions*)*	37	74	170	48

The table above shows the clear number of observations (items) attributed to each cluster in observations of respondents who rooted for the pre-purchasing risk factors in online used goods transactions. This coding figures are attached to the generated figures in the table below: As indicated in Table 6 in the prototype, the chosen *k* was four (4). In mounting and generating clusters for analysis, a cluster model was designed with RapidMiner studio 7.3 as presented in Figure 7 below. The model produced four clusters by doing a comparison of attribute values with means of observations of other attributes.

Table 17: Centroid Table (Source: Author)

Attribute	Cluster 0	Cluster 1	Cluster 2	Cluster 3
Age	1.8(2)	1.5(2)	1.4(1)	1.5(2)
Do you consider Risk factors	0.9(1)	1.4(1)	0.3(1)	0.6(1)
Gender	1.5(2)	1.5(2)	1.6(2)	1.5(2)
Highest Educational	2.0(2)	1.7(2)	1.7(2)	1.7(2)
Purchase second hand goods online	1.8(2)	1.0(1)	1.1(1)	1.9(2)
Region	8.9(9)	7.7(8)	10.4(10)	10.4(10)

Risk factor mostly affecting attempt to purchase second goods	3.0(3)	3.0(3)	2.1(2)	2.3(2)
Type of online customer	1.5(2)	1.3(1)	2.0(2)	1.9(2)
shopped online	1.3(1)	1.0(1)	1.0(1)	1.2(1)

With regards to the central theme of the dissertation and in response to **the objective 4 of the thesis**, geared towards pre-purchasing risk factors associated with the desire of Czech citizenry to embark on online transactions on second-hands goods. Both clusters (0) and (3) presents similar worthy consideration given the results of the centroid table above, Females within the age bracket of (26-35) having a bachelor's degree in Education tend to consider risk factors in an attempt to initiate a transaction of used goods online, specifically in the Pardubicky regions and Vysocina regions respectively of the Czech Republic. In all these developments, both in clusters (0) and (3) in spite of all these risk aversions, customers have not made any attempt to hook up via online to make purchase of second hand products, however, in the event of deciding to hook up on online for such transactions, whiles psychological *risk* does become the main brain affecting these customers in the Pardubicky regions; alternatively, Financial risk tends to avert customers located in the Vysocina regions.

Finally, to characterize the resulting clusters as seen in figure 8 it can be deduced that cluster (3) has the highest average distance to pre-purchasing risk factors in online transactions in terms of each of the regions in the respective clusters. However, cluster (0) has the lowest-within cluster average distance. This can be seen from the light of cluster (0) being homogeneous from other generated clusters.

6.5 Association Rule Analyses

Association rules mining naturally lends itself to many rules depending on the number of transactions in the database and the threshold set on some variable measures. However, to ensure the selection of interesting, potent and redoubtable rules from a set of all possible rules, certain constraints are often used as measures of significance. Largely, two of the best-known of these constraints are support and confidence, where minimum thresholds are set on their resulting values. Other metrics such as Lift, Laplace, Gain etc. are additional indicators that demonstrate the strength of the rules' relationships (Shmueli, Patel and Bruce, 2010). According to basic principles underlying the validity, accuracy, completeness as well as the reliability of the Association rule mining technique, the technique is vouched or guaranteed with the magnitude (percentages) of the aforementioned metrics; thus, confidence, support, lift of the rules (Chena, Fenga, and Luo, 2016).

Table 18: Binary attributes of the data set towards risk factors influencing customer decision :(Source: Author)

Rules	Antecedent (X)	Consequent (Y)	Support %	Confidence %	Lift %
#1	{Type. Of. online. Customer=Personal user, second. hand. goods. Online. =No, Influence.the.type.of. second. Goods=Yes, Any.of.the.risk. factors. =Yes}		7.9	100	1.39
#2	{shop. Online. =Yes, second. hand. goods. Online. =No, Any.of.the.risk.factors.=Yes}		7.6	96	1.33
#3	{Type. Of. online. Customer=Personal user, second. hand. goods. Online. =No, Influence.the.type.of.second.goods=Yes}		7.2	97	1.33
#4	{shop. Online. =Yes, second. hand. goods. Online. =No, Influence.the. Type.of.second.goods=Yes	{Do. risk. factors. Influence=Yes}	7.5	95	1.37
#5	{Gender=Male, Type. Of. online. Customer=Personal user, second. Hand. Goods. online. =No, Influence.the. Type.of.second.goods=Yes}		7.5	100	1.39
#6	{Gender=Male, shop. Online. =Yes, second. hand. goods. Online. =No Influence.the. Type.of.second.goods=Yes}		7.6	96	1.34
#7	{Gender=Female, shop. Online. =Yes, Type. Of. online. Customer=Personal user, second. Hand. Goods. online. =No, Influence.the. Type.of.second.goods=Yes}		7.4	96	1.33
#8	{shop. Online. =Yes, Type. Of. online. Customer=Personal user, second. hand. goods. Online. =No, influence. The. type. Of. second. Goods=Yes Any.of.the.risk.factors.=Yes}		7.2	96	1.32

As can be seen from above in both tables (Table 18) binary attributes automatically retrieved from the association centred on two specific consequents, namely: *Do risk factors influence the decision to purchase second-hand goods* and the *Type of online user*. It must be noted that, in generating association rules, data with binary variables are deemed fit for efficient output interpretation. To do this, data was retrieved and saved as CSV in excel file. Missing data was quickly replaced with values, but as earlier indicated attributes with binary variables were selected from the entire data set to initiate and generate association between such variables in tandem with the objective of the present study. The association rule model is found beneath, exhibiting the means through which generation was carried out. (See Figure 9)

In response to Objective 6 of the thesis, the first#2 rule in (Table 17) indicates that when a customer has shopped online before and has not attempted to purchase any used item or goods but with the inclination that this is so because there is an iota of risk factors averting him/her to embark on online for such used goods, then the overriding risk factor or reason of such customers' dwell on the premise of risk as

an influence of that decision. This decision as a consequent is accompanied by (96%) confidence indicating a higher association between the antecedent and the consequent. This rule is tied with previous hypothetical finding in section (7.3) that attested to the fact that Czech customers view some risky components as a bedrock of not engaging in online transactions purposely for used goods.

7. RELEVANCE AND CONTRIBUTION TO SCIENCE AND PRACTICE

This part of the dissertation draws on the significance and the contributions relating to science and practical management.

7.1 Gains for Scientific Knowledge

This research explored the novel trend governing pre-purchasing risk factors inherent in the consumer within the second-hand market/industry. Thus, this thesis enlists and fills the gaps in literature by coming out with a unique technique geared towards the nexus between online risk components innate in the consumer and the second-hand industry. Hence, the research abreast online vendors with the requisite skills through a rigorous practical and scientific approach in dealing with the risk components in the second-hand industry, given the interplay of the internet in their day to day businesses, and the fact that the internet has come to stay.

Again, this research approach and the methodology in general paves way for a wide-ranging analysis that facilitated an efficient interpretation of consumer sentiments so far as risk to avert them from connecting via internet in search of second-hand goods are concerned. In view of the comprehensive framework adopted for this research and to vividly understand the real-world situations governing a peculiar phenomenon, the author is quick to judge that, is vital to adopt both deductive and inductive stance in this research. Moreover, given the enormous research undertaken since the advent of the internet on marketing as a discipline in social sciences, specifically testing on theories alone without any empirical test may not reflect the true online behavior of customers, of which this thesis has sought to add to the scientific regime of research.

Another unique impact of this research to science is stemmed from the additional analyses carried out from the second phase of the research that sought to apply some data mining algorithms to buttress the point and knowledge of pre-purchasing risk factors inherent in the consumers so far as online second-hand transactions is concerned. In other words, subsequent analyses of the study elicited the antecedents and the consequents emanating from the customers' initiation not to transact online for second-hand goods. This indeed has enacted a recipe for second-hand managers to find an antidote to strengthen their visibility onsite. This in no doubt has done the trick for second-hand vendors to a directed human resource. Hence, this study can be touted as the first to appear in literature with a requisite and empirical evidence to the effect of scientific community.

7.2 Gains for Practical Knowledge

This research is in no doubt a contribution to the sustainability of second-hand vendors across the length and breadth in the Czech Republic, even as literature has affirmed that second-hand market is still seen under the lenses of small and midsized enterprise. Further, the study brings to fore salient risk elements embedded in the whole online buying fraternity in the second-hand industry. The study offers practical coupled with a well analyzed results that will aid mangers in the second-hand industry to understand and position themselves given the multiple risk factors that tend to avert customers from connecting via online in search of second-hand goods.

Secondly, it cannot be contravened that the sustainability and the competitivity in the second-hand industry or market is geared towards the tendency to understand the risk components in-built in the consumer in question regarding his/her decision to initiate such transactions. The managerial implication here is that, the competitive and sustainable ability of a company is positively related to its ability to realize and measure the weighty role individuals'/customers' relative importance (risk) plays in consumer decisions making. Thus, for online used goods vendors to be successful in consumer markets, they do not have to concentrate only on their internal activities, but also, they must understand and take precautionary measures regarding risk factors that might attempt to avert the customer to patronize in their business, given the worldwide technological dispensation beseech nowadays.

Again, this information will intend assist second hand vendors to plan and design their websites activities with caution and circumspection. Since, results of the study as earlier stated has shed more light on the magnitude of risk ascribed by respondents in the research.

8. CONCLUSION AND LIMITATIONS

This part of the thesis enlists and provides details by way of concluding thoughts of the study and elaborate on the key findings in the dissertation.

8.1 Conclusion

The risk is inevitable given consumers' intention to shop via online especially when the said goods is a second–hand good. Hence, second-hand vendors should be wary of what draws the customer back in the event of connecting via online as earlier stipulated, by implementing strategies that will not deter such transactions. In a wider spectrum, the online risky buying behavior inherent in the customer should be analyzed to proffer pragmatic strategies to inculcate confidence in the customer. That is to say, other metrics in the website should be highly dependable in all spheres of the second-hand goods transactions to safeguard the business, since a series of literatures has affirmed that the second-hand goods are not living in extinction anytime soon. This dissertation analyzed and took a deeper stance on indirectly

unravelling the hidden treasures inherent in the consumer given the risky components that are likely to avert the customer from engaging in online transactions specifically second-hand goods. This dissertation was organized in two streams, the first part of the research investigated the in-built risky components in consumers' taking inspiration from the Conjoint analytical theory with the suitability of the traditional conjoint methodology as one taxonomy of CA fraternity. This was on the premise of the scanty research that psychologically look beyond the risk components inherent in the consumer to avert them from engaging in online transactions in spite of the enormous expansion of the second hand market. The second part of the research adopted some data mining algorithms (notably; Association rule mining concepts and non-hierarchical clustering concepts) to mine relevant patterns hovering around the tendency of the online customer or customers in general to connect via online purposely for second hand goods. The third part took an inspiration from the perceived risk theory to test the risk components in respect of second-hand goods online. It cannot be gainsaid that this dissertation took both the inductive and deductive approach to solve a comprehensive problem invokes and has been idle age-long in the literature.

The main objective of this research was to create a model focused on modelling consumer aversion to pre-purchasing risk factors in online used goods transactions in a trade-off setting. The model was entirely based on attributes and their levels; as well as necessary variables that were found to be pertinent in analyzing risky components in-built in the customer with the support of the literature and expert opinions. The model presents a real-world scenario for second–hand vendors or mangers to instill a continuous growth(sustainability) of their industry given the enormous proliferation of second-hand markets hooking up via online platforms for sales nowadays.

As the research also adopted some data mining algorithms to mine relevant patterns governing risk components repressed in the customer to engage in such transactions. It was revealed that some designated regions in the Czech Republic tends to perceive some uncontrollable risk in the event of online transactions of second-hand goods as opposed to the other regions. Especially respondents from regions such as Vysocina, Pardubicky and Kralovehradecky were found to be very cautious in such transactions even though most respondents in those regions have embarked on online transactions before, the irony here is that, most respondents do not tend to look for second hand goods in spite of the fact that, there are numerous second-hand websites located in those regions.

Also, it was ascertained that females whose age are ranging between (25-35) were seen and to be classified as riskier in attempt to connect via online in search of second-hand goods. And these demographic categories attributed such risk to security and financial reasons.

In line with the sub-objectives of the dissertation, **the first objective** identified pertinent attributes and accompanied with their respective levels by scanning through literature and also seeking expert opinions. This was done in line with the approach instituted for unravelling the hidden risk embedded in online customers as far as second –hand goods are concerned. To ensure reliability of the attributes and their levels, an audit were undertaken to elicit possible risk components and also to analyzed the magnitude of such risk to the consumer. A proper audit automatically deleted some of the risk components that was listed, hence relevant attributes were finally drawn for experimental design.

The second- objective on the other hand sought to design a conjoint analyses model that rightly represents consumers pre-purchasing hesitancy (aversion) intentions towards online transacted second –hand goods. In analyzing this objective, it was revealed that consumers' pre purchasing hesitancy(risk) in the Czech Republic was hinged on Healthy scenarios., followed by Financial risks, whiles Security risk as a risky or hesitancy attribute follow suit. However, the Psychological risk attribute was seen to be insignificant in the Czech Republic.

The **third sub- objective** took a step further to delve into the other risk or hesitance models in line with pre purchasing scenarios. That is to say, look into the magnitude of such risk in terms of the levels associated with the enumerated risks. Therefore, the analyses of these interrelationships or so to say trade-offs in the respondents showed that consumers resulted as Financial risk respondents are Not concerned, Security wise respondents seek for their integrity, psychologically respondents are keen on the Appearance of the used good while in Healthy situations respondents are much particular about the recyclable nature of the used good in question.

The **fourth sub- objective** examined the influence of a perceived risk factors on the decision to embark on online second-hand goods transaction by taking a deductive research approach fused into the theory of perceived risk to test whether indeed there is an association or otherwise relationship between decision and any initiation of online second hand transactions in that caliber. The results indicated that the risk components do not determine the tendencies or the penchant of the customer to hook up via online for the purchase of used goods. Yet, the zeal to purchase used goods online is associated with some risk factors.

The **fifth sub-objective** determined the choices of each socio-demographic group in relation to the enlisted risk attributes. This objective was accomplished, as it was deduced that in spite of the risk attributes that tends to avert the consumers in the Czech Republic from connecting via online in search of second-hand goods. Financial risk was declared as the riskiest scenario from demographic groups in the Czech Republic. A step further to mine the patterns in the risk components also attested to this fact with security reasons attached to the demographic stance of pre-purchasing risk factors. Cautious measures from this results should be a guiding principle in the website design in the near future to deter respondents from not

connecting via online for second-hand goods since money is one of the crucial elements of the self and hard to come by nowadays.

The **last sub –objective** took inspiration from the Association rule mining theory to analyze the magnitude of risk components inherent associated with the customer in the bid to purchase second-hand goods online. The analyses indicated two streams of consequents namely; the personal user and the risk as an influence of risk in connecting via online for second –hand goods. Given the entire risky components embedded in the customer, it was revealed that anytime Czech online customers pause to connect via online and there are some risky scenarios in their minds not to get on second –hand goods, the overriding association is attributed to a personal user of the internet or some iota of perceived influence inhibited in the mind of such a person. This results are essential and a wake-up call for managers to find an antidote to such associations averting customers not to engage on second-hand goods even though they connect via online for other things.

One **NOVEL AND OUTSTANDING** forte of this dissertation is the ability to introduce the conjoint analysis that officially works as a preference modelling approach into a hesitancy (risk) approach that this research sought to use in different sphere in the academia. This research stands to be one of the opener in the contemporary researches. Again, the novel integration of some data mining algorithms used along with the conjoint theory provides a gateway for other researchers in the marketing field to apply more techniques in subsequent research to enhance concrete and quality output of research.

In sum, the theme of the dissertation was accomplished ranging from the design and the analytical aspect. That is to say, all objectives were realized with subsequent research questions answered. Again, the two hypothesis were retorted to in line with the comprehensive framework that guided the dissertation.

The author will like to reiterate that similar results of this caliber in the thesis have been published in both impacted and other databases

8.2 Limitations of the Dissertation

Unlike any other research, this study is not immune to limitations. While there are multiple reasons that can be outlined in the limitations. It is expedient and reasonable to outline some of the set-back of the research that stands out. First, the enumerated attributes used for the first phase of the study might not be adequate enough to represent the entire pre purchasing risk components in spite of the stringent audit the author took to settle on the possible risk attributes, I must emphasize. This is as a result of the fact that some of the risk considered, respondents have no control on them. However, this is where the trade-off modelling made possible by the conjoint analysis method, validates the study, especially in the choice of the attributes (risks).

Again, one fundamental limitation of the study is attributed to smaller sample size as a result of scanty resources. However, the author is quick to point out that, the technique used for the first phase met the threshold of possible sample mostly adopted by pioneering researchers in the marketing field. In the same vein, data mining algorithms work well with a large pool of dataset, yet data used for the research cannot be undermined.

Moreover, the study shed a limitation of adopting exploratory factor analysis for further analysis which ordinarily should not have been worked or mostly applicable for multivariate analysis or construct and not univariate analysis mostly seen in my data. However, to prune the variables into smaller but optimized set of variables for further analyses like the clustering and association rules analyses, it was vital to hinge on some attributes of exploratory factor analyses and principal component analyses to carry out those further analyses

Finally, the study shed a limitation of not specifying the business model of the second-hand vendors, thus either in business-to-consumer, business-to-business, consumer-to-business, or consumer-to-consumer type of model as well as the particular kind of second-hand goods traded online for deliberations. This limitation is partially hinged on the fact that the main analogy of the study was to look at the pre-purchasing risk factors, as earlier stipulated.

9. REFERENCES

ABHYANKER, R., Hewlett-Packard Development Co LP, 2005. Reverse logistics method for recapturing value of used goods over internet exchange portals. U.S. Patent 6,915,274.

ACOMWARE (2016). Infographics: How do e-shops see 2016? Retrieved from http://www.acomware.cz/infografika-jak-vidi-e-shopy-rok-2016

ADDINSOFT (2014). XLSTAT 2014, Data analysis and statistics with Microsoft Excel, Paris, France.

AFFUL-DADZIE, E. and AFFUL-DADZIE, A., 2017. Open Government Data in Africa: A preference elicitation analysis of media practitioners. *Government Information Quarterly*

AGARWAL, R. and SRIKANT, R., 1994, September. Fast algorithms for mining association rules. In Proc. of the 20th VLDB Conference (pp. 487-499).

AGRAWAL, R., GEHRKE, J., GUNOPULOS, D. and RAGHAVAN, P., 1998. *Automatic subspace clustering of high dimensional data for data mining applications* (Vol. 27, No. 2, pp. 94-105). ACM.

AGRAWAL, R., IMIELIŃSKI, T. and SWAMI, A., 1993, June. Mining association rules between sets of items in large databases. In Acm sigmod record (Vol. 22, No. 2, pp. 207-216). ACM.

ALCÁNTARA-PILAR, J.M. and DEL BARRIO-GARCÍA, S., 2015. Perceived Risk in E-Commerce and the Development of Loyalty: The Moderating Effect of Website Design, the Cultural Framework of Language, and the User's Flow State. In Hospitality, Travel, and Tourism: Concepts, Methodologies, Tools, and Applications (pp. 795-816). IGI Global.

ALTURKESTANI, H. (2004). E-marketing application on Saudi business sector. E-commerce Symposium,1, King Khaled University, Abha, Kingdom of Saudi Arabia, 257-265

ALVES, S., ASPINALL, P.A., WARD THOMPSON, C., SUGIYAMA, T., BRICE, R. and VICKERS, A., 2008. Preferences of older people for environmental attributes of local parks: The use of choice-based conjoint analysis. Facilities, 26(11/12), pp.433-453.

ANDERBERG, M.R., 1973. Cluster analysis for applications. Monographs and textbooks on probability and mathematical statistics.

ANDERSON, S.P. and GINSBURGH, V.A., 1994. Price discrimination via second-hand markets. *European Economic Review*, *38*(1), pp.23-44.

ARNOLD, M. J., and REYNOLDS, K. E. (2003), "Hedonic shopping motivations", *Journal of retailing*, Vol. 79 No. 2, pp. 77-95.

AUSTIN, P. (2015). "Should You Buy Refurbished Electronics?" Consumer Reports. Accessed February 05, 2016. http://www.consumerreports.org/cro/laptops/refurbished-electronics-buying-guide.

BAUER, R.A., 1960. Consumer behavior as risk taking. In *Proceedings of the 43rd National Conference of the American Marketing Association, June 15, 16, 17, Chicago, Illinois, 1960*. American Marketing Association.

BECQUET, C., BLACHON, S., JEUDY, B., BOULICAUT, J.F. and GANDRILLON, O., 2002. Strong-association-rule mining for large-scale gene-expression data analysis: a case study on human SAGE data. Genome Biology, 3(12), pp. research0067-1.

BERGANTINO, A.S. and BOLIS, S., 2005. An adaptive conjoint analysis of freight service alternatives: Evaluating the maritime option. In Methods and Models in Transport and Telecommunications (pp. 181-198). Springer, Berlin, Heidelberg.

BERNOULLI, D. (1954), "Exposition of a new theory on the measurement of risk", *Econometrica: Journal of the Econometric Society*, Vol. 22 No. 2, pp. 23-36.

BETTS, S. C., and TARAN, Z. (2004), "The 'brand halo' effect on durable goods prices: brand reliability and the used car market", *Academy of Marketing Studies Journal*, Vol. 8 No. 1, pp. 7-18.

BHATNAGAR, A., MISRA, S. and RAO, H.R., 2000. On risk, convenience, and Internet shopping behaviour. *Communications of the ACM*, *43*(11), pp.98-105.

BIAN, X., and MOUTINHO, L. (2011), "The role of brand image, product involvement, and knowledge in explaining consumer purchase behaviour of counterfeits: Direct and indirect effects", *European Journal of Marketing*, Vol. 45 No. 1/2, pp. 191-216.

BLAIN, C., LEVY, S.E. and RITCHIE, J.B., 2005. Destination branding: Insights and practices from destination management organizations. Journal of travel research, 43(4), pp.328-338.

BORGELT, C. and BERTHOLD, M.R., 2002. Mining molecular fragments: Finding relevant substructures of molecules. In Data Mining, 2002. ICDM 2003. Proceedings. 2002 IEEE International Conference on (pp. 51-58). IEEE.

BRASHEAR, T.G., KASHYAP, V., MUSANTE, M.D. and DONTHU, N., 2009. A profile of the Internet shopper: Evidence from six countries. *Journal of Marketing Theory and Practice*, *17*(3), pp.267-282.

SCIENTFIC PUBLICATIONS ASSOCIATED WITH THE THESIS

Refereed Journals

1.   **Kwarteng, M.A**. and Pilik, M., 2016. Exploring Consumers' Propensity for Online Shopping in A Developing Country: A Demographic Perspective. Journal of entrepreneurial knowledge, http://ijek.org/

2.   Pilik, M., Jurickova, E. and **Adu Kwarteng, M.**, 2017. On-line shopping behaviour in the Czech Republic under the digital transformation of economy. *Economic Annals-XXI*, *165*.

3.   **Kwarteng, M.A**., Pilík, M. and Jurickova, E., 2017. Mining Interestingness in Online Shoppers' Data: An Association Rule Mining Approach. *Acta Polytechnica Hungarica*, *14*(7).

4.   Felix, K., Jiří, P. and **Kwarteng, M.A,** 2015. E-Banking Functionality as a Measure of Customer Satisfaction. Mediterranean Journal of Social Sciences, 6 (6), p.133. http://www.mcser.org/journal/index. php/ mjss /article/view/7923

5.   **Kwarteng, M.A**, Pilik, M.., Jurickova, E. Beyond Cost Saving. Other Factor Considerations in Online Purchases of Used Electronic Goods: A Conjoint Analysis Approach. Journal of Management and Marketing. (Accepted with minor corrections for publication)

Conference proceedings

1. Nabareseh S, Afful-Dadzie, E, **Kwarteng, M.A.,** Klimek P, Pilik, M., 2016 Clustering and Predicting Electronic Commerce Security Concerns of Developing Countries. In proceedings of the 2nd International Conference on Finance and Economics 2016. Tomas Bata University in Zlín. Hochi man city, Vietnam

2. Pálka, P., Blahová, M. and **Kwarteng, M.A,** 2014. Impact of EFQM Model in The Process of Business Valuation. In Proceedings of the 1st International Conference on Finance and Economics 2014. Tomas Bata University in Zlín. Hochi man city, Vietnam

3. Nabareseh, S, Afful-Dadzie, E, **Kwarteng, M.A**, Klimek P. A bibliometric study of the research output of Visegrad countries. In Proceedings of the 13th international conference on applied computing

4. **Kwarteng, M.A**., Nabareseh, S. and Pilik, M., 2017, June. Online shopper-vendor interactions: Identifying interestingness relations using clustering and association rules mining. In ICEL 2017-Proceedings of the 12th International Conference on e-Learning (p. 129). Academic Conferences and publishing limited

Book Chapter
1. Afful-Dadzie, E., Oplatková, Z. K., Nabareseh, S., & **Kwarteng, M.A**. (2016). Development Aid Decision Making Framework Based on Hybrid MCDM. In Intelligent Decision Technologies 2016 (pp. 255-266). Springer International Publishing. http://link.springer.com/chapter/10.1007/978-3-319-39630-9_21

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Modelling Consumer Aversion and Trade –offs towards Pre-Purchase Risk Factors in Online Second Hand Goods Market

Modelování averze a kompromisů spotřebitelů k faktorům předkupního rizika na online trhu s použitým zbožím

Doctoral Thesis summary