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Determinants of Consumer Attitudes Towards E-commerce[1]

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The steady growth of Internet usage over the past [1]decade has resulted in an ever-growing online shopping incidence, which in turn, has lead to an increased focus on security. Concerns regarding security range from issues of harmful computer viruses and spyware, to online credit fraud and identity theft. As a result, numerous studies have concentrated on classifying these various types of risk as perceived by consumers participating in e-commerce transactions. In addition to defining risks, the affects of these risks on consumer online behavior can also be studied. Thus, confidence in Internet shopping depends on an individual's perception of the risks involved with E-commerce, or overall mindset towards E-commerce. In our study, we determine the various degrees of influence socioeconomic and Internet-related factors have on American consumer's attitudes towards online shopping. Our methodology includes modeling consumer attitudes based on sex, age, race, education, household income, and other determinants. The data set we use is provided from the Pew Internet and American Life Project, which is a "non-partisan, non-profit, fact tank" (Jones and Fox 2009). Our results suggest that demographic characteristics such as age, gender, and race, as well as an individual's income, education, and frequency of Internet usage affect one's willingness to shop online.

Incredible advances in technology and web security have led to an astonishing growth in the E-commerce industry over the past decade. This is evident in the annual average growth rate of 25.4% that retail E-commerce has experienced between 2001 and 2006 (U.S. Census Bureau[1] 2009). Currently, E-commerce remains a small contributor to total retail sales (2.7% in 2006); however, it is sure to increase its role with years to come as 2008 results reveal a contribution of 3.3% (U.S. Census Bureau[2] 2008). With regards to demographics, younger individuals have partaken in online shopping quite frequently, as they are well acquainted with the Internet and its ways (Jones and Fox 2009). Most adults have also followed suit, using the Internet as a third-party banking agent (Jones and Fox 2009). However, many outsiders are left questioning this whole idea of E-commerce, and how it actually operates. Non-participants often view online shopping as a risky activity that leaves consumers vulnerable to identity theft (Forsythe and Boshi 2003). In particular, risk perceptions surround four main areas, financial, psychological, product-performance, and time/convenience (Forsyth and Boshi 2003). Financially, individuals are worrisome over giving out credit card information over the Internet. Psychologically, disappointment and possible complications with online shopping are thoughts that consume individuals (Forsyth and Boshi 2003). Consumers may also receive a product that does not perform to their standards, or is not what they expected. This represents product-performance risk. Finally, people also perceive E-commerce to be a time-consuming activity, with regards to the delivery of a product and the online process itself (Forsyth and Boshi 2003).

A great deal of research has been done to document these perceived risks associated with E-commerce. However, it is important to realize, what the determinants of these risks are, and how an individual approaches online shopping with these risks in mind. Various demographic and socioeconomic factors most likely contribute to differing attitudes towards online shopping. As Jones and Fox discover, 80% of Generation X (33-44 year-olds) purchase products online (Jones and Fox 2009). Another study reveals that 69% of individuals with incomes greater than $100,000 report participating in online banking (Horrigan 2008). In addition, one's familiarity

with the Internet itself bears much influence as well. For example, it is shown that previous online experience causes individuals to be less worrisome about product-related risks (Soopramanien et al. 2007).

More questions still need to be answered; however, such as what influence does gender have on one's attitude towards online shopping? Are parents more likely to shop online? What about the effects of race and type of neighborhood on E-commerce? How influential is education on determining one's attitude towards E-commerce? In this study, we answer these questions as well as confirm previous results on factors that influence an individual's thoughts on Internet shopping. Analyzing the answers to these questions will enable companies to refine their advertising practices, allowing for not only increased E-commerce sales, but hopefully more consumers reaping the benefits E-commerce offers. Additionally, governments may provide more detailed Internet information to individuals less likely to shop online, explaining how online shopping has become a more secure activity. All in all, E-commerce provides consumers with a variety of choices along with plenty other advantages, and with stable confidence in online shopping, consumers have much to gain.

I. Literature Review & Conceptual Framework

Although shopping online has relatively recently gained popularity, it is projected to consistently increase its share of retail sales each year. Not surprisingly, numerous research projects concerning consumer behavior online have been initiated. Literature spanning this field ranges from analyses of the steps in the consumer decision-making process, to studies on the influence of warranties on online purchasing habits. Studies relevant to our specific research objective primarily look at the various perceived risk, demographic, socioeconomic, and experience factors influencing consumer behavior online.

A. Risks

Our study aims to determine the attitudes of individuals concerning online shopping; therefore, it is important to discuss the forms risk can take in an e-commerce environment. To begin with, products can be classified as either search products or experience products, where the latter requires an "experience" with the product, such as a car or clothing (Soopramanien et al. 2007). These classifications reveal the degree of product performance risk a product demonstrates (Soopramanien et al. 2007). Then, of course, there are elements of financial, psychological, and time/convenience risk perceived by Internet users (Forsyth and Boshi 2003). Financially, Internet users often worry about using a credit card online. Psychologically, people believe their privacy may be violated, as much personal information is necessary in online transactions, and may encounter frustration during the online shopping process (Forsyth and Boshi 2003). Lastly, time/convenience risk refers to delays in receiving the purchased product and Internet difficulties (Forsyth and Boshi 2003). Individuals with keen views towards these perceived risks of shopping online are more likely to not participate in E-commerce.

Since participation in E-commerce involves risks, Kenneth J. Arrow's work on expected utility and choices under uncertainty are integral to this study. Arrow uses the expected-utility hypothesis of Bernoulli to describe how, in times of uncertainty, an individual chooses the

outcome that maximizes his/her expected utility (Arrow 1984). In his theoretical framework, an individual must maximize his/her utility of current wealth (Arrow 1984). For an uncertain event, where either a gain of g, or loss of g is the outcome, an individual must consider the probabilities of each when making the decision to participate in the event (Arrow 1984). Given the utility preferences of the individual, if he/she is risk-averse, he/she will find the utility of current wealth to be greater than the combined utilities of current wealth + g, and current wealth – g. On the other hand, a less risk-averse individual will find the combined utilities of current wealth + g, and current wealth – g to be greater than the utility of current wealth (Arrow 1984). Arrow further claims that an individual's level of absolute risk aversion decreases as wealth increases (Arrow 1984). Hence, those with greater wealth are less risk-averse when presented with the same uncertain event as those with lower wealth.

Despite the above risks associated with online shopping, there also exist potential benefits for individuals. Shopping online is convenient. Information from John B. Horrigan of the PEW Internet & American Life Project supports this claim, as 78% of 2400 interviewees believe online shopping is convenient. Another 68% say online shopping saves time (Horrigan 2008). From this data, we hypothesize that strong perceptions of convenience and time efficiency regarding online shopping are measures of faith in E-commerce, where an individual is willing to make an online purchase.

B. Race

Now, we discuss the actual factors determining how risky a consumer takes Internet shopping to be. Demographic determinants of E-commerce activity include race, ethnicity, age, and gender. Concerning race, in a 2005 study by Herve Queneau, it was found that Blacks and Hispanics still remain overrepresented in the low-earning professions. The author concluded that segregation in the American labor market has subsided, but is still definitely present (Queneau 2005). Coupling this finding with risk theory proposed by Arrow, we would expect Blacks and Hispanics to be more risk averse and not engage in E-commerce, thus not realizing its benefits. Blacks and Hispanics have a greater proportion of income to lose if the negative outcome of an uncertain choice occurs. Hence, given the risks involved with online shopping, theory suggests that Blacks and Hispanics are less likely to shop online. Moreover, in studying financial risk preferences of Blacks, Hispanics, and Whites, Yao et al. (2005) find Blacks and Hispanics to be less likely than Whites to engage in slight financial risk. Online shopping represents a financial risk, and hence, this implies that Blacks and Hispanics would be less likely to participate in E-commerce.

Using the 2000 Cyber Life Observations survey by Nomura Research Institute, and the August 2000 Current Population Survey, Ono and Zavodny examine the determinants of computer ownership, Internet usage, and online shopping habits. Their findings reveal that blacks and Hispanics are less likely to own and use a computer at home than whites, with coefficient values for these race variables statistically significant at the 1% level. Furthermore, computer and Internet usage also positively correlate with levels of education and income. With lower incomes, as Queneau (2005) discovers, Blacks and Hispanics may not be able to comfortably afford a computer, and therefore, will be less likely to participate in online shopping. Ono and Zavodny conclude that computer usage and online shopping are not

significantly correlated to race and ethnicity, but rather to the presence of a home computer (Ono and Zavodny 2003). In our project, we attempt to further test racial and ethnic differences as determinants of eagerness to participate in e-commerce. Whilst bearing these results in mind, we expect that minorities may not be large contributors to online shopping, but, nonetheless, we will examine their risk mindset. Since Blacks and Hispanics are more likely to earn lower incomes, we believe these individuals will exhibit more risk averse attitudes, in line with risk theory proposed by Arrow, towards online shopping, and thus not display a buying attitude.

C. Age

With regards to the relation between age and risk, the younger an individual is, the greater amount of time he/she has to bear the negative outcomes of a risky decision. For example, in regards to risky assets, such as junk bonds, if major losses are taken, a middle-aged person has an extensive amount of time to build up his/her wealth to its previous level. For the elderly, this is not the case, and future consumption is greatly hindered by these losses. Hence, economic theory suggests that older individuals are more risk-averse, in terms of financial risk, and may not agree with statements about the convenience of E-commerce. This is shown in the asset allocation of elderly individual's investments, leaning more towards safe U.S. Treasury bonds. Two particular studies support this conceptual argument. A study conducted by Urvi Neelakantan (2010) used data on the Individual Retirement Accounts from the Health and Retirement Study, conducted by the University of Michigan. In her study, Urvi determine the effect gender has on the allocation of risky assets in an individual's IRA portfolio. Her results reveal that older women are more risk-averse than elderly men. Furthermore, results from Hallahan et al. (2004) explain that financial risk tolerance increases with age, following a negative non-linear pattern.

In more recent years, older generations have caught on to the Internet craze of the 21st century as targets of advertising strategies. Now, larger proportions of older people are participating in a wide range of online entertainment- and communication-related activities (Jones and Fox 2009). A particular study that analyzes age and Internet experience is the PEW Internet & American Life Project. Survey results from 2006-2008 suggest that Generation X (33-44 year-olds) is the most likely group of individuals to bank, shop, and search for health information online (Jones and Fox 2009). Moreover, 80% of Gen X'ers purchase products online, further showing this group's robust E-commerce trends (Jones and Fox 2009). More importantly, however, since 2005, the increase in Internet usage was highest among those in the 70-75 age group, rising from 26% to 45% (Jones and Fox 2009). This age group, in addition to other older individuals, tends to use the Internet mostly for research and email purposes (Jones and Fox 2009).

Furthermore, after surveying 641 individuals, Forsyth and Boshi found that frequent Internet shoppers were older men. Age also played a significant role in Ballard and Lee's study. Here, results do not coincide with the PEW Institute's findings. The influence of age on the level of online shopping takes the shape of an inverted *U*, where buying levels peak at the age of 30, and then drop off (Ballard and Lee 2007). This can be explained by the simple fact that teenagers do not have credit, and thus are not active online shoppers (Ballard and Lee 2007). These varied results leave us to develop our own assumption of the relation between age and risk

perceptions online. We hypothesize that older individuals will be less risk averse when it comes to the Internet as they have more experience and knowledge, and thus will participate in Internet shopping. However, risk tolerance is expected to peak during the ages of 30-40, and then decline beyond these ages. Hence, a nonlinear, inverted *U* relationship between age and risk tolerance is expected.

D. Income and Education

Several studies have considered the socioeconomic aspects of Internet shopping as well, such as level of income and education. In Arrow's expected utility models, as income increases the degree of absolute risk aversion decreases. Thus, at lower levels of income, individuals will be more risk averse, as a greater proportion of their income could be lost in the event of an uncertain decision having a negative impact. From this explanation, theory proposes that income and the willingness to shop online will be positively correlated. Furthermore, given the positive relationship between education and income, as extensive economic studies have shown, it is expected that a positive relationships exist between education and likelihood of shopping online as well. Hence, individuals with more education and income may view online shopping as beneficial.

Ballard and Lee's results prove the theoretical arguments above, revealing that income and the probability of purchasing online are positively related, with statistical significance at the 1% level (Ballard and Lee 2007). Education and shopping online also exhibit a positive relationship (Ballard and Lee 2007). In particular, those with a high school diploma or Bachelor's degree are much more likely to shop online than those without a high school education, as observed by their large t-statistics (Ballard and Lee 2007). Specifically, the likelihood of college graduates shopping online and accessing the Internet increases by 36.1% and 45% respectively. It must be mentioned, however; that education levels beyond a Bachelor's have smaller effects on the number of Internet transactions, as the coefficient values for those with degrees beyond a Bachelor's is 0.107 and 0.164 respectively (Ballard and Lee 2007). Furthermore, another study found that Americans earning below $25,000 were less likely to partake in online banking, while 69% of those with incomes of $100,000 or greater did online banking (Horrigan 2008).

We will take these developments further by discovering how varying education and income levels affect individuals' perceptions of Internet shopping. We anticipate a negative relationship between education and risk perceptions, as well as between income and risk perceptions, believing that the more educated one is and higher earnings one has, the more relaxed his/her perceptions of online shopping would be, and hence the more likely he/she would be to shop online.

E. Gender and Internet Usage

There are other factors that influence the degree of risk which individuals assign to online shopping. Experience with the Internet and gender are the main determinants in this category. Economic theory does not have too much too offer in terms of the relationship between gender and risk. Therefore, we turn our attention to research compiled by Neelakantan (2005). As noted in *Age* section above, this author found older women to be more risk averse than older men

when analyzing asset allocation in risky assets. Under these results, we expect women to be less likely to engage in online shopping, and find E-commerce to be risky; however, these expectations are not too firmly established, as research on younger women's risk preferences is not available. Regarding experience, it is quite obvious that with more experience with online shopping, individuals will likely find it beneficial and convenient.

Forsyth and Boshi examined the perceived risks of Internet shopping, their connection with demographic characteristic, and their overall effect on online shopping behavior (Forsyth and Boshi 2003). After surveying 641 individuals, they found that frequent Internet shoppers were older men with more online experience. Also, as the years of Internet experience increased, the perceptions of financial risk decreased, revealing a willingness to participate in E-commerce (Forsyth and Boshi 2003). Under a utility maximization model, Soopramanien et al. found that previous online shopping experience makes individuals less worrisome of product-related risks. Following purchases online, consumers' perceptions of risk change and depending on the experience they had, are either more or less risk averse (Soopramanien et al. 2007). To further support the belief that more experience online results in lower levels of perceived risk, we look at the study of Miyazaki and Fernandez. Through looking at online purchasing rates, their findings reveal that perceived risks with online shopping and online experience are negatively correlated (Miyazaki and Fernandez 2001). Of course, this is expected since experienced Internet users believe shopping online is a more safe than risky practice. We try to duplicate this observation in our study, showing that as Internet experience increases, individuals strongly consider online shopping.

Our project includes some different socioeconomic characteristics, such as the parental status of an individual and his/her area of residence. We will determine how these features, in addition to the ones previously mentioned, affect one's attitude towards online shopping in relation to two of the four perceived risks of E-commerce: time/convenience risk and financial risk. Besides socioeconomic factors, we also incorporate a specific determinant accounting for experience; an individual's frequency of Internet usage.

II. Empirical Specification

In our study, we attempt to model an individual's willingness to make a purchase online. To do this, we utilize the 2007 Consumer Choice Survey compiled by the Princeton Survey Research Associated International for the PEW Internet & American Life Project. This review asked 2,400 individuals questions about using the Internet, its effects on their daily lives, and what types of activities were performed on the Internet. The following sample regression functions represent our model:

$$\boldsymbol{SAVES\_TIME} = \beta_0 + \beta_1 AGE + \beta_2 AGE\_SQRD + \beta_3 FEMALE + \beta_4 WHITE + \beta_5 RURAL + \beta_6 PARENT + \beta_7 USE\_COMP + \beta_8 WEB\_DAILY + \beta_9 HS\_INCMPL + \beta_{10} HS\_TECH + \beta_{11} COLLEGE\_UP + \beta_{12} INC0TO20 + \beta_{13} INC20TO40 + \beta_{14} INC40TO60 + \beta_{15} INC60TO100 + \beta_{16} INC100PLUS + u$$

$$\textbf{\textit{CONVENIENT}} = \beta_0 + \beta_1 AGE + \beta_2 AGE\_SQRD + \beta_3 FEMALE + \beta_4 WHITE + \beta_5 RURAL + \beta_6 PARENT + \beta_7 USE\_COMP + \beta_8 WEB\_DAILY + \beta_9 HS\_INCMPL + \beta_{10} HS\_TECH + \beta_{11} COLLEGE\_UP + \beta_{12} INC0TO20 + \beta_{13} INC20TO40 + \beta_{14} INC40TO60 + \beta_{15} INC60TO100 + \beta_{16} INC100PLUS + u$$

$$\textbf{\textit{BEST\_BARGAINS:}} = \beta_0 + \beta_1 AGE + \beta_2 AGE\_SQRD + \beta_3 FEMALE + \beta_4 WHITE + \beta_5 RURAL + \beta_6 PARENT + \beta_7 USE\_COMP + \beta_8 WEB\_DAILY + \beta_9 HS\_INCMPL + \beta_{10} HS\_TECH + \beta_{11} COLLEGE\_UP + \beta_{12} INC0TO20 + \beta_{13} INC20TO40 + \beta_{14} INC40TO60 + \beta_{15} INC60TO100 + \beta_{16} INC100PLUS + u$$

Our dependent variables are a measure of an individual's willingness to make a purchase online. These variables originate from Question 15 of the Consumer Choice Survey, which asks survey members to specify to what degree they agree with the following statements: "*shopping online is convenient"*, "*the Internet is the best place to find bargains"*, and "*shopping online saves me time"*. We believe that strong responses to these questions identify a greater willingness to purchase online, while weak responses identify a smaller willingness to purchase online. The various independent variables correspond to questions and information from the Consumer Choice Survey. We transform them into dummy variables, either receiving a "*1"* or "*0"*. Also, rather than estimate a probit model , we utilize a linear probability model so effects can easily be interpreted. Table 1 outlines the descriptions of our independent variables and their expected effects.

We anticipate that if an individual has a computer at home or at work he/she will be more willing to shop online. Regarding *AGE*, we forecast that older individuals will be more willing to purchase online due to light risk perceptions; however, with the variable *AGE_SQRD*, we believe a negative parabolic relationship will be evident, as Ballard and Lee's results suggest. Literally, Internet shopping peaks at a particular age, and then subsides. Moreover, higher levels of education, and greater income levels are expected to correlate with greater willingness to use E-commerce and understand its advantages. Thus, we predict *INC40TO60*, *INC60TO100*, *INC100PLUS*, and *COLLEGE_UP* to exhibit positive correlation with willingness to purchase online, and *INC0TO20*, *INC20TO40*, *HS_TECH*, and *HS_INCMPL* to exhibit a negative relationship. These expectations coincide with the study carried out by John B. Horrigan, that lower income earners are less willing to shop online, and Ballard and Lee, which discovered a positive relationship between income and shopping online. Ballard and Lee's results also indicate that the more education an individual has, the more online shopping he/she accomplished.

Regarding race, as Ono and Zavodny found, we hypothesize that whites will be more likely to take part in online purchasing given socioeconomic differences across races. As far as gender, we conjecture that women are less likely to shop online as they prefer a "sensory experience" with a product. We assume that parents will likely not be willing to shop online because of their heightened risk perceptions. These risk perceptions originate from parents being concerned about providing for their family, whereas shopping online may threaten the ability to accomplish this. Those from rural areas will also be less likely to purchase online as they may

be more risk averse and are not as familiar with the Internet as urban dwellers are. Finally, increased use of the Internet is expected to yield a greater acceptance of E-commerce. This conjecture is similar to the results of Miyazaki and Fernandez, that more online experience yields reduced levels of risk aversion.

Table 1: Variable Descriptions and Expected Effects

Variable Name and Description	*Expected Direction of Effect*
AGE - the individual's age	+
AGE_SQRD - the individual's age squared	-
FEMALE - whether the individual is a male or female	-
WHITE - whether or not the individual is white	+
RURAL - whether the individual lives in a rural setting or not	-
PARENT - if the individual is a parent or not	-
USE_COMP - if the individual uses a computer or not	+
WEB_DAILY - whether or not an individual uses the Internet daily	+
HS_INCMPL - whether or not the individual has an incomplete high school education	-
HS_TECH - whether the individual has received only a high school or technical school education	-
COLLEGE_UP - whether or not the individual has received a bachelor's degree or greater	+
INC0TO20 - if the individual's income is between $0-20,000	-
INC20TO40 - if the individual's income is between $20,000-40,000	-
INC40TO60 - if the individual's income is between $40,000-60,000	+
INC60TO100 - if the individual's income is between $60,000-100,000	+
INC100PLUS - if the individual's income is above $100,000	+

Complications in our research objective involve transforming our independent variables into dummy variables, and the multicollinearity that exists among these independent variables. Since our explanatory variables are questions, responses span 7 possible choices, and these answers must be broken down into two categories to simulate a dummy variable. Regarding multicollinearity, it is obvious this condition is present between education and income, age and income, race and income, as well as race and education. This occurrence is likely not to be perfect, so our estimators will not be biased; but most likely have large standard errors. If biasedness is discovered, some explanatory variables may need to be omitted from our regression, or various regressions will be run to eliminate this.

III. Data Description

For our study, we use data from the Consumer Choice Survey compiled by Princeton Survey Research Associates International for the Pew Internet & American Life Project. Between August 3 and September 5, 2007, 2,400 adults were asked a series of questions which aimed to find the effect of the Internet on these individuals' lives. Specifically, individuals were asked questions referring to their frequency of Internet usage, purchasing habits online, attitudes of Internet shopping, and use of the Internet as a source of information. Additionally, the survey consisted of the socioeconomic aspects of the interviewees, such as age, gender, income, education, race, area of residence, and parental status.

In our study, we look at the various socioeconomic as well as Internet-related factors of individuals, and determine whether he/she will be willing to participate in E-commerce. Thus, from the dataset, we extract the socioeconomic characteristics as described above, as well as survey results outlining use of a computer (question 3) and frequency of Internet usage (question 6). These will be the explanatory variables we wish to use in our study. To measure our dependent variable, willingness to execute transactions online, we use question 15, which asks interviewees to what extent they agree or disagree with the following statements: *(a) The internet is the best place to buy items that are hard to find, (b) Shopping online is complicated, (c) Shopping online is convenient, (d) I don't like giving my credit card number or personal information online, (e) The internet is the best place to find bargains, (f) Shopping online saves me time, and (g) I prefer to see the things I buy before I buy them.* We assume that questions 15(c)(e)(f) reflect positive attitudes towards online shopping; therefore, *"strongly agree"* responses to these questions indicate a strong willingness to participate in E-commerce. Thus, we do not include questions 15(a)(b)(d)(g) for measuring our dependent variable as these questions either reflect negative views towards online shopping, or are ambiguous.

With a methodology established, our next task involves modifying our data to discover and analyze key relationships in a STATA program. A great deal of our explanatory variables can be classified as ordinal variables, which take a limited set of values. Most ordinal variables involve consumers ranking their level of agreement with a statement from, say, *1* to *5*. In this case, it is difficult to interpret an increase of one unit of agreement. Therefore, in modifying our independent variables, we simply constructed various dummy variables. The variable *FEMALE* is a dummy variable, taking the value *"0"* for male, and *"1"* for female. For the variables *USE_COMP* and *PARENT* we defined dummy variables once again, assigning *"0"* to

individuals who are not parents and do not use a computer at work, home, school, or anywhere else, and *"1"* to individuals who are parents and do use a computer. Concerning *"race,"* in the original dataset, this variable consisted of seven different categories. Since we believe whites will have greater access to computer due to various socioeconomic differences amongst races, our modified race variable, *WHITE,* designated *"0"* to non-whites, and *"1"* to those individuals who are white. This amendment involved assigning a *"0"* value to all the non-white categories of the variable *"race"* from the original dataset which were *"black or African-American"*, "*Asian or Pacific Islander"*, "*mixed race*", "*native American/American Indian*" and "*other*".

We would use this same technique for constructing dummy variables for our other explanatory variables. *RURAL* also became a dummy variable, where *"suburban and urban"* responses took the value *"0,"* and *"rural"* responses took the value *"1."* Similarly, income and education data were divided into different groups representing income and education classes. Our variable *INC0TO20* refers to those respondents who reported having an income between 0 and $20,000. The other income variables *INC20TO40, INC40TO60, INC60TO100,* and *INC100PLUS* describe the other income brackets of individuals. All took a dummy variable form, where *"1"* specified the individual's level of income, and *"0"* for income levels which did not correspond to the individual. Education data was partitioned into three divisions: those obtaining an education below high school level, at the high school level or technical school, and at the college level or beyond, which correlate to *HS_INCMPL*, *HS_TECH*, and *COLLEGE_UP*, respectively. Once again, an individual received a *"1"* or *"0"* value in these groupings depending on their education level. Our final independent dummy variable, *WEB_DAILY* is derived from question 6, indicating the frequency of Internet use. Here, daily Internet use was assigned a *"1,"* while non-daily use was assigned a *"0."* Lastly, two non-dummy variables, *AGE* and *AGE_SQRD,* are also included in our data. From the *AGE* explanatory variable, which merely takes the value of the respondent's age, we created a new variable *AGE_SQRD* to reflect the non-linear effect that we believe age has on willingness to shop online. Values for this variable are achieved by squaring an individual's age.

Additionally, modifications also had to be applied to our dependent variables. For questions 15(c)(e)(f), responses were split into *"agree"* and *"disagree"* classifications, where the latter took the value *"0"* and the former took the value *"1."* Furthermore, we gave our dependent variables the names ***"CONVENIENT,"*** ***"BEST_BARGAINS,"*** and ***"SAVES_TIME,"*** referring to questions 15(c)(e)(f) respectively. With three dependent variables, three regressions will be made to reveal the various responses to the three regressands. Strong answers to the three dependent variables correlates to a strong willingness to participate in E-commerce. As a final measure, for non-Internet users, who obviously could not respond to the dependent variable, we assigned values of *"0."* This would increase our sample size, and thus, cause our determinants to be much more significant.

A. Summary Statistics

Tables 2 and 3 provide the summary statistics for our independent and dependent variables respectively.

Table 2: Summary Statistics of Independent Variables

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
AGE	2400	53.568	19.982	18	99
AGE_SQRD	2400	3268.663	2262.634	324	9801
FEMALE	2400	0.544	0.498	0	1
WHITE	2352	0.837	0.369	0	1
RURAL	2271	0.214	0.41	0	1
PARENT	2384	0.281	0.45	0	1
USE_COMP	2399	0.709	0.454	0	1
WEB_DAILY	2400	0.482	0.5	0	1
HS_INCMPL	2372	0.094	0.292	0	1
HS_TECH	2372	0.347	0.476	0	1
COLLEGE_UP	2372	0.559	0.497	0	1
INC0TO20	2331	0.139	0.346	0	1
INC20TO40	2331	0.188	0.391	0	1
INC40TO60	2322	0.158	0.364	0	1
INC60TO100	2322	0.171	0.377	0	1
INC100PLUS	2322	0.129	0.335	0	1

The average age of the interviewees in the sample is 54 years while the minimum is 18 years and the maximum is 99 years. Furthermore, 54% are female, 84% are white, 21% live in a rural setting, 28% have children, 71% use a computer, and 48% access the Internet on a daily basis. Additionally, with regards to education, 9% have not completed high school education, 35% have either a high school or a technical school degree, and 56% have a 4 year college degree or greater. As far as income is concerned 14% fall into the $0-20,000 bracket, 19% fall into the $20,000-40,000 bracket, 16% have incomes between $40,000 and $60,000, 17% are between $60,000 and $100,000, and 13% of our interviewees have incomes of $100,000 and more.

Table 3: Summary Statistics of Dependent Variables

Variable	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
CONVENIENT	2400	0.544	0.498	0	1
BEST_BARGAINS	2400	0.319	0.466	0	1
SAVES_TIME	2400	0.47	0.499	0	1

Under the assumption that people that don't use the Internet receive a value of *"0"* (*disagree*) for our dependent variables we have that 54% of the interviewees agree that shopping online is convenient; 32% believe that the Internet is the best place to find bargains; and 47% think that shopping online saves time.

IV. Empirical Results

Tables 4-7 in the appendix outline our results after running a series of three regressions with our dependent and independent variables. In addressing the obvious cases of

multicollinearity, we run a set of regressions where various independent variables have been omitted. For the first set of regressions in Table 4, all independent variables are included; for the second set, age, age-squared, race, computer usage, frequency of Internet usage, and education variables have been removed to discover the effect income has on an individual's perception of E-commerce. The third collection of regression output in Table 5 determines education's effect on E-commerce attitudes. Here, age, age-squared, race, computer usage, frequency of Internet usage, and income variables have been removed. To measure the influence age has on our dependent variable, the next set of regressions in Table 5 are without computer usage, frequency of Internet usage, and income variables as there is a possibility of multicollinearity amongst age and these variables. Series of regressions in Table 6 analyze the impacts race and computer usage have on consumer attitudes towards online shopping respectively, while Table 7 reveals just how significant an individual's frequency of Internet usage is when regressed on our dependent variable.

From these outcomes, we observe that many of our independent variables are quite significant in determining whether an individual will purchase online. In our first regression, which reveals an individual's perception of how convenient online shopping is, despite some of our income and education variables being individually insignificant, results from joint hypothesis tests (F-tests) revealed that together, these variables are statistically significant, and thus, should all be included in our regression. The F-statistics, 21.32, 4.00, and 9.96 for age, income, and education variables respectively, exceed their corresponding critical F statistics of 3.00, 2.37, and 2.60. In order to avoid a dummy variable trap, we had to set *HS_TECH* and *INC0TO20* to be our benchmark groups, thus, these variables are dropped in all three regressions as well as subsequent regressions. Some variables that are not statistically significant in this first regression are *FEMALE*, *RURAL*, and *PARENT*. We also found that *HS_INCMPL*, *INC20TO40*, and *INC40TO60* are individually insignificant to our regression.

With regards to age, an increase in age by one year is associated with a greater decrease in the probability of the individual believing E-commerce is convenient, 0.80 percent + 0.00008(age) percent, holding all other variables constant. While the age variables were statistically significant, they bear little economic significance, with coefficients of -0.008 and 0.00004. A white person's probability of perceiving E-commerce as convenient increases by 4.60 percent compared to a non-whites' probability, all else equal. Moreover, if a person uses a computer at work or home and uses the Internet daily, his/her probability of thinking online shopping is convenient, in comparison with non-Internet and non-computer users, increases by 41.1 percent and 25.10 percent respectively, ceteris paribus. Also, receiving a college or above education and having an income between $60,000 and $100,000 increases the likelihood of one believing E-commerce is convenient by 8.20 percent and 8.90 percent respectively, compared to individuals without a college education that are not in this income bracket. Lastly, those in the $100,000 plus income bracket are 10.30 percent more likely than those not earning this level of income to perceive online shopping as convenient too, all else constant.

Our second regression uncovers an individual's attitude of how financially beneficial online shopping is; if bargains are evident in E-commerce. The variables individually statistically insignificant here are *WHITE, PARENT, HS_INCMPL, COLLEGE_UP, INC20TO40, INC40TO60,* and *INC100PLUS* given their t-statistics of -0.12, 0.24, 1.31, 1.00,

1.57, 0.04, -0.03, and 1.49 respectively. Concerning one's age, an increase in age by one year causes a larger decrease in the probability of him/her believing the Internet is a bargain center, all else constant. This is apparent from the partial effect of age on the dependent variable: -1.2 percent + .0008(age) percent. As in our first regression, these age variables exhibit little economic significance though. Regarding gender, females are 8.1 percent less likely to find E-commerce as a place to find bargains than men are, ceteris paribus. Furthermore, rural residents are 4.7 percent less likely than urban and suburban residents to perceive E-commerce as the best place to find bargains, all else equal. Those who use a computer at work or home and use the Internet daily are 20.00 percent and 18.8 percent more likely to believe shopping online is financially beneficial than those who do not use a computer or use the Internet daily. Finally, the probability of believing the E-commerce provides bargains for individuals in the $60,000 to $100,000 income bracket increases by 9.00 percent, holding others constant.

The third and final regression in our study determines whether or not an individual believes shopping online saves them time. Conducting F-tests for our age, income, and education variables also show that although some may be individually insignificant, collectively they bear much significance and should be included. These F-statistics; 17.98, 6.14, and 13.69 correspondingly, are greater than the analogous critical F-statistics of 3.00, 2.37, and 2.60. Statistically insignificant variables in this regression are *AGE_SQRD, RURAL, PARENT, HS_INCMPL, INC20TO40, INC40TO60,* and *INC60TO100,* as their following t-statistics reveal: 0, -1.10, -0.32, -0.75, -1.08, -0.29, and 1.62.

Looking at age, a one-year increase in age is associated with a 0.60 percent decrease in the probability of an individual believing online shopping saves time. Of course, this variable has little economic significance though, as its coefficient is -0.006. As in our previous regressions, our *FEMALE* variable reveals a negative relationship. In particular, females are 3.30 percent less likely than men to find E-commerce as a timesaving activity, ceteris paribus. Moreover, whites are 6.90 percent more likely than non-whites to find that shopping online saves them time, holding others constant. The use of a computer at home or at work is another significant factor, with computer users having a 33.20 percent greater chance than non-computer users of believing E-commerce saves time. As expected, *WEB_DAILY* is also significant in this regression. Those who use the Internet daily are 25.50 percent more likely than non-daily Internet users to find Internet shopping saving time, ceteris paribus. Additionally, a person with a college education or beyond is 10.00 percent more likely than an individual with no formal education to think online shopping is an activity that saves time. Lastly, those with incomes of $100,000 or above are 13.40 percent more likely than individuals with incomes below this amount to perceive E-commerce as saving one's time, all else constant.

It is also imperative to mention our thoughts behind the variable *FEMALE*. Given its statistical significance, we decided to conduct a Chow Test, revealing whether separate regressions should be run for male and female individuals. Results from the Chow Test show evidence against running separate regressions, since $0.78<1.83$.

In the second set of regressions in Table 4, we note that all variables utilized, *FEMALE, RURAL, PARENT,* and income variables are statistically significant at at least the 10% level. Specifically, when multicollinearity between age and computer and Internet usage, race and

education, and race and income, the above variables are quite significant in determining an individual's perceptions of online shopping. Females are 3.7, 10.1, and 5.6 percent less likely than males to find E-commerce as convenient, thrifty, and time efficient. Similarly, those from rural areas are also less likely to support our three dependent variables, with percentages of 7.3, 9.1, and 9.8. On the contrary, parents are more likely to agree with the three statements represented by the dependent variables. When discerning the effects an individual's income level has on his/her thoughts about the convenience, bargains, and time efficiency of E-commerce, we note that those with higher income levels exhibit a greater probability of strongly concurring with these features of shopping online. Particularly, those with incomes between $20,000 and $40,000 are only 9.3 percent more likely to find E-commerce convenient compared to those with other incomes, but individuals in the $100,000 or above income classification are 41.3 percent more likely to support this statement. Similar results are found for whether or not on believes the Internet to be a place to save money and time.

Table 5's first set of regressions investigate how education levels affect one's perception of online shopping. Regression results indicate that those without a high school education are less likely to perceive Internet shopping as convenient, financially beneficial, and timely. These percentages are 20.5, 7.6, and 17.4 respectively. However, a college education or beyond has a much greater positive effect on the dependent variables, with an individual's likelihood of supporting the statements increasing by 27.5, 13.7, and 28.6 respectively. The influence age has on an individual's thoughts about purchasing online is represented by the second set of regressions in Table 5. Here, we understand that age is statistically significant in all three measures of online shopping perceptions, but not economically significant given its small coefficient values. Results for the variable *AGE_SQRD* reveal that the relationship between age and perceptions of E-commerce is not non-linear.

The effects race has on how individuals view shopping online are available in the first set of regressions in Table 6. It is observed that the probability of finding the Internet to be convenient and efficient in terms of time increases by 13.0 and 14.1 percent respectively for those that are Caucasian. Hence, race alone, does have a sizable effect on opinions of E-commerce. Lastly, final regressions in Tables 6 and 7 indicate just how meaningful computer and Internet usage are in determining a person's attitudes towards online shopping. If an individual uses a computer at home or work, and/or uses the Internet frequently, he/she is much more likely to support convenience, financial, and efficiency statements regarding online transactions. Probabilities of supporting these statements increase by 30 percent to 61.7 percent if an individual uses a computer at work or home and/or accesses the Internet often.

V. Conclusion

Our empirical results strongly demonstrate the importance of various socioeconomic and behavioral factors and their significant influence on consumer attitudes towards shopping online. Contrary to our hypothesis, we found evidence for a negative relationship between age and the willingness to participate in E-commerce, which coincides with the findings of Ballard and Lee. Furthermore, we found that gender greatly affects attitudes towards shopping online among consumers, coinciding with results from Forsyth and Boshi. This consequence is in line with our anticipated gender effect on our dependent variable, that female shopping behavior is geared

towards traditional shopping, where individuals prefer to physically see and try the product. Women do not obtain a "physical experience" with E-commerce, and thus are less likely to shop online. Additionally, we discovered that race is a major factor determining E-commerce inclinations since, according to our findings; whites are generally more willing to shop online than other ethnic groups.

Educational levels turned out to be significant in their positive effect on E-commerce attitudes only among people with a college degree or higher, in line with Ballard and Lee's results. Likewise, income exhibited similar correlation and significance for people falling between the $60,000-100,000 and $100,000-more brackets. We notice that other income and education divisions have less significant impacts on our dependent variable and show inconclusiveness. Information regarding our *PARENT* explanatory variable reveals that this is also a significant factor determining an individual's willingness to shop online. Parents are found to be more likely to participate in E-commerce as it is cost-effective and could alleviate budgeting concerns. Moreover, the variable *RURAL* is a significant factor in determining whether one finds the Internet as convenient, a bargain center, and timely. Individuals in rural locations are less likely to support the statements represented in the dependent variables of this study. This could simply be a result of these individuals not having continuous access to the Internet. Based on our empirical results we can additionally conclude that the frequency of internet usage and use of a computer at home or work has a considerable effect on the degree of willingness of consumers to shop online. People satisfying the two above conditions have significantly more favorable views towards e-commerce than less frequent users.

On another note, the results from this study have some implications concerning government policy. Our results indicate that non-whites and those low incomes are not reaping the benefits of online shopping. The likely cause of this is that these individuals do not have access to a computer at home due to the financial requirement of a computer. Now, to spread the benefits of online shopping to these individuals, perhaps government-sponsored Internet training sessions and a credit program could be implemented in low income communities. Training sessions could be carried out by local economic development boards in communities across America. Equipping poorer communities with computer and Internet capabilities may also aid in informing and supplying lower income areas with Internet access. Besides the benefits arising from shopping online, the Internet also provides a wealth of information that individuals can use to make informed decisions.

Additionally, the research conducted here implies that companies should focus advertising online shopping towards older, educated white males with incomes on the higher end. Furthermore, products which older white males use, may have increased sales if advertised online. Hence, extending online advertisements to this demographic will benefit the consumer as he is better informed.

Our results here offer some insightful and applicable information on how individuals perceive E-commerce. We find that several socioeconomic factors influence one's perception of E-commerce as convenient, time-saving, and thrifty. More detailed research needs to be conducted on the effectiveness of online advertising campaigns, and the types of information about online shopping available to consumers. Moreover, studies should also look at the change

in risk perceptions of E-commerce from previous years to now. As more secure technology is being developed, shopping online continues to become a safe activity to engage in. Lastly, and most importantly, future research may also determine the probability of consumers experiencing fraudulent charges, improper goods, and other negative occurrences involved with Internet shopping. If the likelihood of these events is low, then E-commerce will be found to be much more safe for individuals. The above research endeavors will hopefully lead to greater lower income individuals accepting E-commerce and obtaining the several advantages it offers.

Table 4: OLS Regression Results

	Dependent Variable					
Variable	*CONVENIENT*	*BEST_BARGAINS*	*SAVES_TIME*	*CONVENIENT*[1]	*BEST_BARGAINS*[1]	*SAVES_TIME*[1]
AGE	-0.008***	-0.012***	-0.006**	-	-	-
	(0.002)	(0.002)	(0.002)			
AGE_SQRD	0.000**	0.000***	0.000	-	-	-
	(0.000)	(0.000)	(0.000)			
FEMALE	-0.017	-0.081***	-0.033**	-0.037*	-0.101***	-0.056***
	(0.016)	(0.019)	(0.017)	(0.020)	(0.020)	(0.020)
WHITE	0.046**	-0.003	0.069***	-	-	-
	(0.023)	(0.025)	(0.025)			
RURAL	0.006	-0.047**	-0.023	-0.073***	-0.091**	-0.098***
	(0.019)	(0.025)	(0.021)	(0.024)	(0.022)	(0.024)
PARENT	0.028	0.006	-0.007	0.193***	0.143***	0.143***
	(0.020)	(0.025)	(0.022)	(0.022)	(0.023)	(0.023)
USE_COMP	0.411***	0.200***	0.332***	-	-	-
	(0.026)	(0.024)	(0.025)			
WEB_DAILY	0.251***	0.188***	0.255***	-	-	-
	(0.026)	(0.026)	(0.027)			
HS_INCMPL	-0.017	0.034	-0.018	-	-	-
	(0.024)	(0.026)	(0.024)			
HS_TECH	Dropped	Dropped	Dropped	-	-	-
COLLEGE_UP	0.082***	0.021	0.100***	-		-
	(0.020)	(0.021)	(0.021)		-	
INC0TO20	Dropped	Dropped	Dropped	Dropped	Dropped	Dropped
INC20TO40	-0.003	0.001	-0.026	0.093***	0.053**	0.060**
	(0.023)	(0.024)	(0.024)	(0.030)	(0.026)	(0.029)
INC40TO60	0.041	-0.001	-0.008	0.238***	0.104***	0.173***
	(0.026)	(0.029)	(0.028)	(0.031)	(0.029)	(0.032)
INC60TO100	0.089***	0.09***	0.047	0.354***	0.213***	0.301***
	(0.026)	(0.031)	(0.029)	(0.029)	(0.030)	(0.030)
INC100PLUS	0.103***	0.052	0.134***	0.413***	0.206***	0.430***
	(0.028)	(0.035)	(0.030)	(0.030)	(0.034)	(0.031)
Constant	0.303	0.500	0.245	0.353	0.258	0.335
R-squared	0.505	0.237	0.429	0.165	0.086	0.144
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000

*Note: C corresponding robust standard errors denoted in parentheses below variable coefficient, * represents statistical significance at the 10% level, ** represents statistical significance at the 5% level, *** represents statistical significance at the 1% level and beyond, [1] Regressions with age, age_sqrd, race, use_comp, web_daily, and education variables removed*

Table 5: OLS Regression Results

	Dependent Variable					
Vqriiable	*CONVENIENT*[2]	*BEST_BARGAINS*[2]	*SAVES_TIME*[2]	*CONVENIENT*[3]	*BEST_BARGAINS*[3]	*SAVES_TIME*[3]
AGE	-	-	-	-0.007***	-0.011***	-0.005**
				(0.003)	(0.003)	(0.003)
AGE_SQRD	-	-	-	-0.000	0.000**	-0.000
				(0.000)	(0.000)	(0.000)
FEMALE	-0.063***	-0.107***	-0.075***	-0.031*	-0.083***	-0.044**
	(0.019)	(0.019)	(0.020)	(0.019)	(0.019)	(0.019)
WHITE	-	-	-	0.094***	0.016	0.106***
				(0.026)	(0.026)	(0.027)
RURAL	-0.038	-0.072***	-0.066***	-0.040*	-0.068***	-0.066***
	(0.023)	(0.022)	(0.023)	(0.023)	(0.021)	(0.023)
PARENT	0.251***	0.172***	0.195***	0.098***	0.047*	0.057**
	(0.021)	(0.022)	(0.022)	(0.023)	(0.025)	(0.024)
USE_COMP	-	-	-	-	-	-
WEB_DAILY	-	-	-	-	-	-
HS_INCMPL	-0.205***	-0.076***	-0.174***	-0.156***	-0.047*	-0.128***
	(0.031)	(0.028)	(0.028)	(0.030)	(0.025)	(0.028)
HS_TECH	Dropped	Dropped	Dropped	Dropped	Dropped	Dropped
COLLEGE_UP	0.275***	0.137***	0.286***	0.266***	0.138***	0.277***
	(0.022)	(0.020)	(0.021)	(0.021)	(0.020)	(0.021)
INC0TO20	-	-	-	-	-	-
INC20TO40	-	-	-	-	-	-
INC40TO60	-	-	-	-	-	-
INC60TO100	-	-	-	-	-	-
INC100PLUS	-	-	-	-	-	-
Constant	0.377	0.267	0.322	0.743	0.738	0.618
R-squared	0.182	0.080	0.164	0.271	0.140	0.241
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000

*Note: corresponding robust standard errors denoted in parentheses below variable coefficient, * represents statistical significance at the 10% level, ** represents statistical significance at the 5% level, *** represents statistical significance at the 1% level and beyond,* [2] *Regressions with age, age_sqrd, race use_comp, web_daily, and income variables removed* [3] *Regressions with use_comp, web_daily, and education and income variables* [4] *Regressions with use_comp,web_daily, education, and income variables removed* [5] *Regressions with race, web_daily, education, and income variables removed*

Table 6: OLS Regression Results continued

	Dependent Variable					
Variable	*CONVENIENT*[4]	*BEST_BARGAINS*[4]	*SAVES_TIME*[4]	*CONVENIENT*[5]	*BEST_BARGAINS*[5]	*SAVES_TIME*[5]
AGE	-0.004	-0.010***	-0.003	-0.004*	-0.010***	-0.002
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
AGE_SQRD	-0.000*	0.000	-0.000*	0.000	0.000***	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FEMALE	-0.037*	-0.086***	-0.052***	-0.034**	-0.084***	-0.052***
	(0.020)	(0.019)	(0.020)	(0.016)	(0.018)	(0.017)
WHITE	0.130***	0.036	0.141***	-	-	-
	(0.027)	(0.026)	(0.027)			
RURAL	-0.086***	-0.091***	-0.113***	-0.015	-0.054***	-0.051**
	(0.023)	(0.021)	(0.023)	(0.019)	(0.020)	(0.021)
PARENT	0.110***	0.057**	0.073***	0.060***	0.039	0.027
	(0.024)	(0.026)	(0.025)	(0.020)	(0.024)	(0.023)
USE_COMP	-	-	-	0.617***	0.318***	0.545***
				(0.018)	(0.017)	(0.018)
WEB_DAILY	-	-	-	-	-	-
HS_INCMPL	-	-	-	-	-	-
HS_TECH	-	-	-	-	-	-
COLLEGE_UP	-	-	-	-	-	-
INC0TO20	-	-	-	-	-	-
INC20TO40	-	-	-	-	-	-
INC40TO60	-	-	-	-	-	-
INC60TO100	-	-	-	-	-	-
INC100PLUS	-	-	-	-	-	-
Constant	0.824	0.789	0.714	0.307	0.495	0.267
R-squared	0.183	0.116	0.150	0.432	0.195	0.3385
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000

*Note: corresponding robust standard errors denoted in parentheses below variable coefficient, * represents statistical significance at the 10% level, ** represents statistical significance at the 5% level, *** represents statistical significance at the 1% level and beyond, [4] Regressions with use_comp,web_daily, education, and income variables removed [5] Regressions with race, web_daily, education, and income variables removed*

Table 7: OLS Regression Results Continued

	Dependent Variable		
Variable	*CONVENIENT*[6]	*BEST BARGAINS*[6]	*SAVES TIME*[6]
AGE	-0.002	-0.009***	-0.001
	(0.002)	(0.002)	(0.002)
AGE SORD	-0.000	0.000**	-0.000*
	(0.000)	(0.000)	(0.000)
FEMALE	-0.017	-0.073***	-0.035**
	(0.017)	(0.018)	(0.017)
WHITE	-	-	-
RURAL	-0.013	-0.047**	-0.046**
	(0.020)	(0.020)	(0.021)
PARENT	0.064***	0.037	0.028
	(0.021)	(0.024)	(0.022)
USE COMP	-	-	-
WEB DAILY	0.502***	0.299***	0.475***
	(0.020)	(0.020)	(0.020)
HS INCMPL	-	-	-
HS TECH	-	-	-
COLLEGE UP	-	-	-
INC0TO20	-	-	-
INC20TO40	-	-	-
INC40TO60	-	-	-
INC60TO100	-	-	-
INC100PLUS	-	-	-
Constant	0.496	0.563	0.413
R-squared	0.392	0.206	0.334
Prob > F	0.000	0.000	0.000

*Note: corresponding robust standard errors denoted in parentheses below variable coefficient, * represents statistical significance at the 10% level, ** represents statistical significance at the 5% level, *** represents statistical significance at the 1% level and beyond, [6] Regressions with race, use_comp, education, and income variables removed*

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Notes

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