THE EFFECT OF VARIOUS CONSUMER CHARACTERISTICS ON
PURCHASING BEHAVIORS ONLINE

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Economics

Abstract

The purpose of this paper is to determine which factors will affect consumer purchasing
behaviors online. While previous research has been conducted in this field, the present
study aims to expand upon those papers and will include factors that have never before
been analyzed. The eight determinants this paper focuses on include demographics,
culture, employment information, allocation of money, risky behaviors, trust in others,
place of residency, and time stress. It is hypothesized that each of these determinants will
be significantly related to online purchasing behavior. Data was collected by the General
Social Survey (GSS) in the year 2000 and was utilized to perform an Ordinary Least
Squares regression. This paper hopes to provide insight that will not only increase the
success rate of online retailers but also information that will lead to a more positive
online experience for consumers.

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CHAPTER I

INTRODUCTION

There is no denying the fact that since the turn of the century Internet use among

consumers has drastically increased. Before these technological advances, retailers

were able to survive strictly by appealing to consumers on site in a store. Yet now, in

the era of the Internet, it is more important than ever for producers to develop their

online market in order to draw in those people looking to purchase via the Web.

According to Pew Research Center, at the turn of the century the revenues from

online buying were "$7.4 billion in the third quarter of 2000."[1] Yet, just seven years

later online revenues were up "to $34.7 billion in the third quarter of 2007."[2] The

growth did not stop there though. It continued on through the decade and 2011 saw a

14% increase in online retail sales.[3] If these statistics do not convince retailers to take

another look at the amount of time and money they invest in their online sites, then

perhaps the fact that 71% of consumers used the Internet to purchase goods in 2011

will.[4]

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[1] John B. Horrigan. Pew Research Center Publications, "Online Shopping: Convenient but Risky." Last modified February 13, 2008. Available at http://pewresearch.org/pubs/733/online-shopping.

[2] Ibid.

[3] Sheila R. Hibbard. The Marketing Bit, "Online Retail Sales sees 14 Percent Increase ." Last modified August 9, 2011. Available at http://www.themarketingbit.com/e-commerce/online-retail-sales-sees-14-percent-increase/.

[4] Pew Internet & American Life Project, "What Internet Users Do Online." Last modified February 2012. Available at http://pewinternet.org/Trend-Data/Online-Activites-Total.aspx.

There are many benefits for retailers who work to improve the presence of their products on the Internet. The online retail industry presents various opportunities for them to gain a competitive advantage in the market. First, a well-respected Web store differentiates itself and its products from its competitors in the eyes of the consumer. Millions of dollars are spent each year to help a company figure out what exactly will differentiate their product and make consumers more likely to buy. In the online forum, it has been found that factors such a site design[5], product interactivity[6] and customer service[7] all contribute to a positive consumer experience that makes them more likely to purchase goods. In 2010, the top 25 online retailers accounted for 69.9% of dollars spent on line.[8] It is safe to say that these 25 sellers have an appealing online store that consumers enjoy browsing. Further, these top retailers go beyond differentiating themselves and their products on the Web and manage to also establish a brand loyalty in the online market. This loyalty comes about after a consumer experiences a repeated, pleasant utilization of the website when purchasing goods.

Factors such as the appeal of the website, the quality of the service offered, and the use of advertisements to attract consumers to the site are important variables the retailer can control for. However, there are numerous elements that influence consumer behavior that retailers have no control over. It is important to understand and

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[5] Chung-Hoon Park and Young-Gul Kim. "Identifying Key Factors Affecting Consumer Purchase Behavior in an Online Shopping Context." *International Journal of Retail & Distribution Management* 31, no. 1 (2003): 16-29.

[6] Jihyun Kim, Ann Marie Fiore, and Hyun-Hwa Lee. "Influences of Online Store Perception, Shopping Enjoyment, and Shopping Involvement on Consumer Patronage Behavior Towards an Online Retailer." *Journal of Retailing and Consumer Services* 14, no. 2 (3 2007): 95-107.

[7] Ping Zhang and Gisela M. von Dran. "User Expectations and Rankings of Quality Factors in Different Web Site Domains." *International Journal of Electronic Commerce* 6, no. 2 (2001): 9-33.

[8] Hibbard.

acknowledge these elements so that retailers can better target those individuals most likely to purchase products online.

The purpose of this paper is to look at how various determinants influence a consumers purchasing behavior online. Elements that will be taken into account include things such as consumer demographics, culture, employment information, allocation of money, risky behaviors, trust in others, place of residency, and use of time. While extensive research has been conducted previously in this area, this paper will add various new elements to the model for consideration while attempting to confirm the findings of previous researchers. Other models have included information regarding age, gender, education level, income, region of residency, and time stress. While this model includes all of those factors, it will also add new variables that have never been under investigation before. These new variables detail who employs the consumer, how the consumer allocates money, consumer risk aversion, the ability to trust others, and the type of community in which the individual lives.

The first new determinant assesses who employs the individual. A person is either self-employed or is employed by someone else. It is expected that a self-employed individual will be more likely to purchase online due to a less constrained budget.

Secondly, how an individual allocates capital is a new factor investigated in this study. This factor will allow for the determination of how generous they tend to be with their money. The tendencies of giving money to charity or to investing money in stocks are the variables taken into consideration here. It is expected that participation in these

activities will indicate a greater likelihood that the individual will purchase goods online.

Additionally, how willing a person is to engage in risky behavior is a newly considered determinant in this paper. Buying products online is a risky activity. A consumer risks providing their personal information and billing information on the World Wide Web in addition to the risk that they might not receive the product they expect. While it would be unreasonable to use a self-reported statistic as the variable that addresses an individual's willingness to take risks, variables addressing risky behaviors will be included in the model in order to account for this factor. It is expected that people engaging in other activities that are generally considered risky, such as investing money online or meeting new people online, will suggest that the consumer may also partake in other risky behaviors; namely, buying goods online.

Another determinant added to this model addresses how trusting of others the consumer is. If the individual does not believe people are likely to try to take advantage of them, they will be more likely to buy online. Conversely, if they believe that people generally do not act fairly then they will be less prone to purchasing online.

The final new determinant in this model addresses whether an individual lives in an urban community or in a rural community. It is expected that people living in a city, in the suburb of a city, or in unincorporated area of a city will be more likely to purchase goods online than those people living in a small town or in the open country.

The regression model for this paper came about by standing on the shoulders of giants. The model includes some variables that have already been proven to have a significant effect on online purchasing behaviors. Taking those findings a step further,

this study aims to see how exactly the allocation of money, the engagement in risky behaviors, and the ability to trust others plays a role in determining consumer buying tendencies online.

This study is important due to the increasing population of people utilizing the Internet to purchase goods. As mentioned earlier, this market has significantly increased in popularity over the last decade. The present study hopes to provide new information about consumers to benefit the retailers. The summary of the effects of various consumer characteristics detailed here would allow retailers to see which consumers are most likely to purchase online. These are the consumers that websites should be targeting in their design, in their customer service, and in their advertisements.   Finally, this study not only intends to offer information that will improve the performance and the revenue of online stores, but it also hopes provide details that will result in a more positive and enjoyable online shopping experience for consumers.

CHAPTER II

LITERATURE REVIEW

The purpose of this chapter is to review the literature addressing online

purchasing behaviors.   The chapter also considers studies that have used the General

Social Survey (GSS) in order to gather information about participants purchasing

tendencies. This research will allow a connection to be made between a person's

demographic information and their likeliness to buy products online. The first section of

this chapter discusses the external factors that influence a consumer's likeliness to

purchase online. Section two will consider studies that have used demographic

information in order to determine a consumers purchasing behavior. This chapter

concludes with a section looking at literature that has utilized the GSS as a resource to

gather information about a consumer. This final section will branch out from online

purchasing in order to gain a better understanding of how the GSS can be utilized in the

present study.

Individual Factors Influencing Online Purchasing Behavior

Many researchers have studied the external determinants of online purchasing

behavior. Perceived risks, personality, level of involvement, and website quality have

been looked at in depth and are among the most well documented external influencing

factors. The studies analyzing the effects of risk focus on the trustworthiness of Internet

transaction, confidence in the product transaction, and which products are viewed as the

most and the least risky to purchase online. Personality traits examined include the convenience variable, the time starved lifestyle and the wired lifestyle, and consumer attitude toward the internet as a result of cultural, social, personal and psychological factors. Research looking at consumers' level of involvement range from the application of Krugman's involvement theory in the situation of online purchasing to an investigation of which factors lead to a higher involvement level. The investigations of website quality take into account consumer satisfaction as a result of factors such as design, interactivity and ease of navigation. This section focuses on the studies that prove to be the most relevant in determining the influence of external factors in online purchasing behavior. These studies are important to consider in the context of the present study because in order for us to fully understand how individual consumer factors play a role in online purchasing behavior, we must first understand the significance of how external factors influence that behavior.

Perceived Risk

In 1960 Raymond A. Bauer made a groundbreaking proposition when he suggested that consumer behavior be considered an instance of risk taking.[1] He focused on how perceived risk will influence consumer decisions before making a purchase as well as how it affects their activities after a purchase. Bauer proposed, "Consumer behavior involves risk in the sense that any action of a consumer will produce consequences which he cannot anticipate with anything approximating certainty, and

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[1] Raymond A. Bauer. "Consumer Behavior as Risk Taking." *Dynamic Marketing for a Changing World* 398 (1960).

some of which at least are likely to be unpleasant."[2] Since Bauer's initial investigation

the amount of empirical investigation has dramatically increased. With the rise of the

Internet, researchers began taking into account how perceived risk will affect purchasing

behavior online. The resulting studies offer insight ranging from why the Internet may be

perceived risky to which items consumers deem the best online buys.

Consumer's lack of trust in the online market is one of the biggest factors to

influence purchasing behavior, as demonstrated by Hoffman, Novak, and Peralta's

study.[3] Their use of the *Nielson Media Research/CommerceNet Internet Demographics

Study* and the *GVU 7th WWW User Survey*, two biannual surveys, allowed them to shed

light upon the topic of privacy on the Internet. The research found that the most common

reason people are hesitant to buy on the Web is the notion that it is not safe to do so.[4]

Purchasing items online requires at the very least a name, credit card number, shipping

address, billing address and email address. This leaves the consumer with no control

over who may see that private information, a security concern that severely decreases

their likelihood of buying. The second most common reason people will not buy online

is the threat of a secondary use in which the retailer sells the consumer's information to a

third party.[5] This tactic results in direct mail solicitations as well as spam mail, two

practices very few Web users would like to engage in.[6] This study provides significant

insight into a consumer's perception of reliability as the most immediate threat to online

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[2] Bauer, 1960.

[3] Donna L. Hoffman, Thomas P. Novak, and Marcos Peralta. "Building Consumer Trust Online." *Communications of the ACM* 42, no. 4 (1999): 80-85.

[4] Ibid, 83.

[5] Ibid, 81.

[6] Ibid, 82.

buying. Retailers must work to gain the consumer's trust and confidence in their Website before that consumer will even consider purchasing an item online.

Lee, Park, and Ahn conduct similar research when they investigate what factors will affect e-commerce adoption.[7] Like Hoffman, Novak, and Peralta, when considering how perceived risk will alter a person's intentions to buy, they consider the risks of the transaction, such as hackers gaining control of personal information or the retailer selling their information to a third party.[8] However, Lee, Park, and Ahn also take into account risks associated with the product or service itself. This includes the fear that the product may not be what the buyer expected, the potential cost of shipping and handling, the inconvenience that results when the product needs adjusting or replacing, and the potential of finding a better product at a lower price after already buying online. The researchers hypothesized not only how these factors will affect purchasing behavior, but also how they will affect perceived usefulness. The findings of a Web-based survey confirmed the hypotheses that perceived risk in the transaction is negatively related to perceived usefulness and will negatively affect likeliness to purchase online.[9] Additionally, perceived risk associated with the product is positively correlated with perceived risk of the transaction, negatively correlated with perceived usefulness and negatively affects the likeliness to purchase online.[10] Again, this research is significant

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[7] Dongwong Lee, Jinsoo Park, and Joongho Ahn. "On the Explanation of Factors Affecting e-Commerce Adoption." 6 (2001): 1-21.

[8] Hoffman, Novak, and Peralta, 80-85.

[9] Lee, Park, and Ahn, 7.

[10] Ibid.

because it gives online retailers insight into what consumer's will initially contemplate when debating whether or not to buy online.

Bhatnagar, Misra, and Rao take an interesting approach to the aspect of perceived risk when they attempt to figure out which goods are deemed to be less risky purchases via the Web and why exactly that is.[11] Their analysis showed that items such as music and CDs, other web services, books, and Travel, are seen as having the lowest risk level.[12] These products are deemed so because consumer's can be fairly certain that what they order is what they will receive. Additionally, the cost of the product on the Internet is reduced enough to make purchasing the product worth the potential risk. Perceived levels of risk are higher for more expensive items, like electronics and hardware, as well as "ego-related products" that one must feel and touch, like sunglasses.[13] Overall this study successfully depicts which products are appealing to buy via the Internet, which gives retailers a sense of the goods they should be focusing their online sales around.

Personality

In a study by Hasan and Rahim, the aspect of convenience is analyzed to determine its impact on online purchasing behaviors.[14] The researchers distributed a 12-page questionnaire to a random sample of Malaysian consumers in order to determine how this personality variable will play a role in consumers' purchasing behaviors in

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[11] Amit Bhatnagar, Sanjong Misra, and H. Raghav Rao. "On Risk, Convenience, and Internet Shopping Behavior." *Communications of the ACM* 43, no. 11 (2000): 98-105.

[12] Ibid, 101.

[13] Ibid, 102.

[14] Hamisah Haij Hasan and Samsudin A. Rahim. "Factors Affecting Online Purchasing Behavior." *Jurnal Komunikasi* 24 (2008): 1-19.

cyberspace. It was hypothesized that "the convenience variable is significantly related to the likelihood that a consumer will make a purchase through cyber ads."[15] A positive, significant relationship between convenience and likelihood to purchase was found.[16] Thus, the fact that an online platform allows consumers to purchase products anywhere, anytime, while avoiding crowded malls and without procuring additional costs proves to be a factor of significance.

Bellman, Lohse, and Johnson investigate two additional personality traits that they believe to have an effect on online purchasing behavior; the consumer who "leads a wired lifestyle" and the consumer who is "time starved."[17] The researchers ran a logistic regression with the data from the Wharton Virtual Test Market (WVTM), an annual survey, to determine who exactly is buying online. Interestingly, the most significant determinants on purchasing behavior included how many months the person has used the Internet, the number of emails they receive each day, the amount of work they do on the Internet while at their office, and their feelings regarding how productive the Internet allows them to be.[18] These people are defined as ones with a "wired lifestyle" because they typically call on the Internet for a plethora of activities and can use it comfortably. Other factors affecting purchasing behavior include the number of hours an individual works each week as well as whether or not the person's spouse also works.[19] These

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[15] Hasan and Rahim, 8.

[16] Ibid, 14.

[17] Steven Bellman, Gerald L. Lohse, and Eric J. Johnson. "Predictors of Online Buying Behavior." *Communications of the ACM* 42, no. 12 (1999): 38.

[18] Ibid, 34-35

[19] Ibid.

"time starved" individuals purchase goods online because it provides a faster and more convenient way for them to shop.

Bhatnagar, Misra, and Rao's study hypothesize that as the amount of time spent on the Internet increases, the likelihood of purchasing items online will also increase.[20] Through the use of an online survey, they were able to confirm their belief that with more experience comes knowledge and confidence that allows the consumer to choose which products they truly want and need. The researchers also attribute this finding to the fact that as people gain more internet experience, they are likely climbing in their professional careers, leaving them less time to shop.[21] The Internet provides an experience in which they can minimize their time consumption while still getting everything they need.[22] By knowing that experienced Internet users are more likely to purchase online, Web retailers can then tailor their sites and advertisements to appeal to those people, which will in turn garner them more success in the online venue.

In his research Wu takes into account several characteristics, such as cultural, social, personal, and psychological, that may influence a consumer's purchases.[23] He hypothesizes that attitude toward online shopping depends on a combination of demographics, consumer purchase preference, consumers' benefit perception, consumer lifestyle, and various online shopping rates.[24] Wu conducted 600 personal interviews

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[20] Bhatnagar, Misra, and Rao, 101.

[21] Ibid.

[22] Ibid.

[23] Shwu-Ing Wu. "The Relationship between Consumer Characteristics and Attitude Toward Online Shopping." *Marketing Intelligence & Planning* 21, no. 1 (2003): 37-44.

[24] Ibid, 39.

when collecting his data. He also used Fishbein's attitude model in order analyze each participant's overall attitude so that the relationship between characteristic and attitude could be fully understood.[25] The study looked at variances in order to determine whether or not each factor significantly impacted consumer behaviors in online purchasing. Each of his hypotheses was supported by the data collected. Wu conducted this study with the intention of providing market managers an idea of what to focus their strategies on. He advises online marketers and retailers to "emphasize the benefits of online shopping, effectiveness and modern, company name familiarity, purchase convenience, information abundance and selection freedom."[26]

Level of Involvement

In 1966 Herbert E. Krugman published his groundbreaking research concerning consumer's levels of involvement.[27] He looks specifically at advertisements and defines involvement as the moment when "conscious connections occur between the persuasive stimulus and something in the respondent's life."[28] Krugman compared participant's number of connections made to television advertisements versus the number of connections made to magazine advertisements. He also compared high and low starch print advertisements to test consumer involvement. The results of the study led to five conclusions that began to define involvement levels.

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[25] Wu, 38.

[26] Ibid, 43.

[27] Herbert E. Krugman, "The Measurement of Advertising Involvement." *Public Opinion Quarterly* 30, no. 4 (1966): 583.

[28] Ibid, 587.

1. Involvement with advertising in magazines or television tends to be highest when attention is directed to the editorial environment, less when it is directed to the advertising and least when advertising is presented alone.

2. Involvement with advertising tends to be consistent with interests in the editorial environment, i.e. greater interest "carries over" to produce higher involvement.

3. Involvement with advertising tends to be higher for magazines than for television with high involvement products, but no different with low involvement products.

4. Involvement, as measured by number of "connections" per minute, tends to be more sensitive than, and independent of, two other measures (a) Starch Noting scores, and (b) seconds of stimulus exposure.

5. Involvement with specific stimuli tends to be more varied and consequently less predictable with products of intrinsically low involvement, while stimuli representing a high involvement product more often tend to share the same level of involvement.[29]

These findings are particularly important because they paved the way for future researchers to continue to shed light on the effectiveness of things such as advertisements, Websites, and articles in engaging and involving the observer.

Hasan and Rahim utilize Krugman's involvement theory in order to shed light upon the online purchasing behavior of consumers in Malaysia.[30] Through the use of a randomly sampled survey, they collect data that offers insight into how involvement level and perceived convenience contribute to a person's tendency to purchase products online. Survey respondents indicated that the most popular online transactions that occurred were

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[29] Krugman, 596.

[30] Hasan and Rahim, 1-19.

for items such as e-banking, books, financial services, computer equipment, household furnishings and entertainment products whereas purchasing activity was less for items such as food, fast food and shampoo.[31] Interestingly, those more commonly purchased products have previously been classified as high-involvement products and all of the less frequent purchases have previously been classified as low-involvement products.[32] These findings confirm Krugman's Low Involvement theory, suggesting that consumers are more likely to purchase a good on the Internet when they possess some degree of involvement with that product.[33] In other words, online retailers will prove to be most efficient when the good they offer is one of high-involvement.

In his study of analyzing the consumer as a shopper and as a computer user, Koufaris investigates the role product involvement in the shopping experience.[34] He defines involvement as "a person's motivational state towards an object where that motivational state is activated by the relevance or importance of the object in question."[35] Koufaris hypothesizes that product involvement is positively related to both shopping enjoyment as well as to concentration. A survey was distributed to Web users and a linear regression model was used to test the significance of the findings. In the model testing shopping enjoyment, the coefficient for product involvement was significant and

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[31] Hasan and Rahim,13.

[32] George Belch and Michael Belch. *Advertising and Promotion: An Integrated Marketing Communications Perspective,(6 Th*. New York: NY: McGraw-Hill, 2004.

[33] Hasan and Rahin, 17.

[34] Marios Koufaris. "Applying the Technology Acceptance Model and Flow Theory to Online Consumer Behavior." *Information Systems Research* 13, no. 2 (2002): 205-223.

[35] Ibid, 211.

positive, supporting the first hypothesis. [36]Additionally, in the linear regression model

for customer concentration customer involvement was again significant and positive, thus

showing support for the second hypothesis presented.[37] This study offers the notion that

online retailers must consider consumers as both shoppers and as computer users. The

findings on involvement levels also attach an emotional aspect to online shopping

behavior.

Shim, Eastlick, Lotz, and Warrigton examine product involvement in their

research that proposes intent to search for product information on the Internet as a

predictor of consumer purchasing intention on the Internet.[38] They aim to find the

connection between the intentions involved in searching and purchasing online as well as

attempt to determine how consumer attitude among other variables plays a role in this.[39]

The researchers hypothesize that the intention of using the Internet to search for product

information will lead to a positive intention to purchase. Additionally, they believe that

consumer attitudes about online shopping will positively predict a consumer's intention

to search for product information on the Internet. Finally, they say that purchase

experience on the Internet will positively predict both the intention to search for product

information on the Internet as well as the intention to purchase via the Internet. To test

their hypotheses the researchers conducted a survey of computer owners that included

questions regarding how likely the participant would be to search for book, computer

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[36] Koufaris, 216.

[37] Ibid.

[38] Soyeon Shim, Mary Ann Eastlick, Sherry L. Lotz, and Patricia Warrington. "An Online Prepurchase Intentions Model: The Role of Intention to Search." *Journal of Retailing* 77, no. 3 (2001): 397-416.

[39] Ibid, 398-399.

software, and video product information online, questions determining where the product would likely be purchased, questions gauging attitude toward Internet shopping, and questions concerning previous Internet shopping experience. All of the hypotheses were supported by the data as positive, significant relationships were found between intent to search via the Internet and intent to purchase online, attitude toward online shopping and intent to search online, and Internet purchasing experience and intent to search and purchase online.[40] This study provides insight to marketers and retailers regarding consumer behavior. It suggests that intent to search via the Internet and intent to buy via that same medium are not behaviors independent of each other and offers support that attitudes and past behaviors play a role in future product involvement.

In their research, Slama and Tashchian look at what factors will increase purchaser involvement.[41] Factors they hypothesize to influence product involvement include stage of the family lifecycle, gender, the working status of women, education and income. However, they hypothesize that race will not be significantly related to purchase involvement. The researchers used a systematic area sampling technique when distributing surveys in order to control for non-response bias. The data not only confirmed the belief that families with children at home will have higher purchasing involvement than those without children in the home but also established that retirees will have the lowest purchasing involvement.[42] ANOVA results showed that gender, education level and income did influence level of involvement and that race did not

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[40] Shim, Eastlick, Lotz, and Warrington, 410.

[41] Mark E. Slama and Armen Tashchian. "Selected Socioeconomic and Demographic Characteristics Associated with Purchasing Involvement." *The Journal of Marketing* (1985): 72-82.

[42] Ibid, 79.

influence the level of involvement as hypothesized.[43] However, contrary to the

hypotheses made, the data did not show working wives to have a lower level of

involvement than housewives.[44] Slama and Tashchian utilized the previous studies that

have found that level of involvement significantly influences consumers purchasing

decisions and expanded upon it to determine which factors contribute to an increased

involvement level. Their finding prove to be significant to marketers and retailers in that

they offer an insight as to what socioeconomic and demographic factors will increase

involvement level and thus increase likeliness to buy.

Website Quality

Research by Park and Kim puts value to the design and quality of a Website.[45]

By focusing their survey collection on people who had a membership with one of three

specific online bookstores in Korea they were able to gather significant data regarding

Website use and loyalty. They found that "a consumer's commitment to an online store

is highly related to information satisfaction and relational benefit."[46] Information

satisfaction deals precisely with the satisfaction or dissatisfaction that stems from the

users feelings regarding the navigation and use of a Website. Relational benefit is the

benefit that comes from a withstanding relationship with a Website. With that in mind,

they also were able to prove that factors such as product information, service information

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[43] Slama and Tashchian, 79.

[44] Ibid.

[45] Chung-Hoon Park and Young-Gul Kim. "Identifying Key Factors Affecting Consumer Purchase Behavior in an Online Shopping Context." *International Journal of Retail & Distribution Management* 31, no. 1 (2003): 16-29.

[46] Ibid, 24.

quality, and user interface quality are directly related to informational satisfaction and relational benefit.[47] This research suggests that Website design and quality is one of the biggest external factors to contribute to consumer purchase behavior. This is important for online retailers to take into account because it is a factor that they can easily control and improve upon in order to gain customer loyalty.

Research by Kim, Fiore, and Lee investigate the influence that image interactivity technology (IIT) has on a consumer's online shopping behavior.[48] They hypothesized that there is a positive relationship between the level of IIT and online shopping enjoyment, the level of IIT and perception of the online store, the level of IIT and involvement in the online shopping experience, the level of IIT and desire to stay on a retail Web site, and the level of IIT and patronage intention towards a retail Web site. Additionally, they say that there are positive relationships between the online store perception and online shopping enjoyment, the online store perception and involvement in the online shopping experience, and the online store perception and desire to stay on a retail Web site. The next set of hypotheses predict that there is a positive relationship between shopping enjoyment and desire to stay on a retail Web site as well as between shopping enjoyment and patronage intention towards a retail Web site. Next they believe that there is a positive relationship between involvement in the online shopping experience and desire to stay on a retail Web site and between involvement in the online shopping experience and patronage intention towards a retail Web site. Their final

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[47] Park and Kim, 24.

[48] Jihyun Kim, Ann Marie Fiore, and Hyun-Hwa Lee. "Influences of Online Store Perception, Shopping Enjoyment, and Shopping Involvement on Consumer Patronage Behavior Towards an Online Retailer." *Journal of Retailing and Consumer Services* 14, no. 2 (3 2007): 95-107.

hypothesis states that there is a positive relationship between desire to stay and patronage intention towards a retail Web site. To test these hypotheses, the researchers set up two Websites, one low level IIT and one high level IIT, and then had participants answer questions about each variable of interest. The results indicated that almost all of the original hypotheses were correct, except a positive relationship between shopping enjoyment and patronage intention towards a retail Website was not supported by the data.[49] This study offers insight into the improvements in consumer perception that occur as a result of a high level of a high level of IIT. It forces online retailers to acknowledge the role Website presentation plays in consumer purchasing behaviors.

Zhang and von Dran regard the Web as the service and the user as a customer in their approach to website quality.[50] This study involves a two-factor model in which the researchers expanded Kano's model of quality to include a broader variety of website types in order to examine common Website designs.[51] In their first study, the hypotheses are that quality type of Web design features can be characterized as basic, performance, or exciting and that these quality types will change over time. In order to test their hypotheses, the researchers created a list of 44 Web design features and had the participants identify each feature as basic, performance exciting, or unclear quality and then recall from their own experience if the quality of that feature had changed over time. The data concluded that the basic factors, such as predictability, stability, supportive resources, adequate environmental conditions, accurate roadmaps and milestones, and

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[49] Kim, Fiore and Lee, 95-107.

[50] Ping Zhang and Gisela M. von Dran. "User Expectations and Rankings of Quality Factors in Different Web Site Domains." *International Journal of Electronic Commerce* 6, no. 2 (2001): 9-33.

[51] Noriaki Kano, Nobihiku Seraku, Fumio Takahashi, and Shimichi Tsuji. "Attractive Quality and must-be Quality." *The Journal of the Japanese Society for Quality Control* 14, no. 2 (1984): 39-48.

congruency between mission and products, are ones that do not contribute to satisfaction

because the user expects them and may take them for granted.[52] The lack of these

characteristics on a Web site in turn contributes to user dissatisfaction. Performance

factors were found to be those that "facilitate task performance and satisfy overtly stated

needs of customers."[53] Websites lacking these features lead to dissatisfaction in

consumers. Exciting factors are ones that lead to knowledge acquirement, emotional

involvement, and control.[54] These are the features that pleasantly surprise the user, build

loyalty, and lead to a competitive advantage. The study also confirmed the hypothesis

that performance quality will change over time.[55] The second study by Zhang and von

Dran uses a bottom-up analysis to determine the domains in which certain quality factors

are most important. Participants simply listed which five website features they found to

be most important in each of the six presented domains. The responses were then coded

and a score was determined for each domain by multiplying the frequency of that code by

a previously determined priority weight. The data concluded that each domain did in fact

differ in which factors were viewed as important. For example, comprehensiveness of

information was important in the education and medical domains but did not show in any

of the other domains while the features of visual design, multimedia and site

responsiveness were must-haves in only the entertainment domain.[56] Interestingly, ease

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[52] Zhang and von Dran, 18.

[53] Ibid.

[54] Ibid.

[55] Ibid, 19.

[56] Ibid, 23.

of navigation was the only feature to be ranked in all six of the domains.[57] This research is relevant to the present study because it takes the notion that a higher perception website quality leads to a likeliness to purchase online and expands upon it in order to determine which factors exactly lead to increased perception of quality. These findings are beneficial in that they allow marketing specialists to determine which features will put them in the much desired "exciting" quality type as well as which features are most desired for their type of Web domain.

<div align="center">Demographic Factors Affecting Online Purchasing Behavior</div>

The present study aims to analyze the General Social Survey (GSS) in order to determine how demographic factors influence and affect online purchasing behavior. Although much research has previously been conducted in this area, the findings have been somewhat inconclusive as a whole. While all of the studies agree that education level and income level are significant factors, and that as they increase the practice of Internet shopping will increase as well, there are contradicting conclusions regarding age and gender. While some research has found these two factors to be significant, other have determined both to yield mixed results while still other have found one to be significant and the other not to be.

A study by Li, Kuo, and Russell combines the use of demographics with consumer's channel knowledge, perceived channel utilities and shopping orientations in order to gather information regarding consumer buying behavior.[58] They hypothesize

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[57] Zhang and von Dran, 23.

[58] Hairong Li, Cheng Kuo, and Martha G. Rusell. "The Impact of Perceived Channel Utilities, Shopping Orientations, and Demographics on the Consumer's Online Buying Behavior." *Journal of Computer Mediated Communication* 5, no. 2 (1999): 1-20.

that frequent online purchasers are better educated, are more likely to be male, and have a

higher income than occasional online buyers or internet users who do not purchase online

at all. Additionally, the researchers hypothesized that differences in age would not be a

significant factor in online purchasing behaviors. A survey conducted by

ClickinReaserch and sent out via email was used in this study in order to gather data from

active Internet users. Multiple stepwise regression analyses were performed in order to

determine the significance of each variable. It was determined that, as hypothesized,

education level and income level were both significant variables while age was not

statistically significant.[59] The analysis also demonstrated that men tend to purchase

online more frequently than women.[60]

Bhatnagar, Misra, and Rao also took into account the affect of demographic on

Internet shopping.[61] A general demographics section was included in the survey they

administered to create a profile of each participant that included gender, age and marital

status. The researchers predict that gender will show mixed results because men and

women will tend to purchase different goods on the Internet. They also hypothesize that

age will be a significant factor because as individuals mature, they are more likely to

know what it is exactly that they want and are more confident in their purchasing

decisions. Marital status is hypothesized to be a control factor in that it would not affect

the results. The data analyses of these variables confirmed all three hypotheses and

showed that older consumers tend to purchase goods more frequently on the Internet and

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[59] Li, Kuo, and Russell, 11-15.

[60] Ibid.

[61] Bhatnagar, Misra, and Rao, 98-105.

are more open to buying online.[62] Gender did in fact turn out mixed results and marital

status was not statistically significant as expected.[63] This study contradicts Li, Kuo, and

Russell's earlier the findings that age is not a significant determinant while gender is.[64]

This suggests that further research should be conducted in this area.

In a study of undergraduates, Osman, Yin-Fah, and Choo take into account the

factors of age, gender, and education level in their examination of attitudes toward online

purchasing behavior.[65] Through the use of a survey, they found that participant's age did

not have an effect on online purchasing behavior.[66] Additionally, a one-way ANOVA

text was performed and it was concluded that online purchasing behavior was

significantly related to both gender and education level.[67] These findings confirm the

results of Li, Kuo, and Russell's study[68] but contradict those findings of Bhatnagar,

Misra, and Rao.[69] The researchers acknowledge that the findings of this study benefit

both marketers, in terms understanding consumers' attitudes, and consumer's, in terms of

understanding the advantages of online purchases.[70]

Ratchford, Talukdar, and Lee attempt to create a model of consumer choice in

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[62] Bhatnagar, Misra, and Rao, 103.

[63] Ibid, 104.

[64] Li, Kuo, and Russell, 1-20.

[65] Syuhaily Osman, Benjamin Chan Yin-Fah, and Bei Hooi-Choo. "Undergraduates and Online Purchasing Behavior." *Asian Social Science* 6, no. 10 (2010): 133-146.

[66] Ibid, 138.

[67] Ibid, 138-139.

[68] Li, Kuo, and Russell, 1-20.

[69] Bhatnager, Misra, and Rao, 98-105.

[70] Osman, Yin-Fah, and Choo, 139.

terms of the Internet.[71] Their key propositions concerning consumer demographics is that "Internet use will be highest among younger age groups because the investment in the required skills can be spread over the longest time horizon, and because they are most likely to have access to computers and be skilled at their use."[72] The hypothesis was tested through an empirical study in which a survey was distributed to individuals who purchased new automobiles in order to determine the role of the Internet role in their search. Ratchford, Talukdar, and Lee found that those who employed the use of the Internet were younger individuals who had the skill and access necessary to benefit from the use of the Internet.[73] Again, this finding that age is statistically significant contradicts those of the previous studies mentioned in this section, suggesting that further investigation into the age variable is both necessary and beneficial in determining behaviors on the Internet.

Utilizing the General Social Survey

Since 1982 the General Social Survey (GSS) has been cross-national and has used a "standard core of demographic, behavioral, and attitudinal questions, plus topics of special interest" in order to gather information from the citizens of various nations.[74] The GSS offers an immense number of variables that allow researchers to explore not only

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[71] Brian T. Ratchford, Debebrata Talukdar, and Myung-Soo Lee. "A Model of Consumer Choice of the Internet as an Information Source." *International Journal of Electronic Commerce* 5, no. 3 (2001): 7-21.

[72] Ibid, 14.

[73] Ibid, 18.

[74] Tom W. Smith, Peter Marsden, Michael Hout, and Jibum Kim. *General social surveys, 1972-2010*[machine-readable data file] /Principal Investigator, Tom W. Smith; Co-Principal Investigator, Peter V. Marsden; Co-Principal Investigator, Michael Hout; Sponsored by National Science Foundation. -- NORC ed.-- Chicago: National Opinion Research Center [producer]; Storrs, CT: The Roper Center for Public Opinion Research, University of Connecticut [distributor], 2011.

demographic information, but also opinions of participants. "The 1972-2010 GSS has

5,416 variables, time-trends for 2,072 variables, and 268 trends having 20+ data

points."[75] The collection over several years as well as the huge amount of data collected

allows for a substantial examination and regression of variables.

Dryburgh utilizes the GSS from the year 2000 in Canada in order to draw

numerous conclusions regarding who uses or doesn't use the Internet, what concerns are

associated with Internet use, why there is a divide of Internet users, how the Internet is

affecting use of time, and the impact of the Internet in the workplace.[76] In Canada the

GSS collects information from people in all provinces over the age of 15, allowing for an

80.8% response rate.[77] The data collected shows that the range of 15-to 19-year-olds has

the most internet users at 90% and that the percentage steadily declines with each age

group from there.[78] Additionally, men are more likely to use the Internet that women.

While these finding have been confirmed in studies elsewhere, the GSS enabled

Dryburgh to draw conclusions that no other study has before because of the fact that the

GSS collects huge amounts of information from participants. For example, Dryburgh

determined that Alberta and British Columbia have the highest Internet use in Canada.[79]

Additionally, non-users say that cost and lack of access are the reasons they do not use

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[75] Smith, Marsden, Hout, Kim.

[76] Heather Dryburgh and Statistics Canada. Housing, Family and Social Statistics Division. *Changing our Ways: Why and how Canadians use the Internet.* Statistics Canada Ottawa, 2001: 1-14.

[77] Ibid.

[78] Ibid.

[79] Ibid, 2.

the Internet, and 27% of these people expressed interest in using the Internet.[80] A final

interesting conclusion resulting from the use of the GSS is that Francophones, those

people who speak French at home, are less satisfied with their Internet experience due to

the lack of content that is available in their language.[81] The GSS offers endless

possibilities for the exploration of Internet use. It allows for a breakdown of how each

age division spends their time on the Internet, how parents feel about their children's use

of the Internet, how the introduction of computers and the Internet has affected the

workplace, and how people feel about technology as a threat to their job. This study

demonstrates how truly valuable the GSS proves to be when looking at Internet behavior

and use by consumers.

<div align="center">Conclusion</div>

The literature presented above summarizes the most influential studies that have

so far been conducted on consumer purchasing behavior in an online medium. Through

reviewing the literature on external influencing factors we were able to understand what

outside players may be behind consumer behaviors. Additionally, we see that while the

research conducted so far using demographic factors has been well documented, the

studies have turned up contradicting findings. Thus, with this previous research as a

guide combined with the extensive unexplored data variables and large sample size

provided by the GSS, the present study shows potential for groundbreaking results in the

field of consumer behaviors.

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[80] Dryburgh, 4.

[81] Ibid, 6.

CHAPTER III

THEORY

The purpose of this chapter is to present the theories relevant to the decision

making process in which a consumer decides whether or not to purchase a product online.

The first two sections of this chapter will investigate the utility maximization approach as

well as consider budget constraints as two principles that will be crucial to utilize in the

investigation of decision-making process. While this paper does not possess the

capabilities of testing the proposed theory, it will allow for further understanding as well

as further research in the area concerning the prediction of consumer behaviors. The

final section of this chapter will discuss any factors that may play a contributing role in

affecting a consumer's tendency to purchase online. These factors include ones that have

been proposed in previous studies, as well as some determinants that are unique to this

paper. Together, they comprise the variables that will go into the regression model

presented later in Chapter IV.

Utility Maximization

It was previously mentioned that a consumer's purchasing experience online

would predict the individual's intention to purchase online.[1] Thus, as a customer's utility

is maximized, their likelihood of purchasing online is also maximized. Generally, utility

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[1] Soyeon Shim, Mary Ann Eastlick, Sherry L. Lotz, and Patricia Warrington. "An Online Prepurchase Intentions Model: The Role of Intention to Search." *Journal of Retailing* 77, no. 3 (2001): 397-416.

functions describe consumer preferences about consumption in different circumstances.[2]

In this case, however, the utility function will be applied as a model to understand the consumer's decision to purchase online or not to purchase online. Given these two options where A is purchasing online and B is purchasing on site in a store, the consumer has three options. They may be indifferent between the two (A~B), they may prefer A to B (A>B), or they may prefer B to A (A<B). The rational consumer will always make the choice that maximizes their utility.

Various factors that may maximize or minimize a consumer's utility when purchasing online, thus influencing their decision to engage in this activity are discussed later in this chapter. For example, a strong presence of foreign culture would decrease the utility an individual experiences when buying online if the website is not available in their native language. Additionally, people whose utility increases as a result of donating or investing money could be said to garner joy from the experience of giving to others or to themselves. They would be more likely to purchase online because that behavior would increase the utility value. Also, under the assumption of non-satiation, income would be expected to increase utility when purchasing goods online. As shown in FIGURE 3.1, each additional unit a buyer consumes increases utility, but at a decreasing rate. A final example is individuals who are risk lovers. They gain utility as a result of purchasing online whereas risk-averse individuals would experience a decrease in utility when engaging in the same behaviors due to the associated risks.

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[2] Hal R. Varian. Intermediate Microeconomics: A Modern Approach. New York: W.W. Norton & Company (1999): 220.

FIGURE 3.1

Diminishing Marginal Utility Function
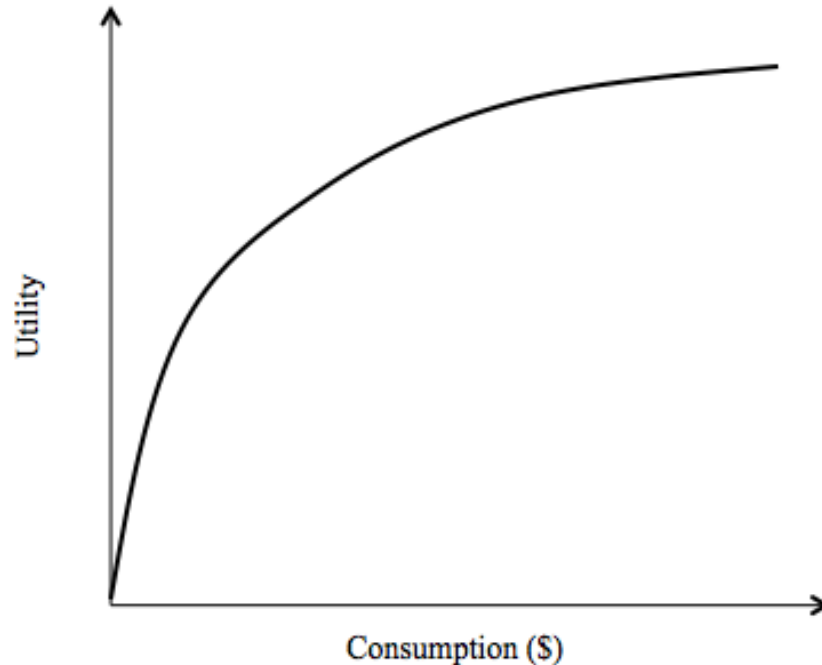
Budget Constraints

An individual's annual income creates their budget constraint. Each person can only consume as many goods as this constraint allows. FIGURE 3.2 compares the purchasing abilities of an individual with a higher income to one with a lower income when two goods are taken into account. The higher income individual can buy more of each good. It is expected that individuals with less constrained budgets will be more likely to purchase goods online based solely on the fact that they have a larger amount of money to spend.

FIGURE 3.2

High-Income and Low-Income Budget Constraints
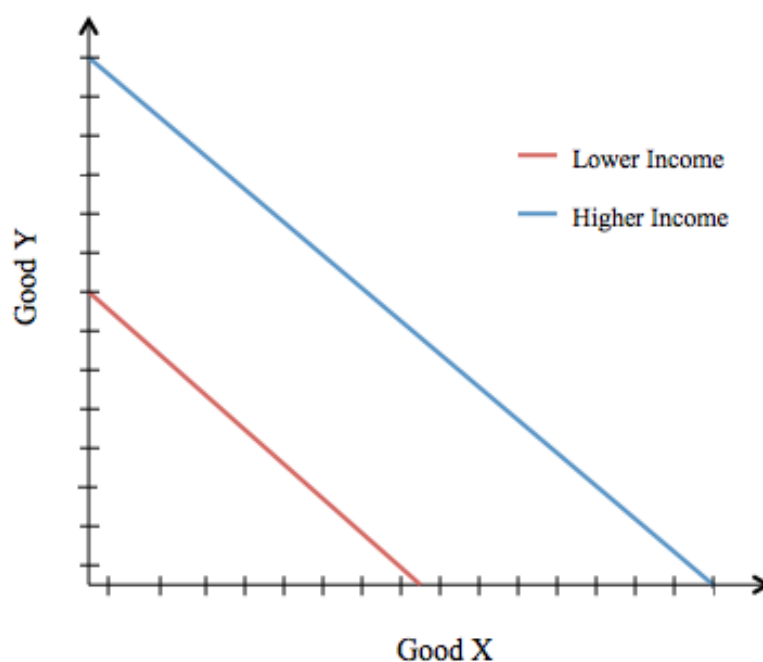
Factors accounting for a less constrained budget are discussed in this chapter and are incorporated in the model in Chapter IV. The first variable included is an individual's income. This is the most obvious way to determine a consumer's budget constraint because a higher income would obviously lead to a less constrained budget. Also, if a consumer donates money to charity or invests money, this is an indicator of a less constrained budget. This activity suggests that the consumer has an excess of money that may be allocated to purchasing goods. Finally, a budget constraint can be applied to how an individual uses their time. Each person must find the balance between work life and home life. A person who spends more time at work has less time to fulfill their home responsibilities. The use of the Internet to purchase goods online is a way to alleviate the time crunch and is discussed later in this section.

Theoretical Determinants of Consumer Online Purchasing Behavior

This section will outline the various determinants that have an effect on a

consumer's online purchasing tendencies. FIGURE 3.3 demonstrates visually the eight

determinants presented in this paper that are believed to play a role in consumer

purchasing behavior online. Each of the factors represented will be discussed in this

section.

FIGURE 3.3

Determinants of Consumer Purchasing Behavior Online
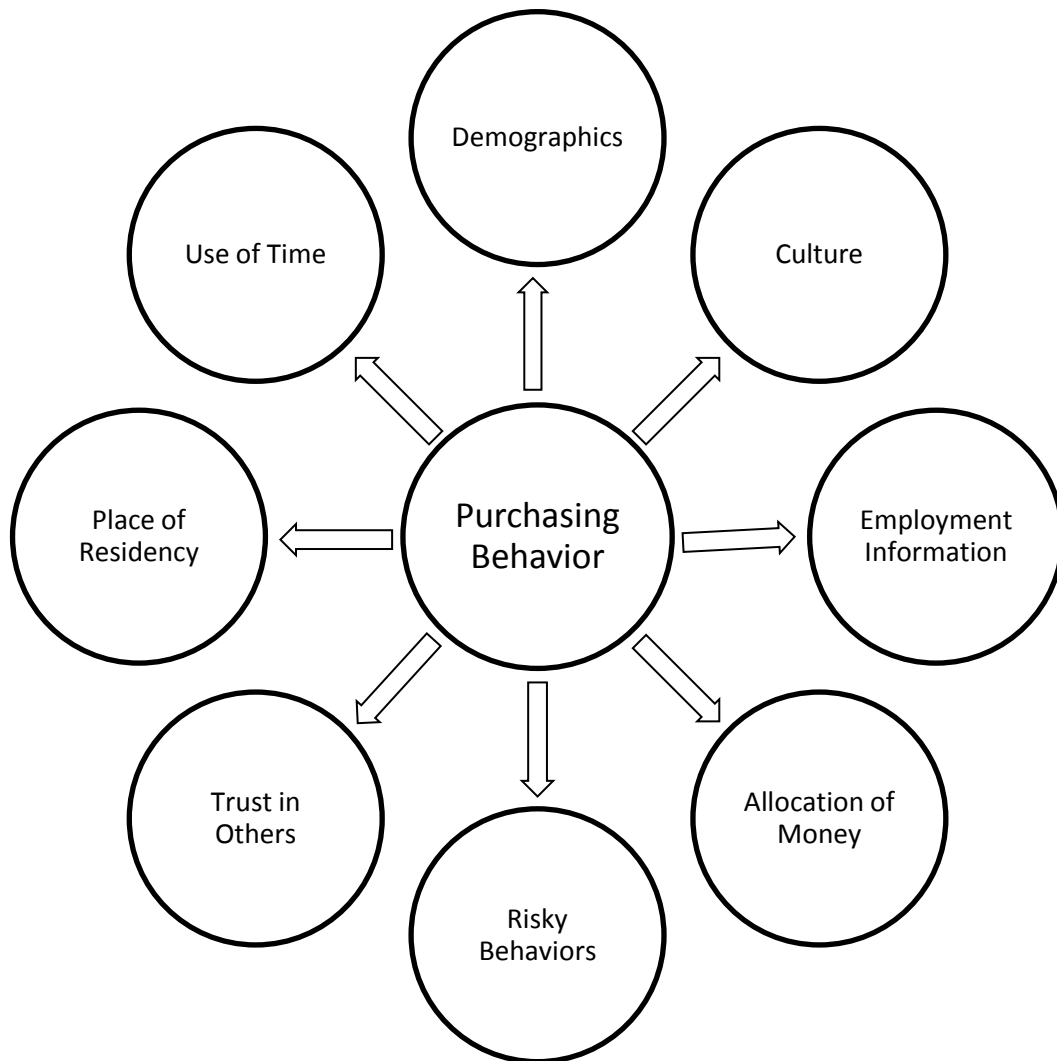
Demographics

      Various studies have taken a look at the influence of demographic factors on a consumer's likeliness to purchase a product online. Demographics are considered to be a person's socioeconomic characteristics, such as age, gender, education level, race and ethnicity, and marital status. While the influence of some of the factors may seem obvious, previous research has turned up mixed results regarding the effects of age and gender. It is for this reason that this study will be no exception to the inclusion of demographic factors.

      The demographic factors that will be taken into consideration in this study include age, gender, and education level. As mentioned in Chapter II, previous research has found education level to be a significant variable. However, the results regarding age and gender have turned up mixed results. Studies by Li, Kuo, and Russel[3] as well as Osman, Yin-Fah, and Choo[4] conclude that age is not a significant factor in online purchasing behaviors. Yet in a separate study on consumer buying behaviors online, Bhatnagar, Misra and Rao conclude "that older consumers seem more open to purchasing on the Internet."[5] Further, in a study by Ratchford, Talukdar, and Lee, younger indivudals were found to be more inclined to utilize the internet to purchase goods.[6] In regard to gender,

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[3] Hairong Li, Cheng Kuo, and Martha G. Rusell. "The Impact of Perceived Channel Utilities, Shopping Orientations, and Demographics on the Consumer's Online Buying Behavior." *Journal of ComputerMediated Communication* 5, no. 2 (1999): 1-20.

[4] Syuhaily Osman, Benjamin Chan Yin-Fah, and Bei Hooi-Choo. "Undergraduates and Online Purchasing Behavior." *Asian Social Science* 6, no. 10 (2010): 133-146.

[5] Amit Bhatnagar, Sanjong Misra, and H. Raghav Rao. "On Risk, Convenience, and Internet Shopping Behavior." *Communications of the ACM* 43, no. 11 (2000): 103.

[6] Brian T. Ratchford, Debebrata Talukdar, and Myung-Soo Lee. "A Model of Consumer Choice of the Internet as an Information Source." *International Journal of Electronic Commerce* 5, no. 3 (2001): 7-21.

Bhatnagar, Misra and Rao[7] find it to not be a significant determinant of behavior while Li, Kuo, and Russel found "men are more frequent Web buyers than women."[8]

The use of these variables as collected by the GSS will offer an insight into consumer purchasing behaviors online that have not been accurately explored before. These demographic factors include the inherent variables that often play a subconscious role in the consumer's choice of whether or not they will purchase online. They offer a background on the consumer that allows researchers to better understand the decision making process. FIGURE 3.4 portrays the indifference curves of individuals of various ages. As age decreases, the indifference curve for the individual gets lower. That is, at any given income level, they will gain more utility from purchasing goods online versus all other goods. Operating under this assumption, it is expected that age will be negatively and significantly related to purchasing behaviors online. In terms of gender, FIGURE 3.5 shows the indifference curves for men and women. The men's indifference curve is only slightly lower, indicating that there is not a significant difference in the utility gained from buying online between men and women. Thus, the respondent's gender is expected to not be significant in the regression. Finally, FIGURE 3.6 shows the shift that occurs in the budget constraint when education level increases. The outward shift leads to an increase in the amount of goods purchased online. Therefore, education level is positively and significantly related to purchasing behaviors online.

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[7] Bhatnagar, Misra and Rao, 98-105.

[8] Li, Kuo, and Russel, 16.

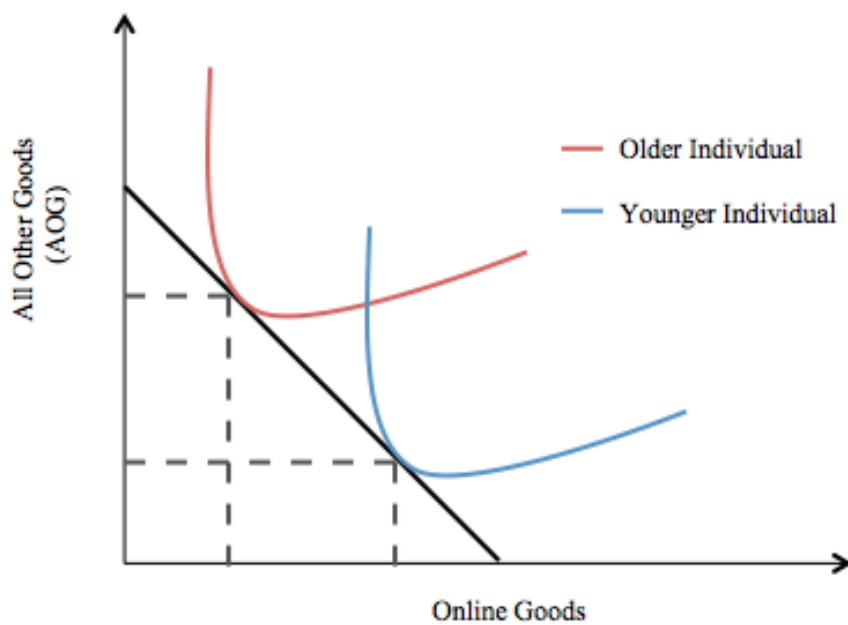FIGURE 3.4

Indifference Curve Variation Based on Age

FIGURE 3.5

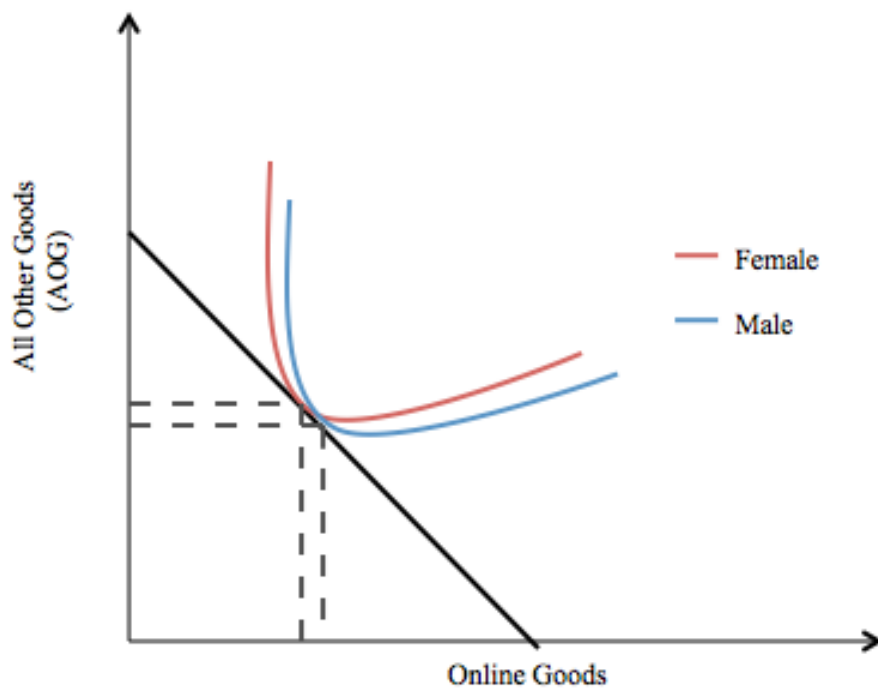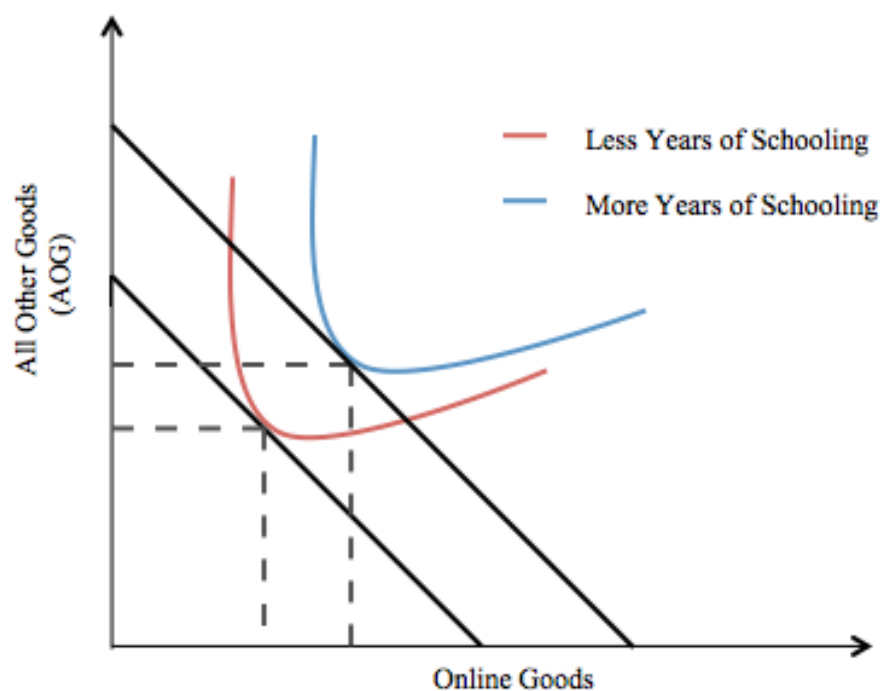Indifference Curve Variation Based on Gender

FIGURE 3.6

Budget Constraint Variation Based on Education Level

Culture

The examination of culture for the purposes of this study will go beyond the basic

demographic variables. Because Dryburgh's research found that consumer satisfaction in

their Internet experience is dependent upon cultural factors, variables accounting for this

aspect will be included in the present analysis.[9] If a shopper is satisfied with their online

experience, their utility function is directly affected. A positive experience leads to the

utility function maximization while a negative experience would have the exact opposite

effect. The variable collected by the GSS that will be applied in this study questions

whether or not the consumer was born in the United States of America. More specifically,

this variable is useful because if a person was born in country other than the United

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[9] Dryburgh, 1-14.

States, it is expected that they will have a strong presence of foreign culture and they will be less likely to buy online due to a less positive and satisfying shopping experience. FIGURE 3.7 depicts the indifference curves of an individual born in the United States and an individual born in a foreign country. Native born individuals have a lower indifference curve, indicating that at any income level they will purchase more goods online vs. all other goods than people born abroad. Thus, this variable is expected to result in a negative, significant relationship.

FIGURE 3.7

Indifference Curve Variation Based on Country of Birth
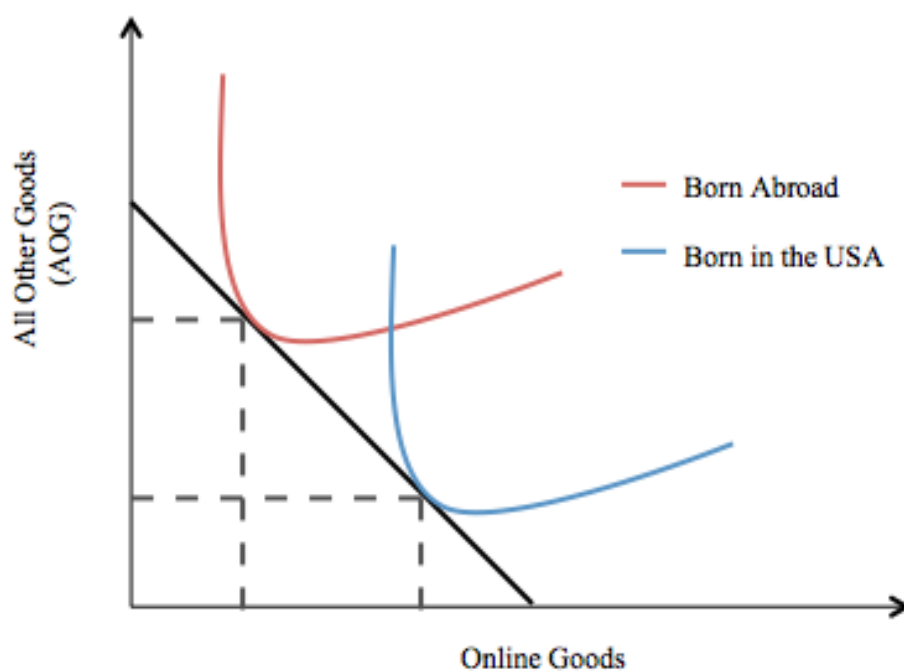
Employment Information

An individual's employment information provides key insight into their purchasing behaviors. The first, more obvious, variable considered in terms of an

individual's employment information is their annual income. Degeratu, Rangaswamy, and Wu determined "higher income households face substantially different budget constraints", which results in dampened price sensitivity.[10] The second variable provides details regarding whom exactly the individual works for. It is expected that an individual working for themselves would experience some employment stability and would also have an increase in utility and altered budget constraint. FIGURE 3.8 shows that both the utility function and the budget constraint will be affected by income as well as employment status. A higher income respondent not only has a lower indifference curve, but also an outward shifted budget constraint. Similarly, the respondent who is self employed will have a lower indifference curve in addition to an outward shift in the budget constraint. Thus, these higher income individuals or individuals who are self employed will be more likely to buy online vs. all other goods. Therefore, it is expected that these variables will both have a positive, significant relationship with purchasing behaviors online.

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[10] Alexandru M. Degeratu, Arvind Rangaswamy, and Jianan Wu. "Consumer Choice Behavior in Online and Traditional Supermarkets: The Effects of Brand Name, Price, and Other Search Attributes." *International Journal of Research in Marketing* 17, no. 1 (2000): 14.

FIGURE 3.8

Indifference Curve and Budget Constraint Variation Based on Income and Work Status

Allocation of Money

How a consumer allocates money gives insight about their budget constraint. Participating in behaviors deemed "charitable acts" suggests that a person has excess money to spend. Activities suggesting this practice include giving money to charity, lending a significant amount of money to another individual, or assisting the less fortunate. These stats provide information not only about the budget constraint of an individual, but the acts of generosity would also be expected to increase consumer utility. According to research by William T. Harbaugh, "donors maximize this [utility] function subject to the constraints of income, the price of donations, and the category reporting plan."[11] Harbaugh also suggests that a person's income can be used in order to determine

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[11] William T. Harbaugh. "The prestige motive for making charitable transfers." *The American Economic Review* 88, no. 2 (1998): 279.

the optimum amount of their donation.[12] Together, these findings lead to the assumption

that an individual who donates to charity would have a higher income and thus a budget

with fewer constraints. Additionally, an individual's investment behavior would provide

information about their budget constraint. The act of investing suggests that a person has

the excess money needed to participate in this activity. A person who is less constrained

and more generous with their money would in turn be expected to spend money more

freely in the online forum. FIGURE 3.9 illustrates the belief that an individual who

donates or invests will not only have a lower indifference curve, but also an outward

shifted budget constraint resulting in more goods purchased online vs. all other goods.

Therefore, it is expected that both donation history as well as investment behavior will be

positively and significantly related to online buying behaviors.

FIGURE 3.9

Indifference Curve and Budget Constraint Variation Based on Donations and Investments

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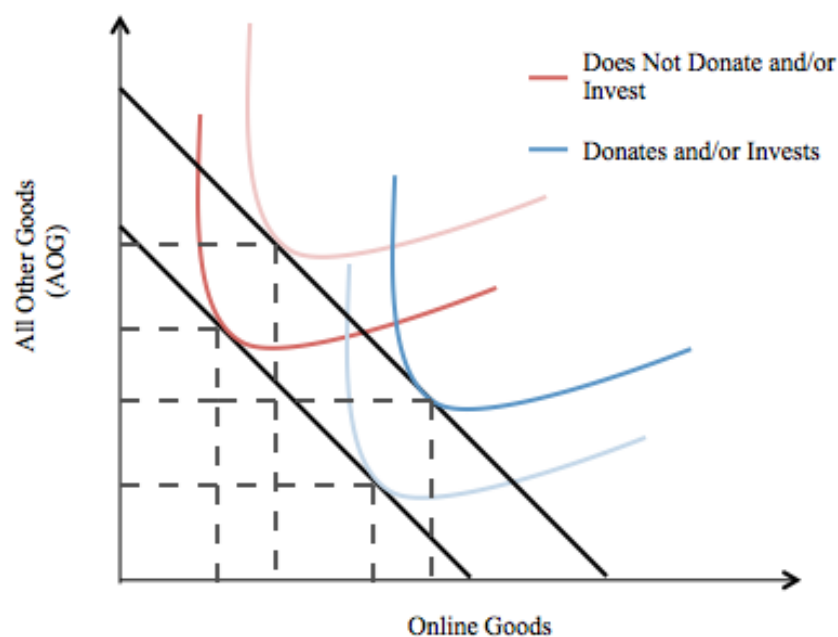
[12] Harbaugh, 277-282.

Risky Behaviors

Risk aversion goes hand in hand with the utility function discussed earlier in this chapter. As defined in Varian's Intermediate Microeconomics book, consumers may be either averse to risk, risk loving, or risk neutral.[13] FIGURE 3.10 shows the utility function of a risk-averse person. This person will have a more concave utility function and prefers to have a guaranteed expected valued of wealth rather than gamble with it.[14] Most likely, people falling into this category will be less inclined to buy goods on the Internet. On the other hand, FIGURE 3.11 shows a risk loving person's utility function. The more convex the utility function, the more risk loving they are. Those participants categorized into this risk-loving category are the ones who prefer the random distribution of wealth to its expected value.[15] These individuals are more likely to purchase online and gain utility by engaging in this activity. FIGURE 3.12 models a risk neutral person's utility function whose "expected utility of wealth is the utility of its expected value."[16] These individuals will have no preference between purchasing online and purchasing on site in a store.

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[13] Hal R. Varian. Intermediate Microeconomics: A Modern Approach. New York: W.W. Norton & Company (1999): 225.

[14] Varian, 225.

[15] Ibid.

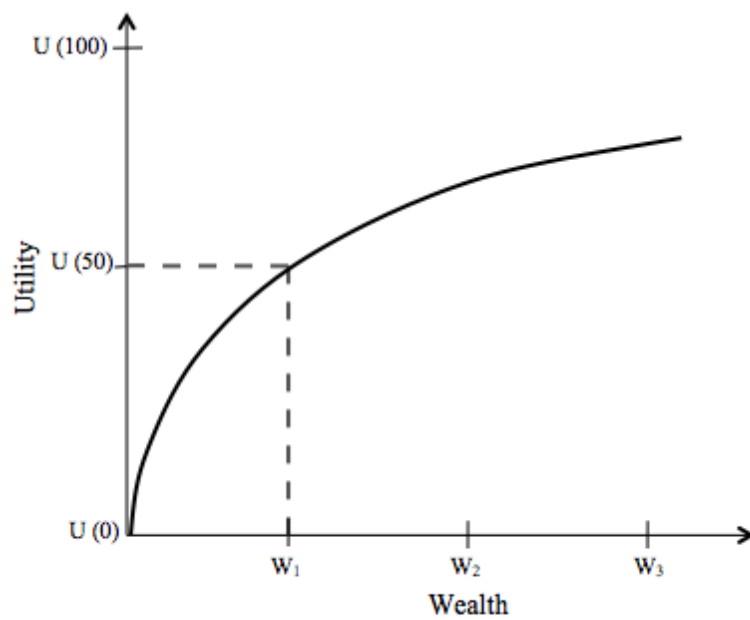[16] Ibid.

FIGURE 3.10

Risk-Averse Utility Function

FIGURE 3.11

Risk-Loving Utility Function
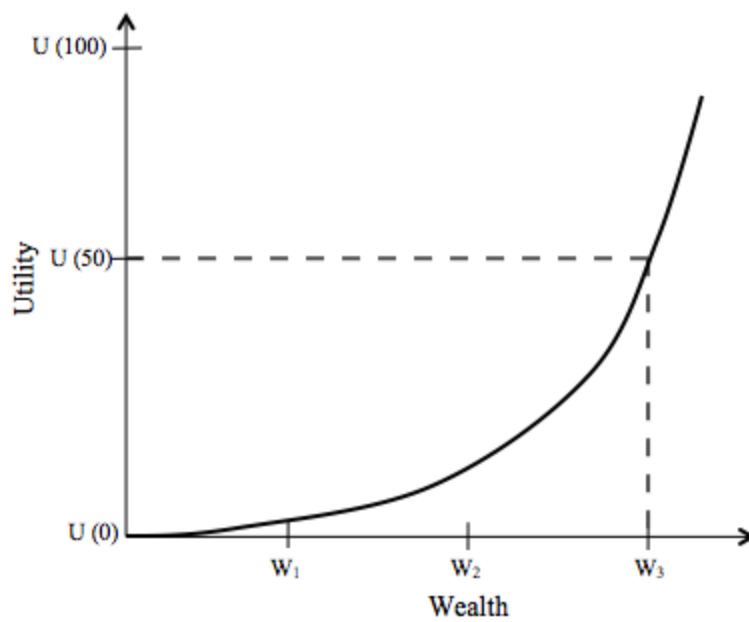
FIGURE 3.12

Risk Neutral Utility Function
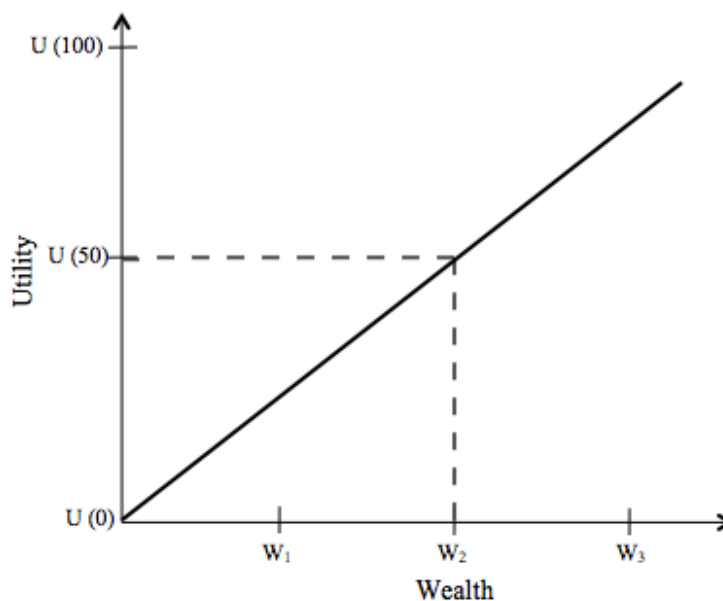
As mentioned in Chapter II, Bauer's proposition of consumer behavior as a case

of risk taking is a prominent idea for this research.[17] For this reason, the model proposed

in this paper will take into account different variables that may be signs of risky behavior.

While there is no specific variable in the GSS addressing a person's risk levels, there are

other variables that will allow for the determination of risk aversion. These variables will

include the individual's history of Internet use in the past year. More specifically,

whether or not the respondent has used the Internet to invest money or meet new people

will be taken into account. These factors are considered indicators of a consumers risk

taking tendencies. A person who engages in these activities will have a lower

indifference curve than someone who does not, as depicted in FIGURE 3.13. Therefore,

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[17] Raymond A. Bauer. "Consumer Behavior as Risk Taking." *Dynamic Marketing for a Changing World* 398 (1960).

this individual will purchase more goods online vs. all other goods at any given income level. It is expected that investment behavior as well as social behavior will have a positive, significant relationship with an individual's purchasing behavior on the Internet.

FIGURE 3.13

Indifference Curve Variation Based on Risk Taking Tendencies
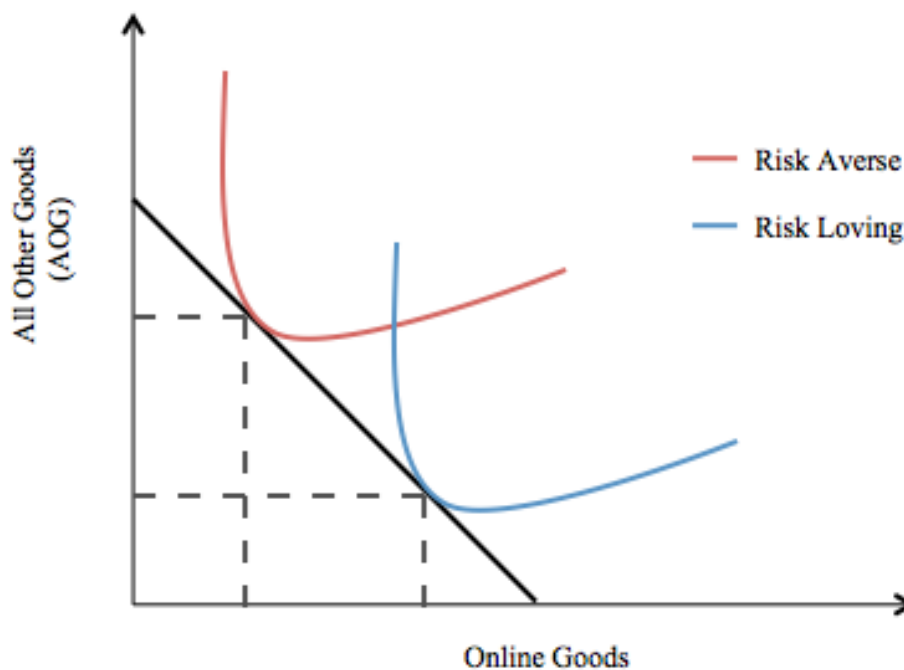
Trust in Others

As mentioned in Chapter II, previous research has shown that consumers are hesitant to buy online because they do not trust that it is safe and feel that their privacy will be violated.[18] Consumers also show a lack of faith in the fact that they will receive the product they are expecting.[19] While online avenues have upgraded the security

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[18] Donna L. Hoffman, Thomas P. Novak, and Marcos Peralta. "Building Consumer Trust Online." *Communications of the ACM* 42, no. 4 (1999): 80-85.

[19] Dongwong Lee, Jinsoo Park, and Joongho Ahn. "On the Explanation of Factors Affecting e-Commerce Adoption." 6 (2001): 109-120.

precautions, Internet sellers still must gain a person's trust if they want to be successful in the online arena. Some consumers will trust more easily than others will. Variables that will provide information on consumer trust habits include responses to questions regarding how fair they perceive others to be. An individual more trusting of other people and other groups would be expected to show more trust in the actions of online retailers. They would be more likely to believe that their information will be secure and that the product they receive is in fact what they were expecting to get when they purchased. FIGURE 3.14 shows the indifference curve of a more trusting individual versus an individual who is not trusting. A trusting person would gain more utility when buying online and would have a lower indifference curve. They would be more likely to purchase goods online vs. all other goods at any given income level. It is therefore expected that the variable accounting for trust will have a positive and significant relationship with the variable accounting for an individual's purchasing behaviors via the Web.

FIGURE 3.14

Indifference Variation Based on Perception of Trust
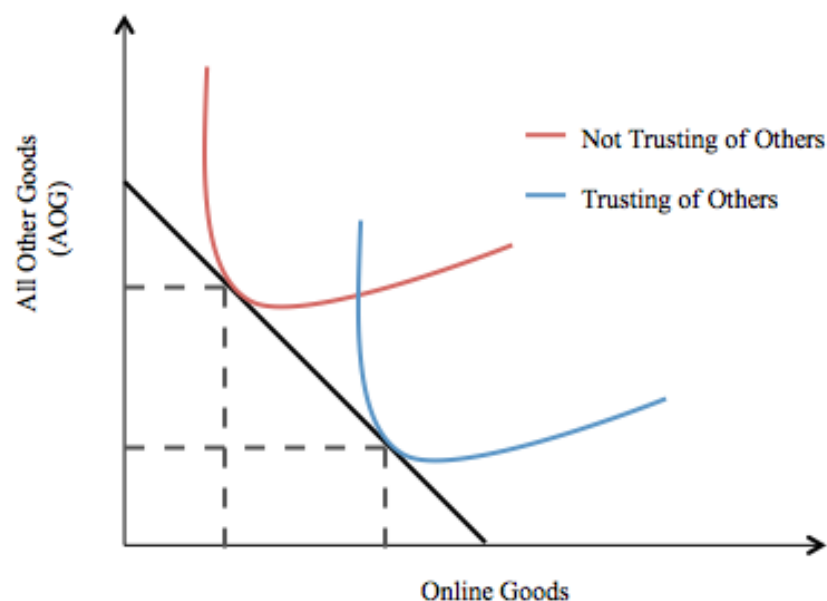
Place of Residency

Bhatnagar, Misra, and Rao were able to confirm that as the amount of time spent online increases, the likelihood of purchasing a product online will also increase.[20] Internet usage has been proven to vary depending on a person's region of residency.[21] Together, these findings would suggest that a consumer's place of residency would have an impact on whether or not they will purchase goods online. The GSS collects information regarding the region each survey is conducted in and classifies them into one of the nine designated regions of the United States. This variable will provide the necessary information to determine the effect of residency location on online purchasing behaviors. It is expected that this variable will turn up significance indicating that

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[20] Bhatnagar, Misra and Rao, 101.

[21] Heather Dryburgh and Statistics Canada. Housing, Family and Social Statistics Division. *Changing our Ways: Why and how Canadians use the Internet.* Statistics Canada Ottawa, 2001: 1-14.

residents of specific areas will be more likely to purchase goods on the Internet. The

population size of the area the respondent lives in will also be taken into account. It is

expected that this variable will have a positive, significant relationship with online

purchasing behaviors in that people living in urban areas will be more likely to purchase

online than those living in rural areas. FIGURE 3.15 depicts this by showing that

respondents living in urban areas having a lower indifference curve than those living in

rural areas. This is due to the increased utility urban dwelling individuals will experience

when buying online, leading them to purchase more goods online vs. all other goods.

FIGURE 3.15

Indifference Variation Based on Area of Residency

Time Stress

As mentioned in Chapter II, Bellman, Lohse, and Johnson examine the behaviors of time-

starved consumers and found that individuals who work longer and who have a spouse

who also works are more likely to purchase goods online.[22] As suggested by Edward

Morey, the use of a budget constraint can be applied in terms of time for the case of these

busy individuals.[23] They must decide how much time they will allocate to different

activities, a process that proves to be even more important when it concerns balancing

work life and home life. On one hand, the individual must spend a fair amount of time at

work in order to be successful in their career. Yet, on the other hand, they need to spend

time with their families and fulfill any household responsibilities. FIGURE 3.16 shows

an example of a time constraint that could result from the choice between time spent at

work (W) and time spent at home (H). This individual spends eight hours fulfilling their

work duties each day and spends the rest of their time completing necessary household

responsibilities. The GSS provides individuals' answers to questions regarding the

amount of time spent at work. This variable will allow for a relationship between stress

for time and purchasing behavior online to be determined. FIGURE 3.17 shows that as

the amount of time spent at work increases, an individual's indifference curve shifts

down. Additionally, viewing time in terms of a budget constraint, a more time stressed

individual has an outward shifted constraint. Thus, a person who spends more time at

work will be more inclined to purchase goods online vs. all other goods.   This indicates a

positive, significant relationship between time spent at work and online purchasing

behavior.

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[22] Steven Bellman, Gerald L. Lohse, and Eric J. Johnson. "Predictors of Online Buying Behavior." *Communications of the ACM* 42, no. 12 (1999): 32-38.

[23] Edward Morey. University of Colorado Boulder, "Budget Constraints." Last modified October 20, 2011. Available at http://www.colorado.edu/economics/morey/2010/Lectures/2010_Lecture-BudgetConstraints.pdf.

FIGURE 3.16

Time Constraint
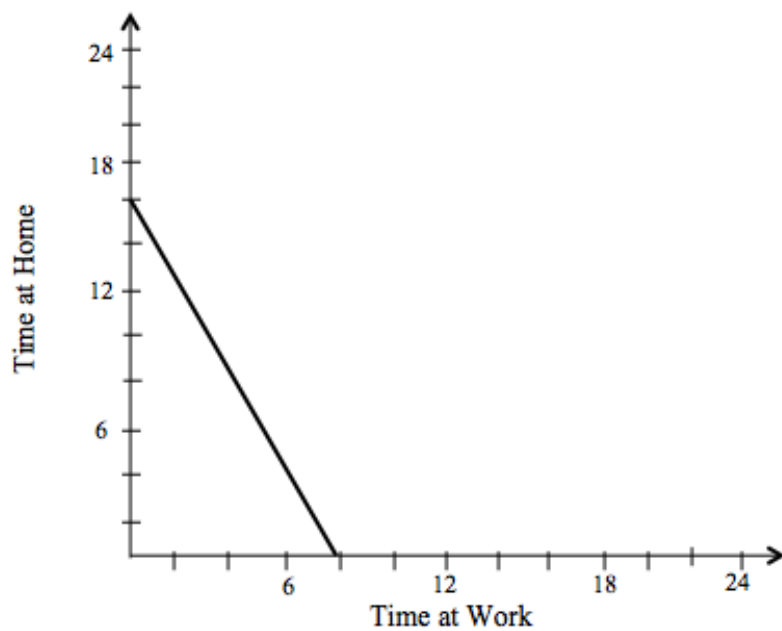
FIGURE 3.17

Indifference Curve and Budget Constraint Variation Based on Time Spent at Work
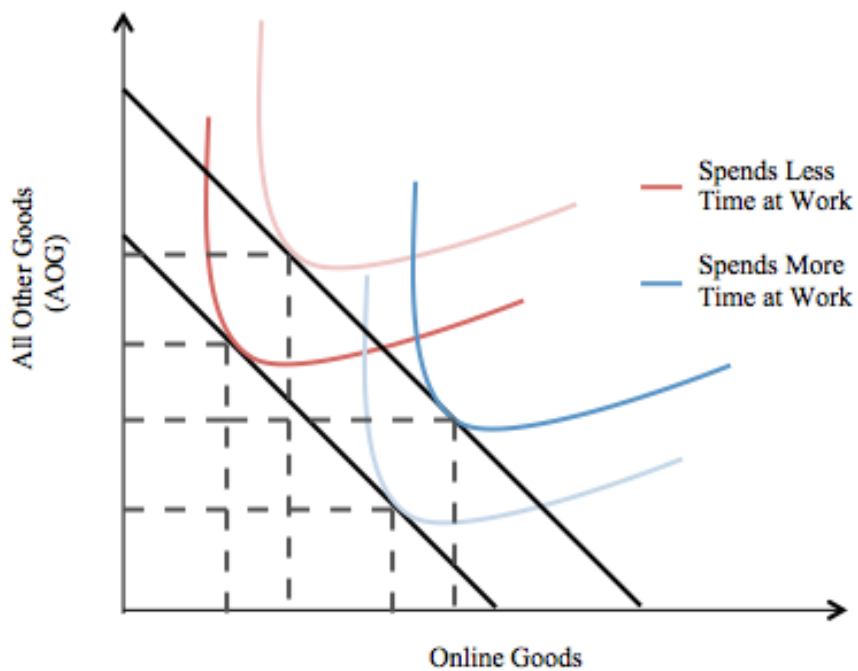
Conclusion

This chapter has given the details of the model that will be tested in the following chapters. Eight determinants, which include demographics, culture, employment information, allocation of money, risky behaviors, trust in others, place of residency, and time stress, were presented earlier in this chapter. An analysis of the variables that go along with each of these determinants will provide the information necessary to establish whether or not a significant relationship with online purchasing behaviors exists in each case. Education levels, income, job stability, generosity with money, trust in others, and time stresses are expected to impact a person's choice to purchase online positively. Age, strong presence of foreign culture, risk aversion, and a less populated area of residency is expected to have a negative impact on purchasing behavior online. The empirical model constructed and presented in the next chapter will test the hypotheses made in this chapter regarding how each determinant will affect the online purchasing behaviors of consumers.

CHAPTER IV

DATA AND METHODOLOGY

This chapter discusses the data that has been extracted from the General Social

Survey (GSS) in order to test the model defined in the previous chapter. Each variable

detailed in the theoretical model of Chapter III will be individually identified and

discussed in relation to the regression model in this chapter. While factors such as age,

gender, and education level have been previously researched, this paper will examine

factors that have never been previously considered in relation to online purchasing

behaviors. The dependent variable, web purchasing, will be detailed first, followed by

the discussion of the independent variables deemed relevant to this study. After an in

depth look at the data set, the estimation procedures that will be used to test the model

will be examined. The following chapter, Chapter V, will then present the findings of the

empirical model.

Data Set and Sources

The data that will be used to test the proposed model come from the General

Social survey (GSS), a survey that collects data in order to determine change in the

structure and development of American society. The GSS began in 1972 and has been

conducted once every two years since then. However, this study will only take into

account data from the year 2000, the first year in which information regarding online

purchasing behaviors was collected.. Because the GSS collects over 5,000 variables, a

process of elimination was completed to determine those most relevant to the present study. All variables will be thoroughly discussed in this chapter to clarify why they are crucial to the analysis of online purchasing behaviors.

The GSS allows this study access to data collected from all over the United States. This results in what is called cross sectional data where the data is gathered for the same set of variables at a point in time over different cross-sections. The data collected accounts for people in all nine of the designated regions of the United States: New England[1], Middle Atlantic[2], East North Central[3], West North Central[4], South Atlantic[5], East South Central[6], West South Central[7], Mountain[8] and Pacific[9]. Because the collection of Internet variables began at the turn of the millennium, when technology became increasingly popular, this study will perform an analysis of the data collected from the year 2000.

This paper attempts to utilize the analysis of various variables in order to conclude which are significant in determining purchasing behaviors in an online setting. The massive amounts of data collected by the GSS allow the model to test a large number

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[1] New England = Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island.

[2] Middle Atlantic = New York, New Jersey, Pennsylvania.

[3] East North Central = Wisconsin, Illinois, Indiana, Michigan, Ohio.

[4] West North Central = Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas.

[5] South Atlantic = Delaware, Maryland, West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida, District of Columbia.

[6] East South Central = Kentucky, Tennessee, Alabama, Mississippi.

[7] West South Central = Arkansas, Oklahoma, Louisiana, Texas.

[8] Mountain = Montana, Idaho, Wyoming, Nevada, Utah, Colorado, Arizona, New Mexico.

[9] Pacific = Washington, Oregon, California, Alaska, Hawaii.

of variables in order to determine how each may affect the consumer's behaviors. This paper will run one regression model. The model takes into account 21 variables addressing the eight determinants discussed in Chapter III. This regression will assist in detailing the significance of each variable on consumer purchasing behaviors online.

In order to avoid correlation amongst the explanatory variables, some relevant measures were not included in the regression model. For example, how many children the respondent indicated to live with them was observed to be directly related to their age, which may lead to an increased tendency to purchase online. Thus, when a correlation comes into existence in this analysis, one variable will be favored over the other and included in the model while the other will not. The rest of this chapter describes in detail each variable and defines how each will be present in the data set.

Methodology

This study will utilize a multivariate ordinary least squares (OLS) regression in order to determine the effect of each variable on consumer purchasing behavior. The goal of an OLS regression is to find the curve of best fit where the sum of the squared distances from the fitted line to the observed point is as small as possible. A basic multivariate OLS model is shown in equation 4.1 where y_i is the dependent variable, x_i is explanatory variable, α_i is the coefficient associated with each independent variable, and ε_i is the error residual.

$$y_i = \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2 + \ldots + \alpha_i x_i + \varepsilon_i$$

(4.1)

Equation 4.2 is constructed as an OLS regression and provides the basic empirical model based on the variables from the GSS in the year 2000.

$$buyit12 = \alpha_0 + \alpha_1*age + \alpha_2*sex + \alpha_3*educ + \alpha_4*born + \alpha_5*income + \alpha_6*wrkslf +$$

$$\alpha_7*grnmoney + \alpha_8*investgn + \alpha_9*invest12 + \alpha_{10}*people12 + \alpha_{11}*fair + \alpha_{12}*region\_1$$

$$+ \alpha_{13}*region\_2 + \alpha_{14}*region\_3 + \alpha_{15}*region\_4 + \alpha_{16}*region\_5 + \alpha_{17}*region\_6 +$$

$$\alpha_{18}*region\_7 + \alpha_{19}*region\_8 + \alpha_{20}*xnorcsiz + \alpha_{21}*hrs1 + \varepsilon_i$$

(4.2)

Each variable present in the models above is included in TABLE 4.1 along with a detailed definition.

TABLE 4.1

Description of Variables

Variable Abbreviation	Definition
buyit12	1 if the respondent used the Web to buy a product in the past 12 months, 0 if they did not
age	The respondent's age
sex	1 if the respondent is male, 0 if the respondent is female
educ	The respondent's highest level of education received
born	1 if the respondent was born in the United States, 0 if they were not
income	The respondents annual income
wrkslf	1 if the respondent is self-employed, 0 if the work for someone else
grnmoney	1 if the respondent has given money to an environmental group in the last 12 months, 0 if they have not
investgn	The respondent's stock or mutual fund investment behavior in the past year
invest12	1 if the respondent has used the Web to invest money in the past 12 months, 0 if they have not
people12	1 if the respondent has used the Web to meet new people in the past 12 months, 0 if they have not
fair	The respondent's feelings on whether most people take advantage of others
region	The region the interview was conducted in (was converted into nine dummy variables)
xnorcsiz	1 if the respondent lives in an urban area, 0 of they live in a rural area
hrs1	The number of hours the respondent spent at work last week

Dependent Variable: Purchasing Behavior

The dependent variable from equation 4.2, *buyit12*, provides the details of the participants purchasing behaviors online in the year 2000. This variable is brought about by the GSS questions regarding the use of the Web in the past 12 months. More specifically, the question asks, "In the past 12 months, that is, from (INSERT CURRENT MONTH) 1999 through (INSERT CURRENT MONTH) 2000 have you used the Web to do each of these things:" followed by the prompt of "Actually buy something?"[10] A simple yes or no answer is required for this question.

The next step is to run the regression to determine the significance of each independent variable on the dependent variable, consumer purchasing behavior online.

Independent Variables

The independent variables discussed in this section are applied in equation 4.2. Descriptive statistics for each independent variable in the year 2000 are presented in Table 4.2. All of the variables aim to provide information about one of the determinants mentioned previously in Chapter III, which include consumer demographics, culture, employment information, allocation of money, risky behaviors, place of residency, and time stress. All of the independent variables appear on the right side of equation 4.2.

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[10] Tom W. Smith, Peter Marsden, Michael Hout, and Jibum Kim. *General social surveys, 1972-2010*[machine-readable data file] /Principal Investigator, Tom W. Smith; Co-Principal Investigator, Peter V. Marsden; Co-Principal Investigator, Michael Hout; Sponsored by National Science Foundation. -- NORC ed.-- Chicago: National Opinion Research Center [producer]; Storrs, CT: The Roper Center for Public Opinion Research, University of Connecticut [distributor], 2011.

Table 4.2

Descriptive Statistics for Independent Variables in the Year 2000

Variable	Mean	Minimum	Maximum	Standard Deviation
age	45.05	18	89	16.45
educ	13.51	2	20	2.858
sex	0.4710	0	1	0.4993
born	0.8994	0	1	0.3009
income	10.87	1	12	2.217
wrkslf	0.1174	0	1	0.3220
grnmoney	0.7799	0	2	0.9235
investgn	0.1391	0	2	0.4681
invest12	0.0426	0	1	0.2020
people12	0.0426	0	1	0.2020
fair	1.711	1	3	0.6144
region_1	0.0447	0	1	0.2068
region_2	0.1426	0	1	0.3497
region_3	0.1621	0	1	0.3687
region_4	0.0790	0	1	0.2698
region_5	0.1803	0	1	0.3846
region_6	0.0684	0	1	0.2527
region_7	0.1041	0	1	0.3055
region_8	0.0685	0	1	0.2527
region_9	0.1502	0	1	0.3574
xnorcsiz	0.8225	0	1	0.3822
hrs1	29.66	0	89	22.10

The equation begins with the identification of some consumer demographics. The first variable, *age*, identifies how old the respondent is. Ages range from 18 years old to 89 years or older. FIGURE 4.1 shows the age distribution of the respondents in this study. It is expected that a younger consumer will be more prone to use the Internet and thus more likely to purchase goods on the Web, suggesting a negative, significant relationship between age and the tendency to purchase online. The next demographic variable, *sex*, identifies the participant's gender. FIGURE 4.2 illustrates a comparison of the frequency with which men purchase online versus the frequency with which women purchase online. It is expected that an individual's gender should not have a significant impact on purchasing behaviors online. The next variable included in the regression model is defined as *educ*. This variable details the highest level of education completed by the participant with responses that range from "no formal schooling" through additional years of education following college. Of those surveyed, 210 people did not complete high school, 424 respondents graduated from high school, 408 individuals have some college education, 208 participants graduated college, and 181 people have some form of education beyond the collegiate level. It is expected that this variable will have a direct correlation and significant relationship with *buyit12*. That is, the more educated a consumer is the more likely they are to purchase goods online.

FIGURE 4.1

Distribution of Participant's Ages
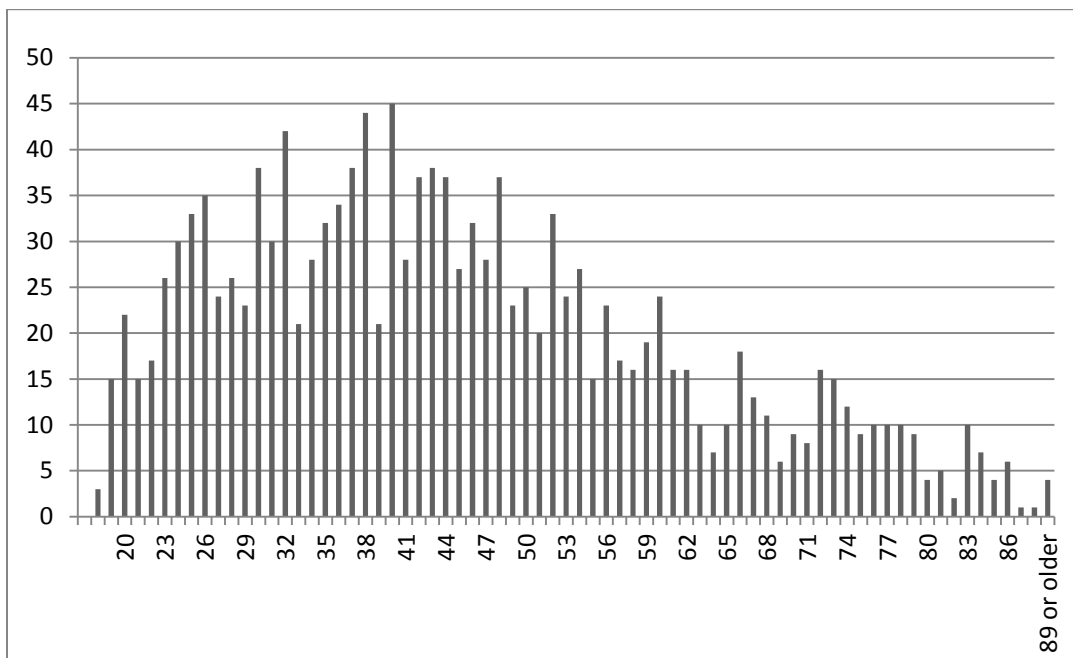
FIGURE 4.2

Frequency of Men vs. Women Buying Online
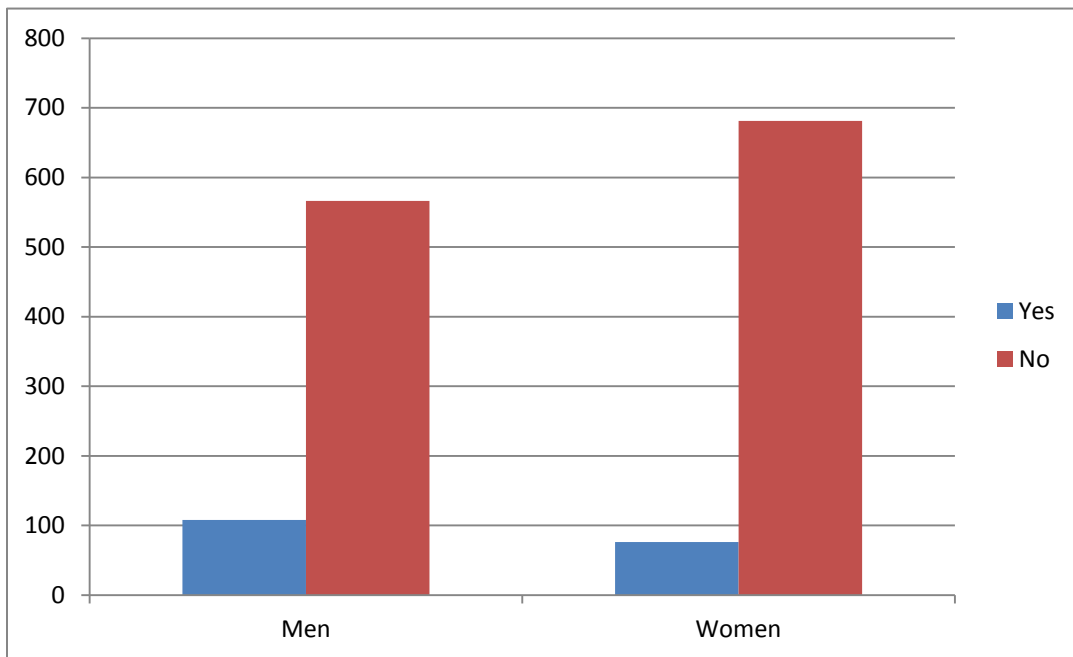
The next determinant addressed in the regression model is the consumer's culture. The variable *born* determines whether or not the individual was born in the United States. Of those considered in this study, 1,287 were born in the United States while 144 were born abroad. FIGURE 4.3 depicts the frequency of online purchasing for those born locally versus those born elsewhere. It is expected that individuals who were not born in this country will be less likely to shop online due to a less satisfying shopping experience. Thus, it is expected that there will be a negative, significant relationship between *born* and *buyit12*.

FIGURE 4.3

Frequency of Buying Online Based on Birthplace
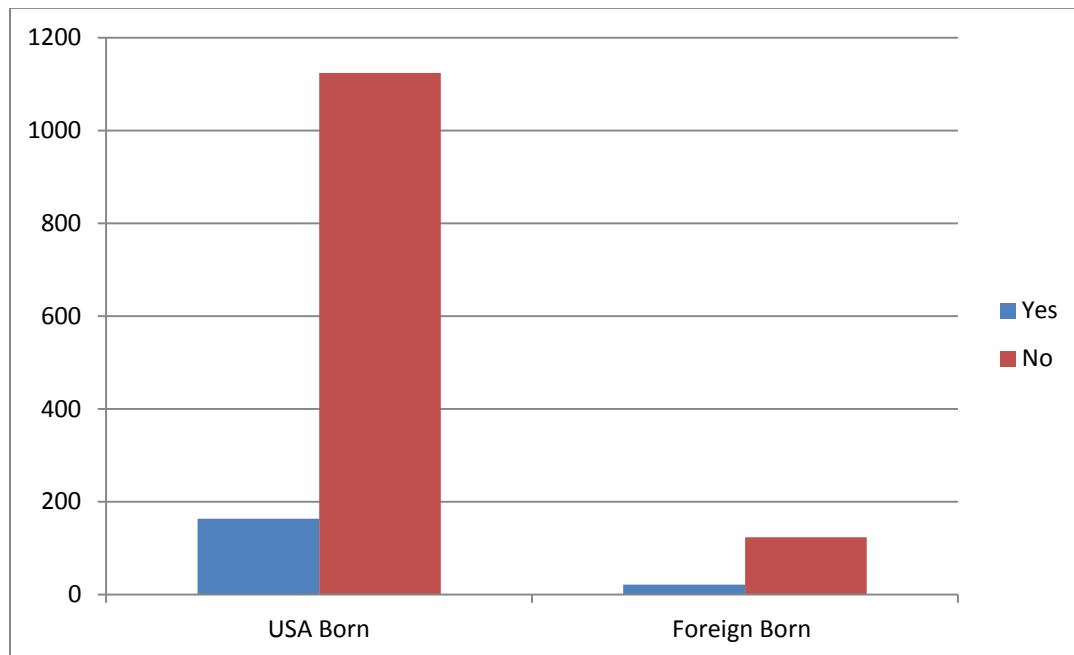
Various details of an individual's profession could have an impact on their online purchasing behaviors. The variation of employment information from person to person is accounted for in equation 4.2 by the variables *income* and *wrkslf.* It is expected that an a

larger influx of currency as well as well as job stability, as demonstrated by the budget constraint in Chapter III, will be directly and significantly related to a person's online buying behavior.

The next determinant concerns how an individual allocates their money. The variable *grnmoney* provides details of an individual's donating history. Additionally, *investgn* tells how many times in the past year the individual has invested money in a stock or mutual fund in the past year. Of those surveyed 270 have donated money to charity or invested money while1,160 had not. FIGURE 4.4 and FIGURE 4.5 display a comparison of online purchasing rates as a result of donation behavior and investment behavior respectively. It is believed that a person who decides to invest or donate money has a less constrained budget and has a greater likelihood to spend their money. Thus, these two variables are expected to have a positive, significant relationship with *buyit12*.

FIGURE 4.4

Frequency of Buying Online Based on Donating History
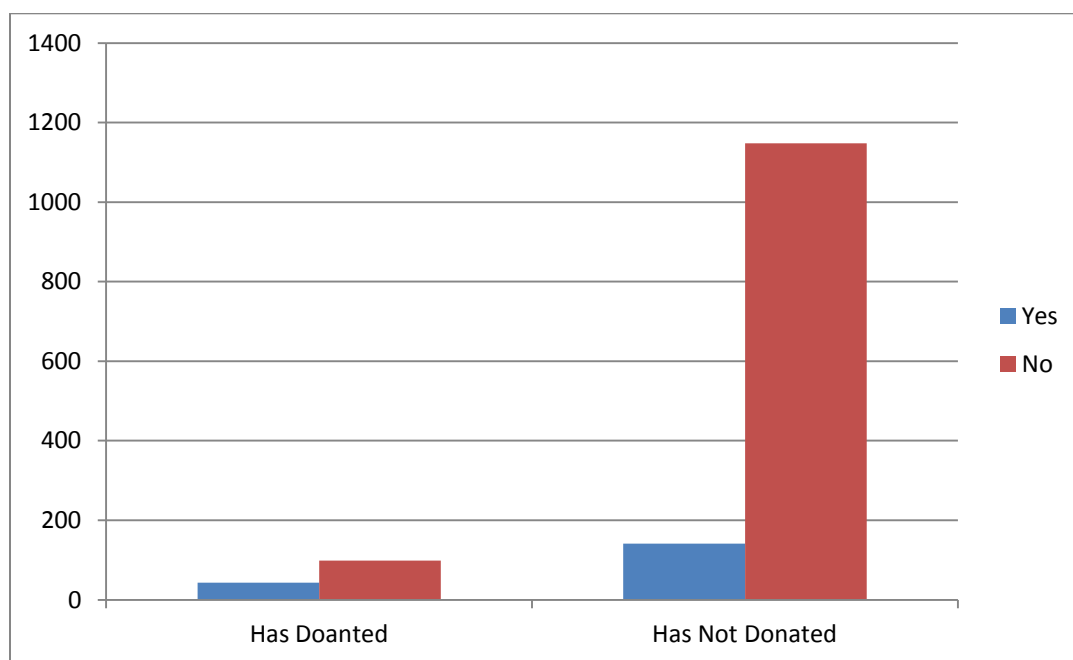
FIGURE 4.5

Frequency of Buying Online Based on Investment Behavior
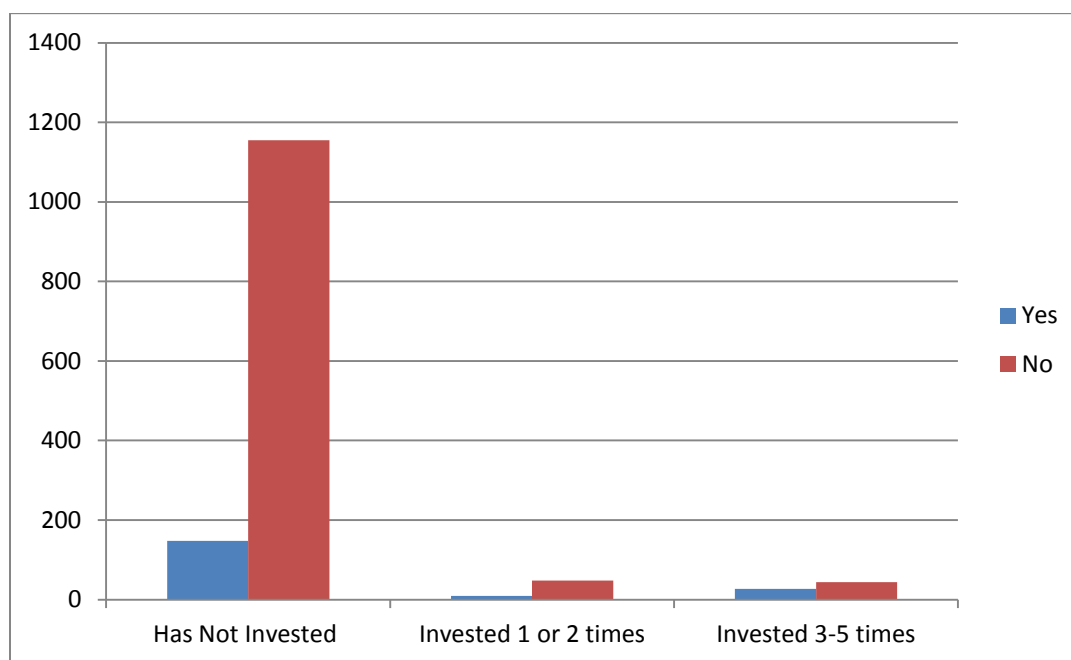
For the determinant analyzing risk-taking tendencies, activities that might suggest a more risk adverse or risk-loving individual are taken into account. The variable *invest12* establishes whether or not the individual has used the web to invest money in the past 12 months will be used to assess the individual's tendency to take risks. Similarly, *people12* determines if the individual has used the Internet to meet new people for social purposes in the past year. As suggested by Cooper and Sportolari in the establishment of online relationship "tremendous disappointment and bitterness may result, as well as the possibility of significant danger."[11] Thus, *people12* will be considered a risky behavior.

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[11] Alvin Cooper and Leda Sportolari. "Romance in Cyberspace: Understanding Online Attraction." *Journal of Sex Education and Therapy* 22, no. 1 (1997): 7-14.

It is expected that both of these variables will have a positive, significant effect on an individual's online purchasing behavior.

Area of residency has previously been identified as a significant determinant in online use.[12] The first variable extracted from the GSS in the present study that relates to this determinant is *region*. This variable simply identifies which of the previously mentioned nine regions the interview was conducted in. *Region* was converted into nine separate dummy variables so that the significance of each region could be determined. FIGURE 4.6 shows the distribution of the region in which the respondent resides. The second variable used to determine how an individual's place of residence affects purchasing behaviors online is *xnorcsiz*. *Xnorcsiz* classifies people as residing in either an urban area or in a rural area in order to account for the population size of where the respondent lives. FIGURE 4.7 compares the frequency of online purchasing by people residing in an urban area versus people living in a rural area. It is expected that both region of residency will turn up significant results while *xnorcsiz* will have a positive, significant relationship with *buyit12*.

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[12] Heather Dryburgh and Statistics Canada. Housing, Family and Social Statistics Division. *Changing our Ways: Why and how Canadians use the Internet.* Statistics Canada Ottawa, 2001: 1-14.

FIGURE 4.6

Distribution of Regions
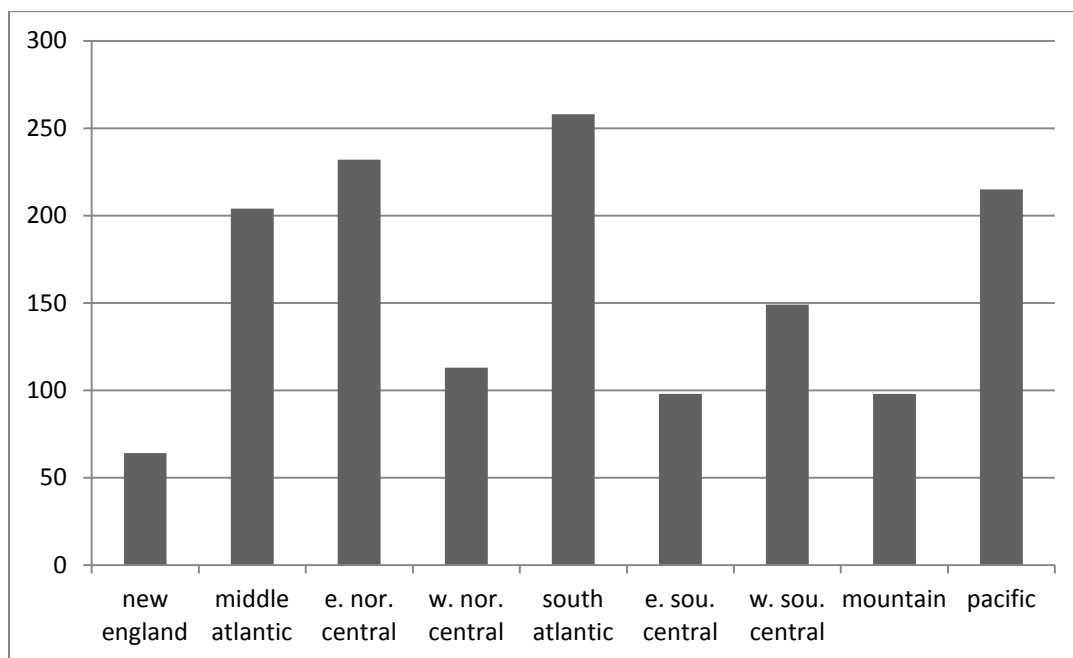
FIGURE 4.7

Frequency of Buying Online Based on Area of Residence
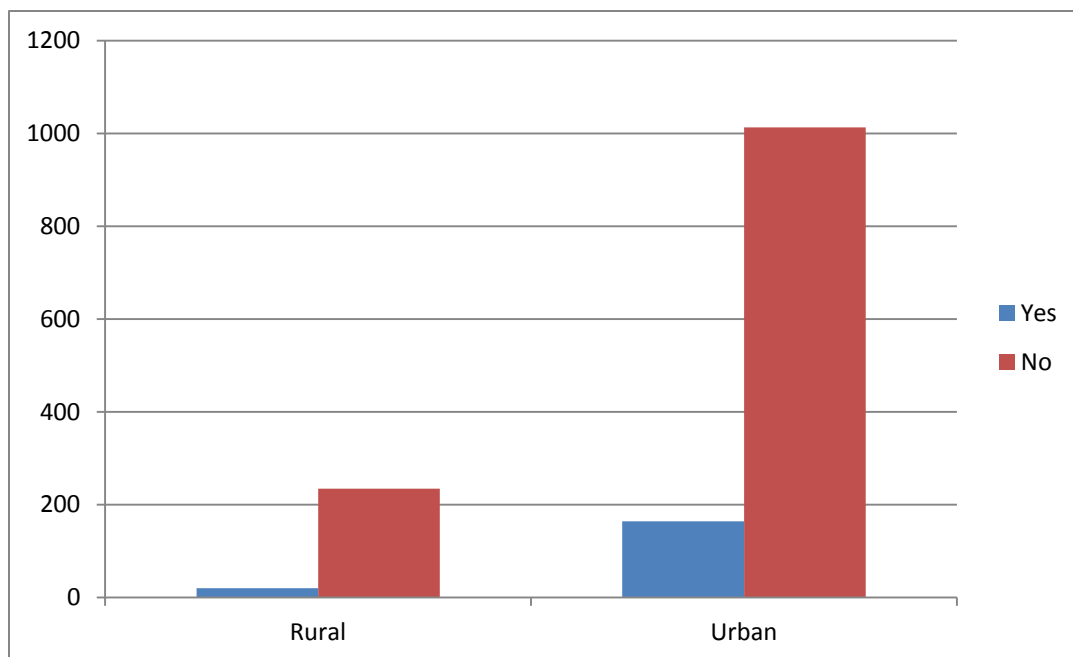
The final determinant, time stress, looks at how the complicated balance between work and home will effect online purchasing decisions. The variable *hrs1* is the sum of how many hours the respondent had spent at work in the last week. FIGURE 4.8 illustrates the various time intervals that individuals allocate to work. Additionally, FIGURE 4.9 depicts the frequency with which each individual purchases goods online based on the number of hours they work each week. A greater amount of hours spent at work suggests the individual is time starved, which has previously been tied to a greater likelihood to use an online source to purchase goods.[13] Thus, this variable is expected to be significant in the analysis because more hours spent at work suggests less time to shop for necessary items which would lead to a greater likelihood of purchasing online.

FIGURE 4.8

Distribution of Time Participants Spend at Work

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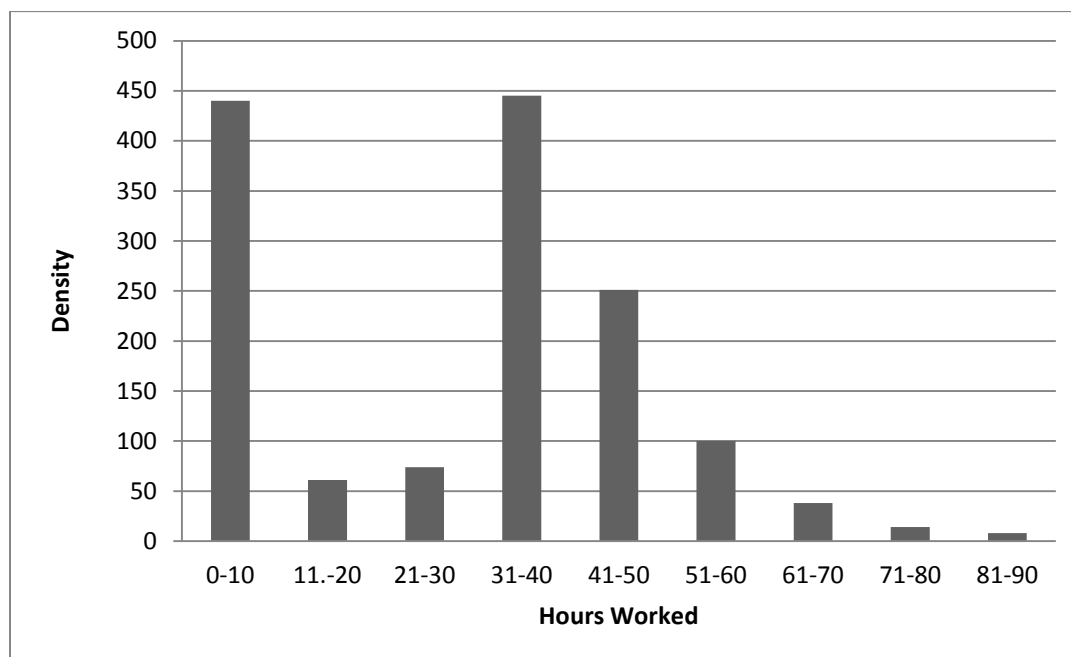
[13] Steven Bellman, Gerald L. Lohse, and Eric J. Johnson. "Predictors of Online Buying Behavior." *Communications of the ACM* 42, no. 12 (1999): 32-38..

FIGURE 4.9

Frequency of Buying Online Based on Amount of Time Spent at Work
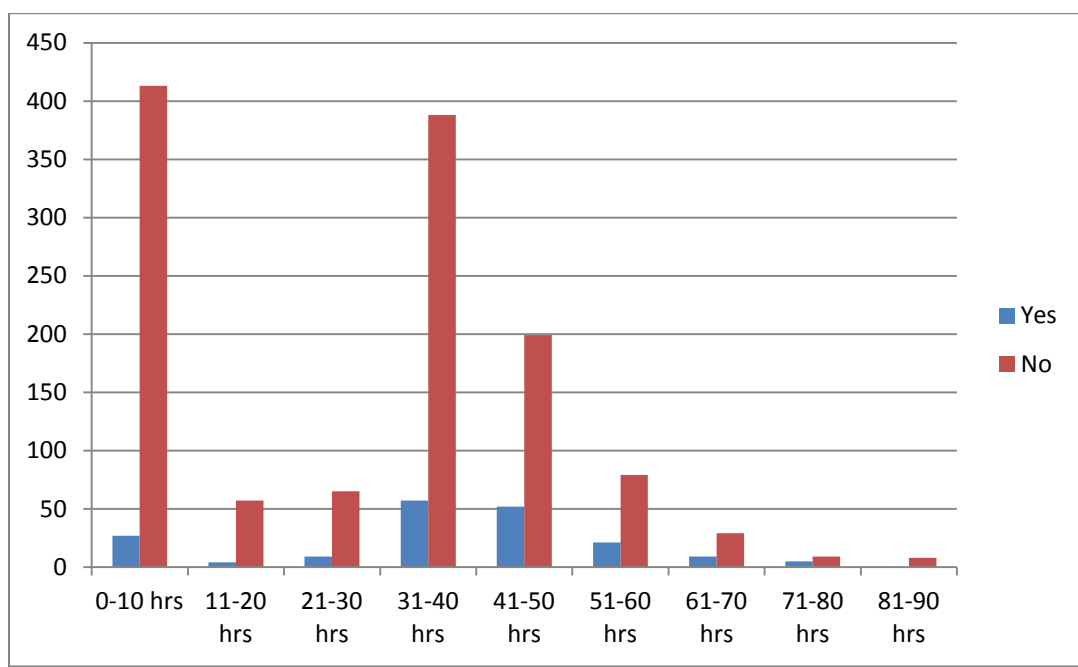
Conclusion

Chapter IV provides the details of the collection of the data used in this study as well as why each variable is crucial to the success of the OLS regressions presented in equation 4.2. The explanation of data and methods provided in this chapter will be beneficial in the following chapter. Chapter V presents and analyzes the results of the empirical model presented earlier in this chapter and then explains the significance of the findings.

CHAPTER V

RESULTS

This chapter aims to explain the results of the Ordinary Least Squares regression used to test the empirical model presented in equation 4.2 of Chapter IV. The significance of each variable will be addressed followed by the contribution of each of these findings to the area of consumer purchasing behaviors.

Ordinary Least Squares Regression Results

Table 5.1 provides the results of the regression for the model intended to estimate the determinants of consumer purchasing behaviors online. In the table, the T-statistics for each variable are presented along with its respective coefficient. Additional information found in the regression detailed at the bottom of Table 5.1 includes the number of observations, the F-statistic, and the R-squared value for each regression. Significant T-statistics are denoted with (*) which represents differing significance levels.

Table 5.1

OLS Regression Results

Variable	Coefficient	Robust Standard Error	T-statistic	[95% Confidence Interval]	
age	-0.0011	0.0005	-2.410***	-0.0020	-0.0002
sex	0.0129	0.0157	0.8200	-0.0179	0.0437
educ	0.0156	0.0029	5.350****	0.0099	0.0214
born	0.0131	0.0261	0.5000	-0.0381	0.0644
income	0.0039	0.0034	1.150	-0.0027	0.0104
wrkslf	0.0375	0.0258	1.460*	-0.0130	0.0880
grnmoney	0.0269	0.0088	3.060****	0.0096	0.0442
investgn	0.0314	0.0230	1.360*	-0.0138	0.0766
invest12	0.5139	0.0612	8.400****	0.3939	0.6339
people12	0.3605	0.0635	5.670****	0.2359	0.4852
fair	-0.0042	0.0122	-0.3500	-0.0280	0.0196
region_1	-0.0475	0.0449	-1.060	-0.1355	0.0405
region_2	-0.0521	0.0297	-1.750**	-0.1104	0.0063
region_3	-0.0287	0.0312	-0.9200	-0.0899	0.0325
region_4	-0.0170	0.0405	-0.4200	-0.0965	0.0624
region_5	-0.0711	0.0268	-2.660****	-0.1236	-0.0186
region_6	-0.0716	0.0330	-2.170***	-0.1363	-0.0068
region_7	-0.0581	0.0317	-1.830**	-0.1202	0.0041
region_8	-0.0358	0.0364	-0.9800	-0.1073	0.0356
xnorcsiz	0.0273	0.0190	1.440*	-0.0100	0.0646
hrs1	0.0006	0.0004	1.410*	-0.0002	0.0014
_cons	-0.1519	0.0643	-2.360	-0.2780	-0.0258
Number of Observations	1431				
F-statistic	15.24				
R-squared	0.2536				

*=20% significance   **=10% significance   ***=5% significance   ****=1% significance

Discussion of Variables

The model represents the data collected in the year 2000 and has a sample size of 1431 respondents. The intercept coefficient in the model, -0.1519, is slightly negative. This makes sense because the intercept is adjusting for the larger number of positive independent variable coefficients. With 20 degrees of freedom, the regression shows four variables to be significant at the 20% level, two variables to be significant at the 10% level, two variables to be significant at the 5% level, and five variables to be variables significant at the 1% level.

The factors accounting for each respondent's demographics found two of the three variables to be statistically significant. The T-statistic for the variable *age* is found to be -2.410 and is significant at the 5% level. The negative coefficient suggests that as the age of the consumer increases, they become less likely to purchase online. The small T-statistic found for *sex* indicates that this variable is not significant. The final demographic variable, *educ*, produces a large T-statistic of 5.350, which is significant at the 1% level. The positive coefficient indicates that as an individual's education level increases, the likelihood that they will purchase online will also increase. These three findings confirm the initial hypotheses that age and education level will be significantly related to purchasing behaviors online while gender will not be significant.

The variable *born* is intends to account for the respondent's culture. The small T-statistic resulting for this variable in the regression indicates that it is not statistically

significant. This finding does not support the hypothesis previously made that a strong

presence of foreign culture would make the individual less likely to purchase online.

This may have resulted because the variable did not accurately account for what it was

originally intended to. While *born* indicates whether or not the individual was born in

the United States, it does not account for other factors that might have an influence on

personal culture such as native language or how long the respondent has lived in the

United States.

Variables considering individual employment information were not as

significant as expected. *Income* has a small T-statistic and a positive coefficient,

indicating that a consumer's annual income does not significantly affect their online

purchasing behaviors.   Though not as significant as expected, *wrkslf* is significant at the

20% level and has a positive coefficient suggesting that self-employed individuals are

slightly more inclined to purchase online. Both of these findings are interesting because

they signify that a less constrained budget does not necessarily make an individual more

apt to use the Internet to purchase goods. While these were not the predicted results,

they make sense. The Internet may actually be a place for people of all different

employment statuses. Lower income individuals may utilize it to find products at a

cheaper price than in store, while higher income individuals may use the Web to shop

for expensive goods they cannot find elsewhere. Thus, the use of the Internet for

purchasing goods is not restricted based on financial standing.

The factors aiming to explain how an individual allocates their money were both

determined to be significant. The first variable, *grnmoney*, has a T-statistic of 3.060,

which is significant at the 1% level. Its coefficient is positive so, as predicted, an

individual who has excess money to donate to charity is observed to be more prone to purchase goods online. The second variable under consideration is *investgn*. This variable is significant at the 20% level with a T-statistic of 1.360 and has a positive coefficient. Again, as predicted, an individual who has excess money to invest in stocks or mutual funds will be more apt to purchasing goods online. Both of these predictions were based on the fact that these individuals will have less constrained budgets.

Interestingly, the factors accounting for consumer risk aversion were indicated to be the two most significant variables in the regression at the 1% level. *Invest12* has a T-statistic of 8.400 and the coefficient is positive. Additionally, the T-statistic for *people12* is 5.670 with a positive coefficient. Thus, both of these variables are significantly and positively related to *buyit12*. As predicted, those individuals who engage in what may be deemed "risky behaviors," such as investing online and using the Internet to meet people will be more likely to purchase goods online. These findings support the hypotheses made in Chapter IV of this paper.

The variable *fair* is intended to account for how trusting of others the consumer is. It's T-statistic of -0.3500 is very small and insignificant. However, the coefficient for *fair* is negative which makes sense because a person who thinks others are likely to take advantage of them would be less likely to buy online. Still, this does not support the hypothesis that *fair* would be significantly related to *buyit12*. The variable may not be a significant as expected due to the fact that the survey allowed for an answer option of "it depends". This may have skewed people's response to the question.

As mentioned in Chapter IV, the variable *region* was turned into a dummy variable for the purpose of the regression in order to determine what affect place of

residency will have on consumer behaviors. Of the nine regional variables considered,
region_5 is the most significant with a T-statistic of -2.660 and a negative coefficient.
Region 5 is classified as the South Atlantic area and includes the states of Delaware,
Maryland, West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida,
and the District of Columbia. The negative coefficient indicates that individuals living
in these states are less inclined to purchase online. Other regional variables found to be
significant in the regression include *region_6* with a T-statistic of -2.170, *region_2* with
a T-statistic of -1.750 and *region_7* with a T-statistic of -1.830. Region 6 includes the
East South Central Area of the United States such as Kentucky, Tennessee, Alabama,
and Mississippi. The negative coefficient again suggests that consumers living in this
area of residency are less likely to purchase online. Region 2, or the Mid Atlantic area,
accounts for the states of New York, New Jersey, and Pennsylvania while Region 7, the
West South Central area, includes the states of Arkansas, Oklahoma, Louisiana, and
Texas. Again, both of the variables associated with these regions turned up negative
coefficients. Thus, people living in the Mid Atlantic region or West South Central
region are not as apt to purchasing online as people in other regions might be.
Region_1, region_3, region_4, and region_8 were not found to be statistically
significant in this regression. The other variable accounting for area of residency's
affect is *xnorcsiz* which divides respondents into those living in urban areas and those
living in rural areas. A T-statistic of 1.440 was determined and the coefficient is
positive. As hypothesized, these findings result in a noteworthy conclusion that people
living within a city, within in the suburbs of a city, or within an unincorporated area of a
city are more prone to purchasing online.

The final determinant taken into consideration in the regression is the time-stress of an individual, which the variable *hrs1* accounts for. This variable determines how many hours the individual spends at work each week and was found to be significant at the 20% level. The T-statistic is 1.410 and the coefficient is very small but is positive. Thus, as predicted, the more time a person spends at work, the stronger the tendency to purchase goods online. This is explained by the convenience that purchasing on the Web provides.

<center>Econometric Problems and Solutions</center>

For the purposes of this paper, three tests had to be conducted to ensure the accuracy of the regression results being reported. The first test addressed the possible presence of heteroskedasticity. This occurs when the variance of the error term changes as the value of the independent variable changes. When the model was originally tested for heteroskedasticity, a Chi-squared value of 261.57 was determined.   This is larger than 32.7, the Chi-squared value at the 95% confidence level with 21 degrees of freedom. This suggests that the model would reject homoskedasticity. To fix this problem the robust standard errors were used in the regression model.

The next test performed was to ensure there was a normal distribution of the error term. The initial histogram of the residuals showed a right tail. Various measures were taken, including dropping variables from the regression model, using the log of variables and squaring variables in order to fix this problem. However, despite these attempts, the non-normal distribution of errors in this regression could not be resolved. Though this will not drastically affect the results, its presence still must be kept in mind when analyzing the results.

The final test is for multicollinearity, which occurs when two variables are correlated over the entire sample. This potential error in the model is easy to test for by simply determining the correlation coefficient. No two variables have a large correlation coefficient so it is safe to say that multicollinearity is not present in the model.

Summary of Results

Ultimately, a majority of the initial hypotheses were supported in this regression. In terms of the eight determinants of online purchasing behavior that were presented in this paper, all but two were shown to have some significance. As predicted, an individual's age and education level were both found to be highly significant while gender was not found to be significant. The variable intended to account for a presence of foreign culture did not result in significance and thus, the initial hypothesis was not supported. The hypothesis that higher income and greater job stability will be positively related to purchasing behaviors online was only half supported because annual income was not significant, but whether or not a person is self-employed was significant. As expected, an individual's allocation of money proved to be significant in both variables utilized. Additionally, both of the variables accounting for risky behaviors proved to be highly significant. But, contrary to expectations, how fair the respondent deemed others to be did not prove to be significant. Region of residency turned up significant statistics as expected and the type of community in which an individual lives, urban or rural, was also determined to be significant. Finally, the hypothesis that the more hours an individual spent at work each week, the more likely they are to purchase online was supported in the regression. The

model that was presented in equation 4.2 and the regression that goes along with it

succeed in providing pertinent information in determining the key factors of consumer

purchasing behaviors online.

CHAPTER VI

CONCLUSION

This study attempts to determine the effects of various determinants on consumer online purchasing behaviors. Namely, the factors investigated include consumer demographics, culture, employment information, allocation of money, risky behaviors, trust in others, place of residency, and use of time. These elements provide the foundation for this papers examination of how each of these eight determinants and its respective variables will individually affect each consumer and their purchasing behaviors online.

Previous studies have taken into account some of the previously mentioned factors in an attempt to understand and explain buying behaviors in an online setting. These researchers have investigated variables such as age, gender, education level, culture, income, and time strain among other variables. This study utilizes all of those variables, in addition to a numerous other variables that have never before been considered when considering purchasing behaviors. New additions to the model include variables addressing how an individual allocates their money, whether the individual is risk loving or risk-averse, and how trusting the individual is of others.

The General Social Survey (GSS) collected the data that allowed for the construction of this model. An OLS regression was used to determine the significance

of each variable present in the model. An analysis of the regression was presented in

Chapter V, and concluded that six of the original hypotheses were confirmed.

As predicted, the respondent's age has a significant, negative relationship with

buyit12 while education level has a significant, positive relationship with *buyit12*. Also,

an individual's gender was not found to be significant. These findings suggests that

regardless of whether the consumer is male or female, a younger, higher educated

individual will be the most likely to purchase goods online. This indicates the exact

demographics of the consumers that online retailers should target in areas such as site

design, advertisements, and service.

Contrary to what was expected, the variable *born,* which accounts for the

presence of foreign culture, was not statistically significant in the regression. Upon

reflection, this makes sense because the variable was not specific to what this study was

actually trying to calculate. Its use was based on the assumption that individuals born

outside of the United States are likely to speak a foreign language, or have strong ties to

their home land. This may have been too broad of a generalization for the model

presented in this study.

The variables considering employment information resulted in one insignificant

variable, *income*, and one variable significant at the 20% level, *wrkslf.* An individual's

income was expected to have a significant, positive relationship with their online

purchasing tendencies. This result may have occurred because the Internet is able to

provide a retail outlet to people of various income levels as opposed to just wealthier

individuals. Additionally, a respondent who reported that they were self-employed was

expected to be more likely to purchase online. The variable *wrkslf* had a positive, significant relationship with *buyit12,* confirming this hypothesis.

As expected, both *grnmoney* and *investgn* were proven to be statistically significant variables in the regression. These two variables account for how an individual allocates their money. These findings suggest that people who donate money to charity or people who invest money in stocks or mutual funds will be more likely to purchase goods online. This occurrence is likely due to the fact that these individuals will have a less constrained budget.

The two most significant variables were the ones measuring an individual's predisposition to participating in risky behaviors. Buying products online has been indicated to be an instance of risk taking.[1] Both *people12* and *invest12* are significant at the 1% level. Individuals who partake in risky behaviors such as meeting people online or investing money online will therefore be more apt to purchase goods online.

The variable *fair*, which intended to measure how readily the consumer trusts others, was not found to be significant. This does not support the initial hypothesis that individuals who believe others are fair and do not intend to take advantage of them will be more prone to buy online. This finding likely occurred due to the response choices allowed for the question. Respondents could indicate people were fair, people take advantage, or that it depends. Additionally, a large number of people chose not to answer the question, which could have an effect on the results.

The regression also found *region_2, region_5, region_6,* and *region_7* to be significant variables. The coefficients are negative indicating that people living in the

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[1] Raymond A. Bauer. "Consumer Behavior as Risk Taking." *Dynamic Marketing for a Changing World* 398 (1960).

Middle Atlantic, South Atlantic, East South Central, and West South Central regions will be less inclined to purchase online. Additionally, the variable *xnorcsiz* was found to be positively significant, confirming the hypothesis that individuals living in urban areas will be more likely to buy goods online compared to people living in rural areas.

Finally, as predicted, the number of hours an individual spends at work was found to be significant. The variable *hrs1* has a positive, significant relationship with *buyit12*. Thus, as the amount of time a person works each week increases, the likelihood that they will purchase goods online will also increase. This result is believed to occur because these individuals will be stressed for time and will take advantage of the convenience the Web offers.

Because the topic of consumer purchasing behaviors in the online market is so prominent in the current world, further research is necessary. The General Social Survey (GSS) provided the data necessary in this study. However, the only time in which data regarding online purchasing behaviors was collected was in the years 2000 and 2002. If the GSS were to collect this information again in an upcoming year, future researchers interested in this topic should consider running the regression used in this study with more recent data. Though purchasing tendencies have not likely changed significantly in the past decade, this would still allow for a more current analysis of consumers. Additionally, since this study found such great significance in an individual's risk taking practices, further research should be conducted in regards to those activities. This could include gathering more specific information about exactly which risky activities result in a greater probability of purchasing online. Finally, further research could utilize more explicit variables to determine the effects of an

individual's culture as well as the ability to trust others on consumer purchasing behaviors online. The present study had issues with the data used to define these two determinants. Still, the understanding of these two areas is crucial to the analysis of consumer behaviors.

Overall this study was able to provide significant data regarding the topic of consumer purchasing behaviors in the online setting. Specific consumer traits such as age, education level, donation and investment behaviors, risk taking tendencies, and place of residency were found to have a significant relationship with buying behavior. It is the hope of this study that the information provided here will benefit not only retailers attempting to attract buyers to their Internet venue, but also create a more pleasant online shopping experience for consumers.

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