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IDENTITY THEFT: DOES THE RISK VARY WITH DEMOGRAPHICS?

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Identity Theft:
Does the Risk Vary With Demographics?

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Abstract

This paper examines whether the likelihood that an individual will experience identity theft varies with the individual's demographic characteristics, using data from the Federal Trade Commission's 2003 survey on identity theft. The likelihood that a person will be a victim of identity theft does appear to vary with the person's demographics. Consumers with higher levels of income are more likely to be victims of ID theft – particularly ID theft that only involves placing unauthorized charges on the victim's existing credit cards. Similarly, those with more education may be somewhat more likely to be victims. On the other hand, older people may face a somewhat reduced risk. Here the reduction appears to be mainly in the risk of experiencing more than just unauthorized charges on existing credit cards, including the risk that new accounts will be opened or other frauds committed using the victim's personal information. Women are more likely to be victims than men. The risk of ID theft also appears to be related to household composition: One is more likely to be a victim if he or she is the only adult who lives in the household. Having more children in the household is also associated with an increased likelihood of becoming a victim of identity theft. Finally, ID theft appears to be more likely if consumers live in some regions of the country than if they live in other regions.

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"... the greatest threat to consumers today is the growing menace of identity theft. Identity theft is far more insidious and harmful to our national welfare than many realize. It attacks the trust and confidence that nurture our open economy, even as it destroys individual lives."

John W. Snow
Secretary of the Treasury
June 30, 2003[1]

Rarely does a week go by without some new story about identity theft and its victims. However, this attention to ID theft is a fairly new phenomenon. Widespread publicity on victims of identity theft began in the late 1990s.[2] This increased publicity ultimately gave rise to a series of Congressional hearings and, in 1998, passage of the Identity Theft Assumption and Deterrence Act.[3] Among other things, this statute directed the Federal Trade Commission to begin collecting consumer complaints related to identity theft, to establish a central repository for such complaints, and to refer complaints to the appropriate entities. In addition, the Commission was directed to provide assistance to victims and conduct consumer education efforts in the area.[4] Until 1996, no state had a separate statute that recognized ID theft as a distinct crime. Today, only the State of Colorado has no such statute.

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[1] As quoted on www.identitytheft911.com/education/fundamentals/idtheftstatistics.htm, visited April 12, 2005.

[2] George Milne reports that of 1,892 articles on identity theft found in an electronic search of the Lexis-Nexis major newspaper database through 2001, 768 had been published in 2001. The number of articles published in 2000 was just over 500, so that articles published in those two years accounted for two-thirds of all articles on the subject. The number of articles per year first reached 100 in 1997 and ranged between 100 and 200 in 1997, 1998, and 1999. (George R. Milne, "How Well Do Consumers Protect Themselves from Identity Theft?," *The Journal of Consumer Affairs*, 37 (Winter 2003), pp. 388-402.)

Much of the most recent attention has been directed at breaches in company data bases which expose consumers' personal information to potential misuse, including ID theft. According to ChoicePoint, a major provider of consumer data to businesses and government, at least 94 breaches in databases containing consumer information have been disclosed between January 1 and August 17, 2005. (See http://www.privacyatchoicepoint.com/index.html (visited August 23, 2005).)

[3] Identity Theft Assumption and Deterrence Act, Public Law 105-318, 112 Stat. 3007 (October 30, 1998). (See Graeme R. Newman and Megan M. McNally, "Identity Theft Literature Review," Paper Presented at National Institute of Justice Focus Group Meeting, January 27-28, 2005, available at http://www.ncjrs.org/pdffiles1/nij/grants/210459.pdf (visited August 2, 2005), p. 2.)

[4] Federal Trade Commission, "Overview of the Identity Theft Program," October 2003.

Given the short time during which attention has been paid to identity theft, not surprisingly, there is much that is not known about this crime and its victims. Only within the last couple of years have there even been reliable estimates of the incidence of ID theft.[5] Much remains to be learned. This paper attempts to address the lack of knowledge in one area – whether and how the risk of becoming a victim of identity theft varies with a person's demographic characteristics.[6]

Measures of Identity Theft

In examining this issue, the overall likelihood that an individual has experienced identity theft will be considered, along with the likelihood of experiencing different types of ID theft. Three different subsets of ID theft are considered. The paper begins by defining these concepts and looking briefly at the frequency with which these three types of ID theft occur and the costs associated with each type.

Overall Likelihood of ID Theft. With the overall measure of identity theft, anyone whose existing accounts – either credit card accounts or non-credit card accounts, such as bank accounts, utility accounts, or telephone accounts – have been misused is considered to be a victim. In addition, victims include anyone whose personal information has been misused to open new credit accounts or to commit other types of frauds. A telephone survey of more than 4,000 individuals conducted for the Federal Trade Commission in March and April of 2003 found that 4.6 percent of survey participants had been a victim of identity theft defined in this

[5] In particular, the Federal Trade Commission conducted a survey on identity theft in the spring of 2003. See *Federal Trade Commission – Identity Theft Survey Report* ("FTC ID Theft Survey Report"), prepared by Synovate, September 2003. (The report is available at http://www.ftc.gov/os/2003/09/synovatereport.pdf.)

[6] Newman and McNally (2005) point to the need for additional research about identity theft and, in particular note the need for research about the sociodemographic characteristics of victims. The paucity of existing research about identity theft is also noted in Julia S. Cheney, "Identity Theft: A Pernicious and Costly Fraud," Discussion Paper, Payment Cards Center, Federal Reserve Bank of Philadelphia, December 2003; and Tracey Sharp, Andrea Shreve-Neiger, William Fremouw, John Kane, and Shawn Hutton, "Exploring the Psychological and Somatic Impact of Identity Theft," *Journal of Forensic Science*, 49 (January 2004), pp. 1-6.

While no one has previously examined the issue of vulnerability to ID theft, an approach similar to what we do here has been used to examine the risk of consumer fraud. See, *e.g.*, Jinkook Lee and Horacio Soberon-Ferrer, "Consumer Vulnerability to Fraud: Influencing Factors," *Journal of Consumer Affairs*, 31 (Summer 1997), pp. 70-89; Jinkook Lee and Loren V. Geistfeld, "Elderly Consumers' Receptiveness to Telemarketing Fraud," *Journal of Public Policy & Marketing*, 18 (Fall 1999), pp. 208-217; and Keith B. Anderson, *Consumer Fraud in the United States: An FTC Survey*, Federal Trade Commission Staff Report, August 2004.

way during the previous year.[7] (See Table 1.) Projecting to the population of adults in the U.S. suggests a total of 9.9 million U.S. adults had been victims of ID theft in the previous year.[8] A

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[7] See FTC ID Theft Survey Report, p. 7. Random digit dialing was utilized to generate the sample and, unless otherwise noted, results are weighted to make the sample conform to the characteristics of the population as a whole.

The estimates of the incidence of ID theft are actually lower bound estimates. Some participants in the survey indicated that they did not know, or declined to answer questions about, whether they had experienced identity theft. Others indicated that they had experienced identity theft at some point in time, but did not indicate when they had discovered that their information had been misused. (The survey was structured so that participants were first asked whether they had ever been a victim of the various types of identity theft. Those who indicated that they had experienced identity theft at some time were then asked when they had first discovered that their personal information had been misused.) In arriving at the estimates in the FTC ID Theft Survey Report, it was implicitly assumed that those who did not know whether or not they had been a victim had, in fact, not been a victim. Similarly, it was assumed that those who did not know when they had discovered the misuse of their information had not, in fact, discovered the misuse during the relevant period – either the last one or five years, depending on the time period of the estimate.

If we make other assumptions about the actual experiences of those who did not know the answers to various questions – or refused to answer – we arrive at somewhat higher estimates of the percentage of Americans who were victims of ID theft – 5.3 percent in the year prior to the FTC survey and 13.4 percent in the last five years. These estimates are based on the assumption that the proportion of victims among people who said that they did not know whether they were victims of ID theft was equal to the proportion among those who did know. In addition, we assume that those who knew that they were victims but did not know when they had discovered that their personal information was being misused were in fact victims within the last one or five years, respectively. (We would, of course, get even larger estimates if we assumed that everyone who said that they did not know whether they were a victim was, in fact, a victim. However, such an assumption seems unreasonable. Experiencing identity theft is generally quite traumatic and we therefore suspect that most people who have, in fact, discovered that they were victims of ID theft will recall that. In most cases, it seems more likely that people who said that they did not know if their information had been misused were really saying that, as far as they knew, their information had not been misused. However, they could not know for sure.)

[8] In estimating the number of victims, the share of participants reporting that they had experienced a particular type of ID theft is simply multiplied by 215.47 million – the total U.S. population age 18 and over as of July 1, 2002. (http://eire.census.gov/popest/data/national/tables/asro/NA-EST2002-ASRO-01.php (visited July 14, 2003)) This methodology should provide a reliable estimate of the number of victims of identity theft during the year preceding the survey. However, it may overstate the number of separate incidents of ID theft that occurred during that year. The problem arises because accounts are often jointly held by two or more

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total of 12.7 percent of participants indicated that they had been a victim of some kind of ID theft in the last 5 years, suggesting that 27.4 million Americans had been a victim of some form of ID theft during that period.[9]

More recently, using generally the same questions as those used by the Federal Trade Commission, a survey sponsored by Javelin Research estimated that 4.25 percent of American adults – 9.3 million people when projected to the entire population – had been victims of ID theft during the one-year period ending in September / October of 2004.[10] The difference between the Javelin estimate of the incidence of ID theft and that of the FTC is not statistically significant. Indeed, in most respects the Javelin survey finds that the problem of identity theft had not changed significantly between the period covered by the FTC survey and that covered by the Javelin survey.[11]

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[8] (...continued)
persons – *e.g.*, a husband and wife. In the context of the survey, the misuse of such an account would have been reported by any of the people who use the account since they would have considered it to be "their" account and multiplying by the total adult population implicitly counts each such individual separately. In terms of the number of victims, this is probably appropriate since each of the individuals on such a joint account is presumably a victim. However, each of these victims does not represent a separate incident of ID theft.

[9] When participants were asked when they first discovered that their information was being misused, the structure of the response categories included "4 years to less than 5 years" and "5 years to less than 6 years." We cannot therefore include those who indicated that the misuse occurred 5 years ago without also including anyone who indicated that it occurred 5 years and 3 months ago. However, it seemed that people who were describing an event that occurred 5 or more years ago would have been unlikely to give an answer that was any more detailed than the nearest year. Therefore, we have included those who placed the discovery of the misuse in the "5 years to less than 6 years" category when we examine those who discovered the misuse in the last 5 years.

The FTC survey was conducted in four waves with approximately 1,000 people being interviewed in each wave. Because we lacked sufficient funds to conduct full interviews with all victims in the final wave, we chose not to ask follow-up questions of those who indicated that their existing credit cards had been misused, but that they had not been victims of the more complex kinds of ID theft. As a result, we do not know when the misuse was discovered for those in the final wave of interviews who experienced the simpler type of ID theft. In estimating incidence figures, we have assumed that the proportion of such victims in the final wave who experienced misuse in the last year, or in the last five years, is equal to the proportion of such victims in the first three waves who had experienced the misuse in the same time period.

[10] See Javelin Strategy & Research, *2005 Identity Fraud Survey Report*, January 2005.

[11] Other surveys have found similarly high estimates of the incidence of ID theft. An (continued...)

"Unauthorized Credit Card Charges Only" v. "More Than Unauthorized Credit Card Charges." The all-inclusive measure is consistent with the legal definition of identity theft.[12] However, this broad measure includes a variety of different situations that are likely to differ both in the amount of damage that results from the ID theft and in the amount of effort consumers must expend in seeking to resolve their problems. In addition to knowing how the risk of ID theft varies with a consumer's characteristics, it will be interesting to see whether those with particular characteristics are more likely to experience relatively simple or relatively complicated forms of ID theft.

In seeking to separate the relatively simple cases from the more complicated ones, the first thing to note is that some consumers who have been the victim of ID theft have only experienced unauthorized charges on their credit card bills – what some experts have called payment fraud or credit card fraud.[13] This could have occurred because the consumer's card had been lost and someone picked it up and used it to make a purchase. Or, it could have occurred because a "shady" telemarketer charged the consumer for a purchase even though the consumer does not believe that he or she agreed to make the purchase.

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[11] (...continued)
online survey of 3,462 individuals conducted in May 2003 found that 33.4 million adult Americans had been victims of identity theft at some point in their lifetimes. Of these 30 percent – or approximately 10 million adults – said that they had been a victim during 2002 or the first 4.5 months of 2003. (This survey was conducted by Harris Interactive for Privacy & American Business.) Another survey, also conducted during May of 2003, estimated that 7 million U.S. adults had been victims of identity theft during the previous year. This survey also estimated that the existing credit card accounts of an additional 8.9 million Americans had been misused during the same time period. (See Aviah Litan, "Underreporting of Identity Theft Rewards the Thieves," *Gartner Inc. Market Analysis*, July 7, 2003. A total of more than 11 million Americans had their existing credit card accounts misused according to the Gartner survey. However, of these, approximately 2.4 million were also victims of identity theft.)

[12] The Identity Theft and Assumption Deterrence Act of 1998, Pub. L. No. 105-318, 112 Stat. 3007, *as amended by* the Identity Theft Penalty Enhancement Act, Pub. L. 108 - 275, 118 Stat. 831, (July 15, 2004) made it a crime to "knowingly transfer[], possess[], or use[], without lawful authority, a means of identification of another person with the intent to commit, or to aid or abet, any unlawful activity. . ." A "means of identification" is defined as "any name or number that may be used, alone or in conjunction with any other information, to identify a specific individual." The Fair Credit Reporting Act, 15 U.S.C.§ 1681 *et seq.*, *as amended by* The Fair and Accurate Credit Transactions Act of 2003, Pub. L. 108-159, 117 Stat. 1952, (December 4, 2003), gave the Commission authority to expand upon the minimal definition of "identity theft" contained in that Act. Accordingly, the Commission defined identity theft as "a fraud committed or attempted using the identifying information of another person without authority." *See*16 C.F.R.§ 603.2(a) (2005).

[13] See Cheney (2003), p. 4.

Where consumers' identity theft experiences only involve unauthorized charges on an existing credit card account, it is likely to be relatively easy for them to resolve their problems. Furthermore, what needs to be done is fairly widely known. A call to the credit card company should lead to an investigation of the charge and its removal if the charge was not authorized by the card holder.

Therefore, in seeking to determine what to include in the less-complicated measure, one could include all cases where consumers only had their existing credit cards misused. However, this seems to go a bit too far. In some instances where an existing credit card is misused, the thief also fraudulently assumes ownership of the card, known as "account takeover." For example, the person using the account may seek to have the address to which the monthly bills are sent changed so that the account holder will not receive the bills and therefore may not realize that unauthorized charges are being made. The person may also attempt to have themselves added as an authorized user of the account and ask to have an additional card sent to him or her.

Where existing credit card accounts are not just misused, but are also taken-over, the results of the FTC survey show that the resulting problems are substantially greater than where accounts are just misused. (While the actual question in the survey asked whether an *attempt* was made to take over an existing credit card account – and therefore presumably would capture both successful and unsuccessful attempts – these instances will be referred to as involving account takeovers in order to simplify the exposition.) First, the likelihood that the victim's personal information will be used to open new accounts or commit other types of fraud is significantly higher where an existing account is taken over. In 49 percent of incidents involving account takeover, the victim's personal information was also used to open new accounts or commit other types of fraud. In contrast, where unauthorized charges were placed on an existing credit card account, but there was no account takeover, new accounts were opened or other frauds committed in only 21 percent of cases.[14] The costs borne by the victim – both in time and money – are also significantly greater where there is an account takeover.[15]

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[14] The difference in the incidence of new accounts being opened depending on whether an existing account was taken over or not is statistically significant at the 1 percent level.

[15] The median amount of time the victim spent resolving problems related to identity theft was in the range of 10 to 39 hours when an existing credit card account was misused and the account was taken over. (These figures include victims who, in addition to having their existing credit cards misused and taken-over also had other existing accounts misused and/or had their information used to open new accounts or commit other frauds.) Where existing credit card accounts were misused, but not taken-over, the median amount of time spent was in the range of 2 to 9 hours. A chi-square test for the difference in the distributions here is statistically significant at the 1 percent level.

In terms of money lost by the victim, the percentage of victims who incurred no expense

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ID theft victims are therefore divided between those who have experienced more serious types of ID theft – which are called "More Than Unauthorized Credit Card Charges," or just "More than Unauthorized Charges" – and those whose experience was limited to "Only Unauthorized Credit Card Charges," or just "Only Unauthorized Charges." The More Than Unauthorized Charges group includes those victims who said that their existing credit card accounts were taken-over. In addition, it includes those cases where existing accounts other than existing credit card accounts were misused and cases where the victim's personal information was used to open new accounts or commit other frauds.[16]

As shown in Table 1, in the year before the FTC survey was conducted, an estimated 2.4 percent of U.S. adults experienced More than Unauthorized Charges, while an estimated 2.2 percent were victims of Only Unauthorized Credit Card Charges. Considering the five year period before the survey, 7.5 percent of survey participants were victims of More than Unauthorized Charges, while 5.2 percent were victims of Only Unauthorized Charges.[17]

New Accounts & Other Frauds. The final, and narrowest, set of identity theft experiences includes only the most-serious kinds of ID theft, those cases where the victim's personal

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[15] (...continued)
was significantly lower when there was a takeover – 75 percent of victims incurred no expense when there was no takeover, 52 percent where there was. The difference in the percentage of victims who incurred no financial cost is statistically significant at the 5 percent level.

[16] It might be argued that, just as we put cases that only involve unauthorized charges on a credit card in the group of less-complex cases, we should do the same with cases that involve only unauthorized charges on existing non-credit card accounts. We have not done this for two reasons. First, the survey data do not permit us to distinguish between instances that were limited to unauthorized charges on non-credit card accounts and instances that were more complex. More importantly, however, we are not persuaded that misuse of a non-credit card account can be simple in the same sense as it is with a credit card. For one thing, the procedures needed to resolve the problems associated with misuse are not as simple or widely known when a non-credit card account is involved. In addition, consumers do not have the same legal protections if their non-credit card accounts are misused as when their credit card accounts are misused.

[17] In estimating the number of victims of Only Unauthorized Charges and of More Than Unauthorized Charges, one has to figure out what to do with people who did not know whether an attempt had been made to take over the existing credit card accounts that had been misused. We have assumed that the percentage of these people who had their accounts taken over was equal to the percentage of take-overs among those who said that they knew whether or not this had happened.

information was used by the criminal to open new accounts or to commit other types of frauds.[18] Considering only this type of ID theft – which is a subset of the cases included in the More than Unauthorized Credit Card Charges category – captures the cases which tend to result in the highest costs for society and the individual victim and to be the most difficult to resolve. This category of ID theft will be called "New Accounts & Other Frauds" or just "New Accounts." As shown on Table 1, 1.5 percent of U.S. adults were estimated to have discovered that their personal information had been used to commit this type of identity theft in the year prior to the FTC survey. During the five year period before the survey, 4.7 percent of adults were estimated to have been victims.[19]

New credit card accounts were the most common type of new account opened. Almost one quarter of survey participants who were victims of New Account & Other Frauds ID theft indicated that their personal information had been used to open a new credit card account.[20] New loan accounts and new telephone service accounts were the next most commonly cited types of new accounts with approximately 15 percent of New Account victims indicating that each of

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[18] There are two ways in which a survey participant could be classified as suffering from New Account & Other Frauds ID theft. First, one of the initial questions on the survey asked if the person had "ever been the victim of a different form of Identity Theft, one that involved more than just the misuse of existing accounts or numbers? That is, has anyone used your personal information without your permission, to obtain NEW credit cards or loans in your name, run up debts in your name, open other accounts, or otherwise commit theft, fraud, or some other crime?" Later in the survey, participants who indicated that they had experienced any kind of ID theft were asked whether various types of new accounts had been opened using their information and whether various other frauds had been perpetrated using their information. Participants who answered "Yes" either to the initial question or to one of the more specific questions that indicated that a new account had been opened or another fraud committed were classified as being victims of New Account & Other Fraud ID Theft.

Because of the way the survey questions were structured in the first wave of 1,000 interviews, it is not possible to separate out those who had experienced New Account & Other Fraud ID Theft from those who had existing accounts other than credit card accounts misused. This problem was resolved in subsequent waves. In estimating the incidence of New Account & Other Fraud ID Theft, it was assumed that, among participants in wave 1, those who were victims of New Account & Other Frauds made up the same proportion of those in the combined group as was found in the subsequent three waves.

[19] Using alternative assumptions about the experiences of those who did not answer the relevant questions would result in estimates of the incidence of this type of ID theft of 1.7 percent in the one-year period prior to the survey and 4.9 percent in the five-year period.

[20] Because we could not determine which people in the first wave of the survey were victims of New Accounts & Other Frauds (see note 18, above), the figures in this and the following paragraph are based only on the responses of people who were interviewed in the second, third, and fourth waves of the survey.

these types of accounts had been opened using their information. About 10 percent of New Account victims said that new checking or savings accounts had been opened.

The most commonly reported type of "Other Fraud" was presenting the victim's identifying information to law enforcement authorities when the person who committed the identity theft was stopped by law enforcement authorities or was charged with a crime. Just over 10 percent of survey participants who were victims of New Account ID theft reported that the person who stole their information had engaged in this type of activity. Seven percent of these victims reported that the person who stole their information had used the information to obtain a driver's license, Social Security card or other government documents. Three types of misuse – to rent an apartment or house, to obtain medical care, and to obtain employment – were each reported by just over 5 percent of these victims.

The Costs of Identity Theft

Table 2 provides information on the estimated costs of identity theft. First, survey participants who had been victims of ID theft in the previous five years were asked to estimate the gross value of what was stolen using their personal information.[21] Including all types of identity theft, the median amount per incident was in the range of $500 to $999.[22] In 46 percent of cases, the value the thief obtained was estimated to be less than $500, while it was more than $5,000 in 18 percent of cases. Where the identity theft involved More Than Unauthorized Credit Card Charges, victims reported that the thief got less than $500 in 39 percent of incidents, while victims reported that the thief got more than $5,000 in 27 percent of incidents. Where Only Unauthorized Charges were involved, 57 percent of victims reported that the thief got less than $500, while 40 percent of victims of New Accounts & Other Frauds reported that the thief got $5,000 or more.

The individual whose personal information is used to obtain money or goods ultimately does not lose the total amount that the thief obtained. For example, if the thief obtains goods or services using an existing credit card, the loss becomes a liability of the company that issued the credit card or the merchant who sold the product, depending on the particulars of the transaction.[23] However, victims may ultimately pay some of the cost of what was stolen – if for

[21] Victims were asked "What is the approximate total dollar value of what the person obtained while misusing your information? In answering this question, include the value of credit, loans, cash, services, and anything else the person may have obtained."

[22] Because the data on the costs were only tabulated in ranges, we can only state the median value as falling within one of the ranges used in collecting the data.

[23] Where a seller can "authenticate" the identity of the purchaser, such as when a purchase is made in a face-to-face transaction and the purchaser presents his or her credit card to the seller, the liability for fraud is placed on the party who issued the purchaser's credit card,

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no other reason, just to resolve the matter and protect their credit records. In addition, the victim may incur expenses in the effort to clean up the problems that result from the ID theft.[24]

In only a minority of incidents did the victims actually incur any out-of-pocket costs. In 67 percent of incidents, survey participants who experienced ID theft reported that they did not incur any such expenses. On the other hand, victims reported incurring expenses of at least $500 in 12 percent of incidents.

Not surprisingly, the likelihood of having out-of-pocket expenses is higher in those cases that involve more complicated problems. Where the ID theft involved Only Unauthorized Credit Card Charges, victims reported that they incurred no expenses in 80 percent of cases, while expenses of $500 or more were reported in only 5 percent of cases.[25] However, when More Than Unauthorized Credit Card Charges were involved, victims reported incurring no expenses in only 58 percent of incidents. In 17 percent of these cases, victims reported incurring expenses of $500 or more. Where New Accounts & Other Frauds were involved, victims reported incurring costs of $500 or more in 25 percent of cases.

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[23] (...continued)
provided the merchant complies with the appropriate card-authorization procedures. However, in a situation – such as most purchases made on the Internet – where it is not possible to "authenticate" the identity of the purchaser, the liability for fraud is placed on the seller. (Robin Sidel and Mitchell Pacelle, "Credit-Card Breach Tests Banking Industry's Defenses," *Wall Street Journal*, June 21, 2005, p. C-1, and Cheney (2003), pp. 8-9.)

[24] Because the victim's out-of-pocket costs include such things as amounts paid to lawyers and amounts paid for postage that are not included in the value of what the thief obtained, one cannot subtract the out-of-pocket cost borne by the victim from the amount stolen using the victim's information to arrive at an estimate of the net cost borne by businesses. Similarly, because the victim may have paid some of the cost of what the thief obtained, the victim cost figure cannot be added to the estimate of what the thief obtained to obtain a "total cost" of ID theft.

[25] It is somewhat surprising that even 20 percent of the victims of this type of ID theft report that they incurred out-of-pocket expenses, since consumers are supposed to be protected against losses that result from the misuse of their credit cards. Unfortunately, there is no precise way to determine what happened in the cases where consumers reported losses as a result of unauthorized credit card charges. Possible explanations for such losses may include (i) that the misuse was caused by a family member or friend and the card holder chose not to pursue the matter to have the charge removed, (ii) that consumers were unable to persuade the merchant that the charge resulted from identity theft, (iii) that consumers did not realize that the charge was fraudulent until after the bill was paid and they chose not to pursue efforts to recoup the money, or (iv) that consumers did not notify the company within the time allowed under the Fair Credit Billing Act.

Even where victims do not incur any monetary cost, they may have to spend time dealing with the problems created by the theft of their information. Including all ID theft incidents, the median amount of time victims reported spending resolving their problems was in the range of 2 to 9 hours. For cases that involved Only Unauthorized Charges, the median amount of time spent was 1 hour or less, and victims spent less than 10 hours in 84 percent of these cases. When New Accounts & Other Frauds were involved, the median was in the range of 10 to 39 hours, and victims spent 80 hours or more resolving their problems in 22 percent of cases.

Predicted Demographic Effects

Turning now to the consideration of demographic effects, it may seem as an initial matter that the risk of ID theft should not vary significantly from one individual to another and therefore that demographics should not affect the likelihood of becoming a victim. One does not do something to become a victim – it just happens to you. However, a little deeper reflection suggests that this is really not the case. The risks faced by consumers do differ, and these differences may manifest themselves in differences across groups with different demographic characteristics.

First, consumers who have more credit and engage in more transactions using this credit may have an increased risk of becoming a victim, *ceteris paribus*. There are simply more opportunities to steal the personal information of someone who uses five credit cards to make 20 purchases per week than of a person who only uses cash. Similarly, the risk of having a non-credit card account misused is likely to rise with the number of such accounts.

Generally, it would seem that having more accounts and making more use of them would be correlated with the consumer's income level. Therefore, higher income levels might be associated with a higher risk of experiencing identity theft – particularly the misuse of existing accounts. Similarly, older consumers may face less risk than younger consumers if they make fewer purchases and make less use of credit cards and other forms of credit.

Second, the risk of becoming a victim of identity theft may be affected by where a consumer does business. The risk would seem to be lower when consumers deal with businesses they know. On the other hand, consumers who make purchases from entities that are unknown to them, either personally or by reputation, may be running an increased risk of victimization. There is some reason to suspect that the likelihood that consumers deal with unknown companies may decline with age. Anderson (2004) found that the percentage of consumers who said that, in the last year, they had purchased something in response to a telemarketing call from a company with whom they had not previously done business declined from 6.4 percent of those between 25 and 34 years of age to 1.4 percent of those who were 65 or over. Similarly, those who had purchased a product by telephone, Internet, or mail after seeing a television advertisement or

infomercial declined from 25.3 percent among those in the 25 to 34 year-old age group to 17.7 percent of those aged 65 or over.[26]

Consumers can also take a variety of steps to reduce their risk of becoming a victim of identity theft or reduce the extent of the problem if they do become a victim. For example, the Federal Trade Commission recommends that consumers deposit outgoing mail in secure post office collection boxes or at the post office rather than leaving it for the postal carrier to pick up at their homes. In addition, the Commission recommends that consumers shred or tear up charge card receipts, copies of credit applications or offers, insurance forms, and bank or credit card statements before disposing of them.[27]

In addition, consumers can take steps to limit the damage that results if they do become victims of identity theft. Quick discovery is a key factor in limiting the amount of damage that occurs and the complexity of the resulting problems. Where victims took less than a month to discover that their personal information was being misused, victims incurred no out-of-pocket expenses in 75 percent of cases. However, where six months or more elapsed before the misuse was detected, victims avoided incurring expenses in only 42 percent of cases. Similarly, where the misuse was discovered within one month, victims said that they spent less than ten hours resolving their problems in 78 percent of instances. Where more than six months elapsed before the misuse was discovered, only 23 percent of victims were able to resolve their problems in less than ten hours. Finally, new accounts were opened or other frauds committed in only 23 percent of cases where the misuse was uncovered within one month of when it began. Where it took six or more months to uncover the misuse, new accounts were opened or other frauds were committed in 73 percent of cases. Thus, consumers can limit the potential damage from identity theft by monitoring their financial accounts so that they more quickly discover any improper transactions.

While consumers can clearly take steps to avoid becoming a victim of identity theft and to minimize the problems that result if they do become a victim, in order to benefit from these steps, the consumer must be aware of the recommendations and follow them. If certain demographic groups are more efficient in obtaining this kind of information and in adapting their behavior to incorporate the recommendations into their behavior, they may show a reduced likelihood of becoming a victim of identity theft – particularly of becoming a victim of the more traumatic types of ID theft.

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[26] Keith B. Anderson, *Consumer Fraud in the United States: An FTC Survey*, Staff Report of the Bureaus of Economics and Consumer Protection, Federal Trade Commission, August 2004, p. 21.

[27] Federal Trade Commission, "ID Theft: What's It All About?," (available at http://www.ftc.gov/bcp/conline/pubs/credit/idtheftmini.pdf.)

Schultz (1975) suggests that people with more education and more experience are better at adapting their behavior when new information suggests a change.[28] Ippolito and Mathios (1989) also suggest that consumers who have more education may be more likely to read print media and be exposed to news sources.[29] Knowledge of identity theft and the suggestions for protecting oneself against it are likely to come from print media and news sources. Therefore, higher levels of education may be associated with a lowered risk of becoming a victim of identity theft.

The ability to adapt to changed circumstances may also be reflected in other demographic variables. Following Shultz's suggestion that additional experience also increases the ability to adapt to changed circumstances, the likelihood of adopting risk reducing behaviors and therefore experiencing lower rates of ID theft may increase with age. Higher levels of income may also be associated with superior ability to adjust to new information.[30] Those who are more able to adjust to changed circumstances in a business setting are more likely to achieve the level of success associated with higher income levels. This same ability to adapt may be reflected in people's reaction to new information in their role as consumers. Thus, higher levels of income may be associated with greater adoption of steps to protect the consumer from identity theft and therefore lower risk. However, because higher levels of income may also be associated with more use of credit and additional transactions thereby increasing the risk of victimization, the overall effect of income on the likelihood of becoming a victim is unclear. The risk may rise or fall depending on whether the increased use of credit or the superior ability to adjust dominates.

The risk of experiencing identity theft may also be affected by household composition. First, the risk may depend on whether there is a single adult in the household or whether two or more adults live there. Ippolito and Mathios suggest that families with two or more adults may have a relative advantage in acquiring new information. In households inhabited by multiple adults, it may not be necessary that each adult be exposed to the information about identity theft. If one person reads about the problem and how to protect oneself, the information can be shared with other members of the family. Furthermore, to the extent that employing the risk-reducing strategies requires consumers to spend more time paying their bills, monitoring their accounts and disposing of mail and records, there may be economies if two or more adults can share these

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[28] Theodore W. Shultz, "The Value of the Ability to Deal With Disequilibria," *Journal of Economic Literature*, 13 (September 1975), pp. 827-846.

[29] Pauline M. Ippolito and Alan D. Mathios, *Health Claims in Advertising and Labeling: A Study of the Cereal Market*, Bureau of Economics Staff Report, Federal Trade Commission, August 1989, pp. 63-64.

[30] This suggestion is also found in Ippolito and Mathios (1989).

duties.[31] Thus, households with only a single adult may face a higher risk of experiencing identity theft than will households with two or more adults.

Second, the number of children in the household may have an effect on the risk of experiencing ID theft. There are at least two reasons to believe that households with more children may be more likely to become victims of identity theft. First, where there are children, adults in the household will necessarily spend time on the children. As a result, they may have less time to spend acquiring new information about the risks of identity theft or taking steps to protect the household. Second, the presence of children is likely to be accompanied by additional transactions – possibly transactions made by the children themselves using their parents' credit cards, etc. Again, this increases the risk of becoming a victim of identity theft.

In addition to the variables discussed above, the possible effects of several other demographic variables are considered, though without specific predictions as to how they should affect the risk of ID theft. Rather, these variables are included because they are commonly included when looking at demographic effects. Among these variables are the gender of the person and whether they are married or not. Also included are variables denoting the person's race and ethnicity. The categories included are (i) non-Hispanic white, (ii) African American, (iii) Hispanic, (iv) Asian, and (v) Other.[32] Finally, the possibility of differences depending on the region of the country in which one lives is considered

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[31] It is, of course, quite possible that a household with multiple adults will have more bills than one with only a single adult. Similarly, a multiple-adult household may have more records that need to be protected and more accounts that need to be monitored. However, the hypothesized relationship would hold provided the number of bills, accounts, etc., does not increase proportionately with the number of adults in the household.

[32] The categories used here are limited by the data collection methods used by Synovate's TeleNation survey. Following the approach recommended by OMB, Synovate first asks whether the person being interviewed is of "Hispanic, Latino or Spanish origin" and then asks a separate question "And, which of the following best describes your race?" The answers provided for this question are "White, Black, and Asian." This approach reflects the fact that being of Hispanic origin is not a racial designation and, at least conceptually, allows one to reflect this in the analysis. However, more than 50 percent of those who answered "Yes" to the question about being of Hispanic, Latino or Spanish origin, then indicated that they were not white, black, or Asian, when asked the race question. That is, they are classified as being of an "other" race. This may well reflect that they consider Hispanic to be their race. (We have seen similar response patterns in other surveys with which we are familiar where this two-question approach to race and ethnicity has been used.) Given this result, we chose to use a single variable reflecting race or ethnic origin. Those who indicated that they were Hispanic in the first question are put into the Hispanic category and those who are non-Hispanic are classified according to their responses to the racial question.

Statistical Methodology

Multivariate probit regression estimations are used to estimate the relationship between ID theft risk and the various demographic characteristics. As a result, the reported results show how the predicted probability of being a victim of ID theft changes with a change in the variable being analyzed, holding constant the values of all other variables included in the analysis.[33] Probit analysis is appropriate because, for each individual observation, the dependent variable has one of two values, indicating that this person was or was not the victim of the type of ID theft being examined.[34]

As is common in regression analysis using survey results, problems arise because not every participant answers every question asked.[35] To avoid losing a large number of observations because of these missing data, a common approach known as conditional mean imputation has been employed. This approach uses the relationships among the various variables included in a model to estimate the most-likely value for those instances where the value of a variable is missing.[36] For example, assume that one wanted to estimate the equation

$$y_i = a_{0i} + a_1 X_{1i} + a_2 X_{2i} + a_3 X_{3i} + a_4 X_{4i} \qquad (1)$$

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[33] Of course, the estimated relationship cannot account for other factors that may affect the risk of identity theft but are not included in our equations. If any such factors are correlated with any of the variables that are included in the equation, it is possible that any relationship found is the result of the relationship between the omitted variable and the risk of ID theft and not the relationship between the included variable and the risk.

[34] For a detailed treatment of probit analysis, see John H. Aldrich and Forrest D. Nelson, *Linear Probability, Logit, and Probit Models*, Sage University Paper Series on Quantitative Applications in the Social Sciences, No. 07-045, Sage Publications, 1984, or William H. Greene, *Econometric Analysis*, 3rd edition, Prentice Hall, Inc., 1997.

[35] As shown in Table 3, except for one variable, missing values account for, at most, about 3 percent of total observations. The exception is the income variable where almost 20 percent of participants failed to provide the necessary information.

[36] This technique is used to provide estimated values for missing values of independent variables only. Where the dependent variable – whether the individual is a victim of the type of ID theft being examined – is missing, the observation is still deleted. Missing values of the dependent variables can arise because of the failure of a participant in the survey to answer all of the questions needed to determine whether that person is a victim. In some cases, it is possible to determine that the person is or is not a victim of some types of ID theft, but not to determine whether that person is a victim of another type of ID theft. As a result, the number of observations will vary slightly across equations.

but the data did not have an observed value for X_4 for some observation j. Assuming that data on X_1, X_2, and X_3 were available for observation j, one would run the ancillary regression

$$X_{4i} = b_{0i} + b_1 X_{1i} + b_2 X_{2i} + b_3 X_{3i} \quad (2)$$

using data for all observations where one had values for all of these variables. Using the resulting estimated coefficients and the observed values of X_1, X_2, and X_3, for observation j, the mean estimate for the value of X_{4j} conditional on the observed values for the other variables would be estimated. Using this estimated value to replace the missing value, observation j could then be included in estimating equation (1).[37] This approach improves the efficiency of the estimates relative to the alternative approach of simply deleting any observation that has a missing value for one or more variables. In addition it may reduce the likelihood of biased estimates.[38]

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[37] If there was an observation k which was missing values for both X_3 and X_4, one would estimate the value of these two variables from two ancillary regressions, one with X_3 as the dependent variable and the other with X_4. The independent variables in these regressions would be X_1 and X_2. That is, the technique uses whatever information is available for a particular observation in estimating the conditional mean values for the variables for which there are no values. (For a more complete discussion of this technique see Roderick J.A. Little and Donald B. Rubin, "The Analysis of Social Science Data With Missing Values," in *Modern Methods of Data Analysis*, John Fox and J. Scott Long, editors, Sage Publications, 1990, pp. 374-409. *See also* Roderick J.A. Little and Donald B. Rubin, *Statistical Analysis With Missing Data*, Second Edition, Wiley-Interscience, 2002. For a recent application of this approach, see Philip DeCicca, Donald Kenkel and Alan Mathios, "Putting Out the Fires: Will Higher Taxes Reduce the Onset of Youth Smoking?," *Journal of Political Economy*, 110 (February 2002), pp. 144-169.)

In implementing the conditional-mean-imputation procedures with our categorical variables, when it was possible to convert a categorical variable to a continuous variable, we did so prior to performing the imputation. For example, with the education variables, we created a years-of-schooling variable by assigning a value of 12 to those who graduated from high school and a value of 14 to those who said that they had attended some college but did not graduate, etc. The auxiliary regression then provided an estimated number of years of education for those cases where the education variable was missing. After the imputation, the categorical variable was recreated by assigning an observation to the category implied by the imputed value. Thus, for example, if the predicted value of education was 15 years, the person was assumed to belong to the attended some college category. When there was no logical way to create a continuous variable – for example for the variables describing race and ethnicity – we created separate dummy variables for each of the values of the categorical variables and generated imputed values for each of the dummy variables. We then use these values, which can be considered estimates of the likelihood that the individual fell within each category, in the final regression.

[38] Estimates based only on those cases where complete data are available may be biased

(continued...)

Empirical Results

Tables 4 and 5 provide the results of the analysis of the likelihood of identity theft victimization using each of the measures described above.[39] The dependent variable in each case indicates whether an individual was a victim of the particular type of ID during the five year period before the FTC survey was conducted. The results in Table 4 utilize conditional mean imputation so that observations that have missing values are not lost. Regressions using only those observations for which complete data was available – complete case estimation – were also run. These results, which are reported in Table 5, provide a check on the robustness of the results and a check against the potential of conditional mean estimation results to overstate statistical significance.[40] The distribution of the values for all explanatory demographic variables are reported in Table 3.[41]

In Tables 4 and 5, the first column of the table provides estimates of how the overall likelihood of having experienced any type of ID theft is affected by differences in the demographic variables, while the other columns provide similar estimates using the other measures of ID theft. In each case, two different measures of the effect of a change in a variable are provided. The first is the "marginal effect," which is the percentage point change in the likelihood of experiencing ID theft resulting from a change in the value of the variable, holding

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[38] (...continued)
if missing observations do not occur randomly. (See Little and Rubin (1990), p. 380.)

[39] Our regression results are based on weighted regressions with the weights reflecting the relative likelihood of being included in the sample. The weights have two components. The first are the standard weights that adjust for the under- or over-representation of certain demographic groups within the sample of people who participated in the survey. The weights to make this adjustment were furnished by Synovate. Second, as discussed in footnotes 9 and 18 above, we were unable to identify victims of certain types of identity theft among those who were interviewed in certain waves of the survey. Where this affects the number of victims included in our regressions, we have increased the weight given to known victims to reflect the fact that there is a reduced likelihood of observing this type of ID theft. The weights used here are the number of people interviewed in those waves of the survey where a victim of the particular type of ID theft could be identified as a proportion of all people interviewed in the survey.

[40] With conditional mean estimation, the standard errors on the coefficients may be biased downward. There is uncertainty about the true values where means have been used as the estimated value for a missing value. However, this uncertainty is not reflected in the estimates from the final equation. As a result, the measures of statistical significance may be overstated. (See Little and Rubin (1993), p. 376.)

[41] The data in Table 3 are based on unweighted observations.

the values of all other variables in the equation constant.[42] Consider, for example, the first entry in the first row and first column of Table 4, which provides estimates of the change in the likelihood of any kind of identity theft if one has an income between $25,000 and $50,000 rather than an income of less than $25,000. (An income of less than $25,000 is the base case for the analysis of the relationship between income level and risk.) The "Marginal Effect" of this change is 1.867, which shows that a change in income from less than $25,000 to $25,000 to $50,000 results in an increase of 1.867 percentage points in the likelihood of having experienced any kind of identity theft during the five years before the FTC survey, holding all of the other variables in the equation constant.

The second measure is the relative effect – that is, the change as a percentage of the risk in the base case. Looking again at the first row and column of Table 4, the 1.867 percentage point increase that results from increasing an individual's income from less than $25,000 to between $25,000 and $50,000 represents a 19.1 percent increase from the estimated likelihood of experiencing ID theft with the base income of under $25,000.

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[42] In estimating the marginal effects of any one variable, we first estimate the marginal effect for each individual observation, given the observed values of all of the other independent variables. We then average these estimated marginal effects across individuals to arrive at an average effect. That is, the marginal effect of variable j – $MargEff_j$ – is

$$MargEff_j = 1/n \, \Sigma_i \, [Pr(y_i \mid x_{ij} = 1, X_i) - Pr(y_i \mid x_{ij} = 0, X_i)]$$

where $Pr(y_i \mid x_{ij}, X_i)$ is the probability that individual i will be a victim given that the individual has characteristics x_{ij} and X_i,

x_{ij} is the assumed value of variable j for individual i, and

X_i represents the observed values of other characteristics included in the equation for individual i.

In several cases, our equations include more than one variable to represent different values of the same characteristic. For example, income is represented by four variables representing incomes between (i) $25,000 and $50,000, (ii) $50,000 and $75,000, (iii) $75,000 and $100,000, and (iv) $100,000 and above. (A variable representing incomes of less than $25,000 is not included because this is the base case in the regressions.) In estimating the marginal effect of different levels of income, for example, incomes between $50,000 and $75,000 relative to that for the base case income of less than $25,000, we set all of the other income variables equal to zero both in the equation with income of $50,000 to $75,000 set equal to one and where it is equal to zero. By doing this, we correctly compare the case with income less than $25,000 – where all of the income variables are equal to 0 – with the case with income between $50,000 and $75,000 – where that particular variable takes a value of 1 and all of the other income variables are equal to 0.

In addition to the two measures of the effect of the variable under consideration, an indication of the statistical significance of the particular characteristic is provided. More precisely, the asterisks in the right-most portion of the column indicate the statistical significance of the corresponding estimated probit coefficients that underlie the reported effects.[43] Measures of statistical significance are provided both for each individual variable and jointly for all of the variables that describe the same demographic characteristic. While the individual coefficient tests measure the significance of the difference in risk between those who have that particular value of the characteristic in question and those who have the value designated as the base case, the hypothesis that the coefficients on all of the variables representing different values of a particular characteristic are jointly equal to zero is tested in the joint significance tests.

Age. Consider first the relationship between age and the likelihood of becoming a victim of identity theft. In general, older consumers appear less likely to be victims of any kind of identity theft. People between the ages of 25 and 34 have the highest risk of becoming a victim of any kind of ID theft – column (1) of Table 4 – and the estimated risk declines steadily as age increases.[44] The overall relationship between age and the likelihood of experiencing identity theft is significant at the 10 percent level in the conditional mean imputation results in Table 4, though not in Table 5. Both in Table 4 and in Table 5, the only individual difference that is statistically significant is that those who are 75 or over are significantly less likely to be a victim than those in the base group – those who are between 35 and 44. The likelihood of a person who is 75 or over being a victim is 55 or 60 percent lower than that for someone who is between 35 and 44.

Looking at the remaining columns, the effect of age seems to be reflected primarily in the likelihood of experiencing More than Unauthorized Credit Card Charges, including experiencing New Accounts & Other Frauds.[45] There are no statistically significant relationships between any of the age variables and the likelihood of experiencing ID theft limited to Only Unauthorized Charges. On the other hand, there is a negative relationship – which is jointly significant at the 5 percent level in the Table 4 results and at the 10 percent level in Table 5 – between age and the likelihood of experiencing More Than Unauthorized Charges. The likelihood that someone who is 75 or over will experience More than Unauthorized Credit Card Charges or New Accounts & Other Frauds is approximately 85 percent lower than for those who are 35 to 44. These

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[43] The actual probit coefficients and their standard errors are reported in Appendix Tables 1 and 2.

[44] Those between 18 and 24 appear to face a reduced risk relative to those who are 25 to 34, though the differences are not statistically significant. This may reflect the fact that many individuals in this age group are likely to be in college and/or just starting out and therefore to have fewer credit cards and other accounts in their own names than older consumers.

[45] As noted previously, the More than Unauthorized Credit Card Charges category includes New Accounts & Other Frauds.

differences are statistically significant for both measures and in both sets of results.[46] Indeed, the marginal effect of being 75 or older is significantly greater in the More Than Unauthorized Charges equation than in the equation for Only Unauthorized Charges.[47] People between 65 and 74 have a risk that is estimated to be between 35 and 50 lower than those in the base group depending on the estimation technique used and whether one is considering only New Accounts & Other Frauds or is including all cases that involved More than Unauthorized Credit Card Charges. However, these differences are not generally statistically significant.

Income Level. The likelihood of experiencing any kind of identity theft increases with higher income levels. The relationship between income level and the overall likelihood of any kind of ID theft is jointly significant at the 1 percent level using both estimation techniques. The relationship is particularly pronounced at income levels of $75,000 or above. Incomes in the $75,000 to $100,000 range are associated with at least a 50 percent increase in the risk of ID theft relative to the risk faced with an income of less than $25,000. Incomes over $100,000 are associated with an estimated increase of roughly 70 to 74 percent. Both of these differences are statistically significant at a 5 percent level or higher in both tables.

The separate estimations for Only Unauthorized Credit Card Charges and More Than Unauthorized Charges only show a significant relationship between income and the likelihood of victimization in the Only Unauthorized Charges equation, where the overall relationship is significant, as are the individual coefficients on incomes of $75,000 - $100,000 and $100,000 and above. Those with incomes of $75,000 or more appear to be more than twice as likely to be a victim of Only Unauthorized Charges as are those with incomes under $25,000.[48] In the More Than Unauthorized Charges and New Accounts & Other Frauds equations – columns (3) and (4) – the overall relationship between income and risk is not generally significant.[49] In both of these equations, those with incomes in excess of $100,000 are estimated to have a risk that is about 50 percent higher than for those with incomes under $25,000. However, these differences are only

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[46] Our conditional mean imputation results show that those who are 65 to 74 have a lower risk than those in the base group that is statistically significant at the 10 percent level. However, the effect here is not statistically significant in the complete case results.

[47] A Chi-square test for the equality of these two coefficients rejects the hypothesis that they are equal at the 5 percent level of significance. Tests for differences in coefficients across equations were conducted using only those observations for which complete data were available.

[48] While the coefficient on the variable for incomes of $75,00 to $100,000 is actually larger than that for incomes of $100,000 or above, the difference in the two is not statistically significant.

[49] The one exception is in the equation for More Than Unauthorized Credit Card Charges using the complete case approach. Here the overall relationship is significant at the 10 percent level.

significant in the More than Unauthorized Credit Card Charges equation and then only at the 10 percent level.[50]

Education. There is some indication that people with more education are more likely to experience identity theft, with the risk being lowest among those who have only a high school education. In the column (1) results, the risk faced by those who attended some college, graduated from college or had post-graduate training are all more than 20 percent higher that for those with only a high-school education. However, the overall differences are not statistically significant and the only individual difference that is statistically significant is that between those who attended some college and those with only a high-school education. Looking at the sub-categories of ID theft the risk of Only Unauthorized Charges ID theft appears to increase fairly steadily as education level increases beyond high school. Those with post-graduate training are almost twice as likely to experience this type of ID theft as those who only graduated from high school and the difference is statistically significant. However, the overall relationship is still insignificant. Looking at More Than Unauthorized Credit Card Charges and New Accounts & Other Frauds, there is no apparent pattern to the relationship between income and these types of ID theft.

Number of Adults. The risk of identity theft is greater for people who live in households with only one adult. For these people, the conditional mean imputation results suggest that the risk of experiencing some kind of identity theft is about 35 percent higher than for people who live in households with multiple adults. This does not vary much by type of ID theft. Columns (2), (3), and (4) all show increased risks of between 33 and 42 percent for households with only one adult, though the relationship is only statistically significant in the More Than Unauthorized Charges equation.[51]

Number of Children. Households with more than two children appear to be at greater risk than those with no children.[52] In both tables, the overall risk equation – column (1) – shows little difference in risk between households with no children and those with one or two children. However, the likelihood of being a victim is about 45 to 50 percent higher when there are three or more children in the household.

The increased risk appears to be concentrated in the More Than Unauthorized Charges form of ID theft.[53] There is virtually no relationship between the number of children in the

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[50] The differences in the income coefficients between the Only Unauthorized Charges and the More Than Unauthorized Charges equations are not, however, statistically significant.

[51] The Table 5 results here show slightly higher, though generally similar, effects.

[52] Children are defined as those under the age of 18.

[53] The differences in the marginal effects of the number-of-children variables between

(continued...)

household and the risk of experiencing Only Unauthorized Charges. Indeed, the risk of suffering from Only Unauthorized Charges appears to be lower when there are one or two children in the household than when there are no children.[54]

However, the likelihood of experiencing More than Unauthorized Charges is significantly higher even when there are only one or two children in the household in the conditional mean imputation estimates. With one or two children the risk of this type of ID theft is 25 or 42 percent higher than if the household has no children depending on which set of results one considers. If there are three or more children, the risk is roughly double that with no children and is significant at the 1 percent level.[55] Looking just at those who experienced New Accounts & Other Frauds ID Theft, the effect is similar, though the differences are only significant at the 10 percent level in the complete case estimates.

Gender. Holding everything else constant, women appear to be more likely than men to be victims of identity theft. The risk of experiencing some form of ID theft is just over 20 percent higher for women than for men using conditional mean imputation and is about 35 percent higher using just the complete cases. The pattern is very much the same whether examining the risk of Only Unauthorized Credit Card Charges or More Than Unauthorized Charges ID theft. Looking at the likelihood of being a victim of New Accounts & Other Frauds, women appear to have more than a 50 percent higher risk than men and the difference is significant at the 5 percent level in the conditional mean imputation approach and at the 1 percent level including only the complete cases.

Marital Status. Married people may face a somewhat higher risk of identity theft, particularly of Only Unauthorized Charges. However, none of these differences are statistically significant.[56]

Race and Ethnicity. The risk of experiencing identity theft appears to vary with a person's race and ethnicity. The race and ethnicity variables are jointly significant both in the any-kind equation – column (1) – and the More Than Unauthorized Charges equation – column (3) – in both tables. However, the only significant difference seems to be that those in the "Other"

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[53] (...continued)
the Only Unauthorized Credit Card Charges and More Than Unauthorized Charges equations are statistically significant at the 5 percent level both jointly and individually.

[54] This difference is significant at the 10 percent level.

[55] The difference in risk of experiencing More Than Unauthorized Charges between those with three or more children and those with one or two children is significant at the 10 percent level. (Using only those observations for which we have complete data, this difference is significant at the 5 percent level.)

[56] We examined the possibility that marital status would have a different effect for women than for men. However, we found no evidence of any such difference.

category – that is, those who do not describe themselves as African American, Asian, Hispanic, or non-Hispanic white are much more likely to be victims. This group exhibits more than twice the likelihood of ID theft as non-Hispanic whites in all four of the equations. Unfortunately, the survey data do not provide any additional information about the racial or ethnic characteristics of those who are included in the "Other" category. Thus, it is difficult to know what, if anything, to make of these findings.

Geographic Region. Finally, it appears that the risk of experiencing identity theft differs across regions of the country. In most cases, the risk of being a victim appears to be lowest in the mountain states – Arizona, Colorado, Montana, New Mexico, Utah, Wyoming, Idaho (with the exception of that part of the state that is on Pacific time), and the very small part of Oregon that is on Mountain time. The risk generally appears to be highest in Pacific states – California, Nevada, Washington, and those parts of Oregon and Idaho that are on Pacific time.[57]

Conclusion

The likelihood that a person will be a victim of identity theft does appear to be related to demographics. Consumers with higher levels of income are more likely to be victims of ID theft – particularly ID theft that involves Only Unauthorized Credit Card Charges. Similarly, those with more education may be somewhat more likely to be victims. On the other hand, older people may face a somewhat reduced risk. Here the reduction appears to be mainly in the risk of experiencing More Than Unauthorized Charges, including the risk of experiencing New Accounts & Other Frauds ID theft. The risk of ID theft also appears to be related to household composition: One is more likely to be a victim if he or she is the only adult who lives in the household. Having more children in the household is also associated with an increased likelihood of becoming a victim of identity theft. Women are more likely to be victims than men. Finally, ID theft appears to be more likely if consumers live in some regions of the country than if they live in other regions.

While the risk of ID theft varies with several of the demographic characteristics examined, it is important to realize that even those with the characteristics associated with the lowest risks still face a substantial risk of becoming a victim of ID theft. For example, while those aged 75 or older were less likely than younger consumers to be victims of ID theft, an estimated 4.3 percent of these older people were victims of some form of ID theft in the last five years.[58] For younger consumers – those between 25 and 34 – 14.0 percent are estimated to have

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[57] While the difference is not statistically significant, the risk of New Account & Other Frauds ID Theft may be lower in the Northeast than in the Mountain region. On the other hand, the risk of experiencing Only Unauthorized Credit Card Charges in the Northeast appears to be comparable to that in the Pacific region.

[58] These predictions are based on the conditional mean imputation results for any kind of (continued...)

been victims in the last five years. Looking only at the more complex cases – More Than Unauthorized Charges – the figures are 1.0 percent for those over 75 and 8.6 percent for those between 25 and 34.

Similarly, the risk of victimization is lowest in the Mountain region. However, an estimated 5.8 percent of people living in this region have experienced some form of ID theft in the last five years and 3.3 percent have experienced More Than Unauthorized Credit Card Charges. In the Pacific region, where the estimates suggest that the risks are the greatest – an estimated 15.4 percent of consumers have experienced some form of ID theft and 9.0 percent have experienced More Than Unauthorized Charges – in the last five years.

Socio-Demographic Characteristics do matter. However, no one is immune from the risk of ID theft.

[58] (...continued)
ID theft using the actual characteristics of those who had the characteristic in question. Thus, for example, for the income variables in predicting the incidence for those 75 and older, we used the actual distribution of incomes observed among those 75 and over in the survey.

Table 1: Incidence of ID Theft[a]

Victim of:	Misuse Discovered Within	
	Last Year	Last 5 Years[b]
Any Type of ID Theft	4.6% (3.8% - 5.4%)	12.7% (11.4% - 14.0%)
Only Unauthorized Credit Card Charges	2.2% (1.6% - 2.8%)	5.2% (4.3% - 6.1%)
More than Unauthorized Credit Card Charges	2.4% (1.9% - 2.9%)	7.5% (6.5% - 8.5%)
New Accounts & Other Frauds ID Theft	1.5% (1.2% - 1.9%)	4.7% (3.9% - 5.4%)

Notes:

a. Figures in parentheses are 95 percent confidence intervals.

b. The structure of the response categories for the question about when the misuse was discovered included the categories “4 years to less than 5 years” and “5 years to less than 6 years.” It is therefore not possible to include those who indicated that the misuse occurred 5 years ago without also including anyone who indicated that it occurred 5 years and 3 months ago. Because it seemed that people who were describing an event that occurred 5 or more years ago would have been unlikely to give an answer that was any more detailed than the nearest year, we have included those who placed the discovery of the misuse in the “5 years to less than 6 years” category within those who discovered the misuse in the last 5 years.

Table 2: Costs of ID Theft, Misuse Discovered Last 5 Years

	All Types of ID Theft	Only Unauthorized Credit Card Charges	More Than Unauthorized Credit Card Charges	New Accounts Opened or Other Frauds Committed
Gross Value Stolen Using Victim's Personal Information				
Median Value	$500 - $999	$100 - $499	$500 - $999	$1,000 - $4,999
Percent of cases in which thief got:				
Less than $500	46%	57%	39%	27%
$5,000 or more	18%	5%	27%	40%
Out-of-pocket loss to Victims				
Median Value	$0	$0	$0	$0
Percent of cases in which the victim's out-of pocket expenses were:				
$0	67%	80%	58%	54%
$500 or more	12%	5%	17%	25%
Hours Victims Spent Resolving Their Problems				
Median Value	2 to 9 hours	1 hour or less	2 to 9 hours	10 to 39 hours
Percent of cases in which the time the victim spent resolving problems was:				
Less than 10 hours	68%	84%	56%	47%
80 hours or more	10%	4%	15%	22%

Table 3: Distribution of Values for Demographic Variables and Predicted Relationship to Risk of ID Theft

	Observations by Characteristic[a]	
	Number	**Percent**
Income Level		
Less than $25,000	870	21.4%
$25,000 - $50,000	1,058	26.1%
$50,000 - $75,000	576	14.2%
$75,000 - $100,000	396	9.8%
$100,000 or above	364	9.0%
Not known	793	19.5%
Age		
18 to 24	390	9.6%
25 to 34	695	17.1%
35 to 44	744	18.3%
45 to 54	792	19.5%
55 to 64	578	14.3%
65 to 74	399	9.8%
75 or over	336	8.3%
Not known	123	3.0%
Education		
Did not complete high school	389	9.6%
Graduated from high school	1,348	33.2%
Attended some college	938	23.1%
Graduated from college	880	21.7%
Post-graduate training	413	10.2%
Not known	89	2.2%

Table 3 (cont.)

	Observations by Characteristic	
	Number	**Percent**
Number of Adults in Household		
Multiple adults in the household	2,915	71.8%
One adult in household	1,017	25.1%
Not known	125	3.1%
Number of Children		
No children	2,490	61.4%
1 or 2 children	1,110	27.4%
3 or more children	354	8.7%
Not known	103	2.5%
Gender		
Male	1,959	48.3%
Female	2,098	51.7%
Not known	0	0.0%
Marital Status		
Single	1,674	41.3%
Married	2,305	56.8%
Not known	78	1.9%
Race and Ethnicity		
Black or African American	351	8.6%
Hispanic	272	6.7%
Asian	84	2.1%
Non-Hispanic White	3,119	76.9%
Other	114	2.8%
Not known	117	2.9%

Table 3 (cont.)

	Observations by Characteristic	
	Number	**Percent**
Georgraphic Region		
Northeast	814	20.1%
Midwest	941	23.2%
South	1,422	35.1%
Mountain	264	6.5%
Pacific	616	15.2%
Not known	0	0.0%

Note.
a. Based on unweighted observations.
b. We hypothesize that those who live in households with only one adult will be more likely to be victims than those who live in household with more than one adult.

Table 4: Likelihood of Being a Victim of Different Types of ID Theft, Effect of Demographics (Conditional Mean Imputation Estimates)[a]

	Any Type of ID Theft (1)			Only Unauthorized Credit Card Charges (2)			More than Unauthorized Credit Card Charges (3)			New Account & Other Frauds (4)		
	Marginal Effect	Relative Change	Sig.	Marginal Effect	Relative Change	Sig.	Marginal Effect	Relative Change	Sig.	Marginal Effect	Relative Change	Sig.
Age (Relative to 35 to 44)												
18 to 24	-2.829	*-20.5%*		-1.515	*-32.2%*		-2.065	*-23.1%*		+0.962	*+19.4%*	
25 to 34	+0.277	*+2.0%*		+0.255	*+5.4%*		-0.417	*-4.7%*		+1.430	*+28.9%*	
45 to 54	-0.132	*-1.0%*		+0.726	*+15.4%*		-1.229	*-13.8%*		-0.619	*-12.5%*	
55 to 64	-1.741	*-12.6%*		-0.044	*-0.9%*		-2.230	*-25.0%*		-0.270	*-5.4%*	
65 to 74	-2.603	*-18.8%*		+0.455	*+9.7%*		-3.500	*-39.2%*	*	-2.119	*-42.8%*	
75 or over	-8.312	*-60.1%*	***	-1.313	*-27.9%*		-7.432	*-83.3%*	***	-4.336	*-87.5%*	**
Joint Significance			*			ns			**			ns
Income (Relative to Less Than $25,000)												
$25,000 - $50,000	+1.792	*+17.3%*		+0.911	*+30.1%*		+0.878	*+13.0%*		+1.114	*+28.0%*	
$50,000 - $75,000	-0.629	*-6.1%*		+0.471	*+15.6%*		-0.932	*-13.8%*		+0.088	*+2.2%*	
$75,000 - $100,000	+5.109	*+49.3%*	**	+4.422	*+146.3%*	**	+1.048	*+15.5%*		+1.416	*+35.6%*	
$100,000 or above	+7.900	*+76.2%*	***	+4.381	*+144.9%*	**	+3.493	*+51.8%*	*	+2.191	*+55.1%*	
Joint Significance			***			**			ns			ns

Table 4 (cont.)

	Any Type of ID Theft (1)			Only Unauthorized Credit Card Charges (2)			More than Unauthorized Credit Card Charges (3)			New Account & Other Frauds (4)		
	Marginal Effect	Relative Change	Sig.	Marginal Effect	Relative Change	Sig.	Marginal Effect	Relative Change	Sig.	Marginal Effect	Relative Change	Sig.
Education (Relative to High School Graduate)												
Did not complete high school	+0.411	*+3.8%*		+0.328	*+9.5%*		+0.386	*+5.7%*		-0.164	*-3.6%*	
Attended some college	+3.275	*+30.3%*	**	+1.279	*+36.8%*		+1.895	*+28.2%*		+1.178	*+26.0%*	
Graduated from college	+2.365	*+21.9%*		+1.915	*+55.1%*	*	+0.756	*+11.2%*		+0.216	*+4.8%*	
Post-graduate training	+3.136	*+29.0%*		+3.236	*+93.2%*	**	-0.028	*-0.4%*		-0.379	*-8.4%*	
Joint Significance			ns			ns			ns			ns
Number of Adults in Household (Relative to More than One)												
One adult in household	+4.100	*+34.9%*	**	+1.526	*+34.5%*		+2.265	*+32.6%*	*	+1.888	*+42.1%*	
Number of Children in Household (Relative to None)												
1 or 2 children	+0.838	*+7.2%*		-1.874	*-34.6%*	*	+2.495	*+42.4%*	**	+2.321	*+65.7%*	**
3 or more children	+6.014	*+51.3%*	**	-0.629	*-11.6%*		+6.172	*+104.8%*	***	+4.222	*+119.4%*	**
Joint Significance			**			ns			***			**
Gender (Relative to Male)												
Female	+2.457	*+21.7%*	**	+0.870	*+20.3%*		+1.534	*+23.2%*	*	+2.052	*+54.6%*	**
Marital Status (Relative to Single)												
Married	+1.919	*+16.8%*		+1.343	*+34.4%*		+0.109	*+1.5%*		+0.943	*+22.1%*	

Table 4 (cont.)

	Any Type of ID Theft (1)			Only Unauthorized Credit Card Charges (2)			More than Unathorized Credit Card Charges (3)			New Account & Other Frauds (4)		
	Marginal Effect	**Relative Change**	**Sig.**	**Marginal Effect**	**Relative Change**	**Sig.**	**Marginal Effect**	**Relative Change**	**Sig.**	**Marginal Effect**	**Relative Change**	**Sig.**
Race and Ethnicity (Relative to Non-Hispanic White)												
Black or African American	+0.238	*+2.0%*		+0.070	*+1.5%*		+0.230	*+3.4%*		+1.021	*+23.0%*	
Hispanic	+3.201	*+27.2%*		-0.530	*-11.8%*		+3.300	*+48.4%*	*	+0.878	*+19.7%*	
Asian	+3.044	*+25.8%*		+0.817	*+18.2%*		+1.072	*+15.7%*		-0.955	*-21.5%*	
Other	+16.007	*+135.9%*	***	+8.351	*+185.6%*	**	+8.842	*+129.7%*	***	+7.568	*+170.1%*	***
Joint Significance			***			ns			**			ns
Region of the Country (Relative to Pacific)												
Northeast	-3.330	*-21.1%*		+0.407	*+7.4%*		-4.231	*-42.2%*	**	-4.809	*-64.3%*	***
Midwest	-4.932	*-31.3%*	**	-1.595	*-28.8%*		-3.848	*-38.4%*	**	-4.061	*-54.3%*	**
South	-2.459	*-15.6%*		-0.968	*-17.5%*		-1.706	*-17.0%*		-1.622	*-21.7%*	
Mountain	-8.886	*-56.4%*	***	-3.115	*-56.3%*	*	-5.768	*-57.5%*	***	-4.046	*-54.1%*	*
Joint Significance			**			ns			**			***
Number of Observations	*3,789*			*3,796*			*3,874*			*3,839*		
Percent Positive Values	*12.58%*			*4.72%*			*7.40%*			*4.82%*		
Chi-Square for Overall Significance	*86.07*		***	*64.03*		***	*88.92*		***	*67.53*		***

(Notes on next page.)

Table 4 (cont.)

Notes.
a Asterisks denote the statistical significance of the underlying probit coefficients.
* ** significant at the 1 percent level
** significant at the 5 percent level
* significant at the 10 percent level
ns not statistically significant

Table 5: Likelihood of Being a Victim of Different Types of ID Theft, Effect of Demographics (Complete Case Estimates)[a]

	Any Type of ID Theft (1)			Only Unauthorized Credit Card Charges (2)			More than Unathorized Credit Card Charges (3)			Any Type of ID Theft (4)		
	Marginal Effect	Relative Change	Sig.	Marginal Effect	Relative Change	Sig.	Marginal Effect	Relative Change	Sig.	Marginal Effect	Relative Change	Sig.
Age (Relative to 35 to 44)												
18 to 24	-3.043	*-21.4%*		-0.963	*-20.5%*		-2.048	*-22.1%*		+1.195	*+23.3%*	
25 to 34	-0.122	*-0.9%*		-0.051	*-1.1%*		-0.515	*-5.6%*		+1.835	*+35.7%*	
45 to 54	-0.376	*-2.6%*		+0.897	*+19.1%*		-1.444	*-15.6%*		-0.612	*-11.9%*	
55 to 64	-1.384	*-9.7%*		+0.233	*+5.0%*		-1.865	*-20.2%*		-0.164	*-3.2%*	
65 to 74	-2.684	*-18.9%*		+0.137	*+2.9%*		-3.188	*-34.5%*		-2.596	*-50.6%*	
75 or over	-7.845	*-55.1%*	**	-0.349	*-7.4%*		-7.940	*-85.9%*	***	-4.271	*-83.2%*	**
Joint Significance			ns			ns			*			ns
Income (Relative to Less Than $25,000)												
$25,000 - $50,000	+2.448	*+23.3%*		+0.643	*+19.9%*		+1.835	*+27.4%*		+1.799	*+43.2%*	
$50,000 - $75,000	-1.433	*-13.6%*		+0.023	*+0.7%*		-1.012	*-15.1%*		+0.099	*+2.4%*	
$75,000 - $100,000	+6.174	*+58.7%*	**	+4.959	*+153.7%*	***	+1.522	*+22.7%*		+1.143	*+27.5%*	
$100,000 or above	+7.431	*+70.6%*	***	+3.711	*+115.0%*	**	+3.652	*+54.5%*	*	+2.027	*+48.7%*	
Joint Significance			***			**			*			ns

Table 5 (cont.)

	Any Type of ID Theft (1)			Only Unauthorized Credit Card Charges (2)			More than Unathorized Credit Card Charges (3)			New Account & Other Frauds (4)		
	Marginal Effect	**Relative Change**	**Sig.**	**Marginal Effect**	**Relative Change**	**Sig.**	**Marginal Effect**	**Relative Change**	**Sig.**	**Marginal Effect**	**Relative Change**	**Sig.**
Education (Relative to High School Graduate)												
Did not complete high school	+0.157	*+1.4%*		+0.940	*+26.7%*		-0.418	*-5.9%*		-0.247	*-5.1%*	
Attended some college	+3.454	*+31.2%*	*	+0.945	*+26.8%*		+2.271	*+32.2%*		+1.484	*+30.8%*	
Graduated from college	+2.534	*+22.9%*		+2.211	*+63.1%*	*	+0.570	*+8.1%*		+0.118	*+2.4%*	
Post-graduate training	+4.038	*+36.4%*		+3.508	*+99.6%*	**	+0.614	*+8.7%*		-0.552	*-11.4%*	
Joint Significance			ns			ns			ns			ns
Number of Adults in Household (Relative to More than One)												
One adult in household	+5.782	*+48.5%*	***	+1.415	*+31.1%*		+3.842	*+54.2%*	**	+2.108	*+43.9%*	
Number of Children in Household (Relative to None)												
1 or 2 children	-0.193	*-1.5%*		-2.031	*-36.0%*	*	+1.644	*+25.2%*		+1.942	*+48.0%*	*
3 or more children	+5.721	*+45.7%*	**	-1.309	*-23.2%*		+6.365	*+97.7%*	***	+3.524	*+87.1%*	*
Joint Significance			*			ns			***			ns
Gender (Relative to Male)												
Female	+3.795	*+34.2%*	***	+1.538	*+37.9%*	*	+2.353	*+35.7%*	**	+2.499	*+64.3%*	***
Marital Status (Relative to Single)												
Married	+2.846	*+25.1%*		+1.456	*+36.9%*		+1.113	*+15.6%*		+1.122	*+24.9%*	

Table 5 (cont.)

	Any Type of ID Theft (1)			Only Unauthorized Credit Card Charges (2)			More than Unathorized Credit Card Charges (3)			New Account & Other Frauds (4)		
	Marginal Effect	Relative Change	Sig.	Marginal Effect	Relative Change	Sig.	Marginal Effect	Relative Change	Sig.	Marginal Effect	Relative Change	Sig.
Race and Ethnicity (Relative to Non-Hispanic White)												
Black or African American	+2.102	*+17.9%*		+1.005	*+22.8%*		+1.192	*+17.1%*		+1.524	*+32.8%*	
Hispanic	+4.880	*+41.5%*	*	-0.115	*-2.6%*		+4.453	*+63.8%*	**	+1.625	*+35.0%*	
Asian	+3.638	*+30.9%*		+1.672	*+37.9%*		+0.717	*+10.3%*		-2.608	*-56.1%*	
Other	+19.933	*+169.5%*	***	+10.631	*+241.3%*	***	+10.272	*+147.2%*	***	+9.465	*+203.6%*	***
Joint Significance			***			*			**			**
Region of the Country (Relative to Pacific)												
Northeast	-3.177	*-18.8%*		+0.788	*+12.7%*		-4.248	*-40.4%*	**	-5.072	*-68.3%*	***
Midwest	-5.955	*-35.3%*	**	-2.834	*-45.7%*	**	-3.711	*-35.3%*	*	-3.228	*-43.5%*	*
South	-3.528	*-20.9%*		-1.765	*-28.5%*		-1.971	*-18.8%*		-1.078	*-14.5%*	
Mountain	-10.581	*-62.7%*	***	-4.275	*-68.9%*	**	-6.292	*-59.9%*	***	-3.819	*-51.4%*	
Joint Significance			***			**			**			***
Number of Observations	*3109*			*3116*			*3176*			*3147*		
Percent Positive Values	*13.01%*			*4.82%*			*7.79%*			*5.16%*		
Chi-Square for Overall Significance	*97.61*		***	*69.05*		***	*85.14*		***	*68.22*		***

(Notes on next page.)

Table 5 (cont.)

Notes.

a Asterisks denote the statistical significance of the underlying probit coefficients.

* ** significant at the 1 percent level

** significant at the 5 percent level

* significant at the 10 percent level

ns not statistically significant

Appendix Table 1: Relationship Between Risk of Being Victim of ID Theft and Demographic Characteristics, Probit Coefficients (Conditional Mean Imputation Estimates)[a]

	Any Type of ID Theft (1)	Only Unauthorized Credit Card Charges (2)	More than Unauthorized Credit Card Charges (3)	New Account & Other Frauds (4)
Age (Relative to 35 to 44)				
18 to 24	-0.1435 (0.1395)	-0.1880 (0.2008)	-0.1459 (0.1578)	0.0918 (0.2102)
25 to 34	0.0129 (0.0965)	0.0266 (0.1422)	-0.0272 (0.1059)	0.1323 (0.1311)
45 to 54	-0.0063 (0.0954)	0.0730 (0.1370)	-0.0833 (0.1058)	-0.0669 (0.1413)
55 to 64	-0.0855 (0.1127)	-0.0047 (0.1638)	-0.1589 (0.1220)	-0.0283 (0.1633)
65 to 74	-0.1311 (0.1318)	0.0468 (0.1795)	-0.2688 * (0.1498)	-0.2690 (0.2105)
75 or over	-0.5273 *** (0.1661)	-0.1592 (0.2064)	-0.8566 *** (0.2435)	-0.8948 ** (0.3566)
Income (Relative to Less Than $25,000)				
$25,000 - $50,000	0.0971 (0.0893)	0.1228 (0.1389)	0.0672 (0.0974)	0.1252 (0.1287)
$50,000 - $75,000	-0.0369 (0.1046)	0.0668 (0.1551)	-0.0792 (0.1185)	0.0108 (0.1521)
$75,000 - $100,000	0.2531 ** (0.1220)	0.4478 ** (0.1776)	0.0796 (0.1369)	0.1554 (0.1870)
$100,000 or above	0.3679 *** (0.1264)	0.4448 ** (0.1802)	0.2380 * (0.1428)	0.2271 (0.1908)

Appendix Table 1 (cont.)

	Any Type of ID Theft (1)	Only Unauthorized Credit Card Charges (2)	More than Unauthorized Credit Card Charges (3)	New Account & Other Frauds (4)
Education (Relative to High School Graduate)				
Did not complete high school	0.0228 (0.1202)	0.0429 (0.1804)	0.0305 (0.1319)	-0.0187 (0.1668)
Attended some college	0.1671 (0.0838) **	0.1521 (0.1248)	0.1390 (0.0939)	0.1203 (0.1245)
Graduated from college	0.1237 (0.0889)	0.2157 (0.1239) *	0.0587 (0.1033)	0.0238 (0.1365)
Post-graduate training	0.1606 (0.1119)	0.3308 (0.1458) **	-0.0023 (0.1360)	-0.0441 (0.1874)
Number of Adults in Household (Relative to More than One)				
One adult in household	0.1962 (0.0883) **	0.1527 (0.1336)	0.1604 (0.0980)	0.1853 (0.1294)
Number of Children in Household (Relative to None)				
1 or 2 children	0.0434 (0.0780)	-0.2114 (0.1118) *	0.1916 (0.0867) **	0.2529 (0.1100) **
3 or more children	0.2747 (0.1120) **	-0.0633 (0.1729)	0.4075 (0.1218) ***	0.4060 (0.1632) **
Gender (Relative to Male)				
Female	0.1248 (0.0619) **	0.0933 (0.0873)	0.1159 (0.0701) *	0.2222 (0.0903) **
Marital Status (Relative to Single)				
Married	0.0983 (0.0851)	0.1479 (0.1215)	0.0082 (0.0978)	0.1025 (0.1324)

Appendix Table 1 (cont.)

	Any Type of ID Theft (1)	Only Unauthorized Credit Card Charges (2)	More than Unathorized Credit Card Charges (3)	New Account & Other Frauds (4)
Race and Ethnicity (Relative to Non-Hispanic White)				
Black or African American	0.0124 (0.1093)	0.0077 (0.1590)	0.0180 (0.1211)	0.1062 (0.1543)
Hispanic	0.1547 (0.1192)	-0.0616 (0.1919)	0.2244 * (0.1296)	0.0924 (0.1683)
Asian	0.1476 (0.2075)	0.0845 (0.2791)	0.0805 (0.2443)	-0.1188 (0.3087)
Other	0.6206 *** (0.1618)	0.5894 ** (0.2347)	0.5031 *** (0.1717)	0.5606 *** (0.2176)
Region of the Country (Relative to Pacific)				
Northeast	-0.1554 (0.1043)	0.0371 (0.1464)	-0.3048 ** (0.1192)	-0.5162 *** (0.1597)
Midwest	-0.2407 ** (0.1033)	-0.1706 (0.1436)	-0.2711 ** (0.1189)	-0.4016 ** (0.1622)
South	-0.1122 (0.0896)	-0.0979 (0.1296)	-0.1083 (0.0987)	-0.1325 (0.1228)
Mountain	-0.5003 *** (0.1564)	-0.3976 * (0.2279)	-0.4603 *** (0.1733)	-0.3994 * (0.2232)
Constant	-1.4030	-2.0768	-1.5275	-1.9511
Number of Observations	*3,789*	*3,796*	*3,874*	*3,839*
Percent Positive Values	*12.58%*	*4.72%*	*7.40%*	*4.82%*
Chi-Square for Overall Significance	*86.07* ***	*64.03* ***	*88.92* ***	*67.53* ***

Note. a Figures in parentheses are standard errors

Appendix Table 2: Relationship Between Risk of Being Victim of ID Theft and Demographic Characteristics, Probit Coefficients (Complete Case Estimates)

	Any Type of ID Theft (1)	Only Unauthorized Credit Card Charges (2)	More than Unathorized Credit Card Charges (3)	New Account & Other Frauds (4)
Age (Relative to 35 to 44)				
18 to 24	-0.1540 (0.1542)	-0.1149 (0.2136)	-0.1412 (0.1734)	0.1099 (0.2246)
25 to 34	-0.00570 (0.1037)	-0.0056 (0.1573)	-0.0331 (0.1125)	0.1623 (0.1399)
45 to 54	-0.0177 (0.1048)	0.0909 (0.1524)	-0.0967 (0.1165)	-0.0644 (0.1521)
55 to 64	-0.0669 (0.1244)	0.0248 (0.1835)	-0.1274 (0.1332)	-0.0166 (0.1775)
65 to 74	-0.1344 (0.1483)	0.0148 (0.2054)	-0.2337 (0.1669)	-0.3390 (0.2437)
75 or over	-0.4764 ** (0.1863)	-0.0392 (0.2312)	-0.9378 *** (0.2850)	-0.7896 ** (0.3727)
Income (Relative to Less Than $25,000)				
$25,000 - $50,000	0.1302 (0.0939)	0.0864 (0.1458)	0.1353 (0.1022)	0.1866 (0.1364)
$50,000 - $75,000	-0.0867 (0.1131)	0.0033 (0.1648)	-0.0874 (0.1278)	0.0118 (0.1611)
$75,000 - $100,000	0.2990 ** (0.1252)	0.4769 *** (0.1789)	0.1139 (0.1406)	0.1245 (0.1949)
$100,000 or above	0.3502 *** (0.1285)	0.3851 ** (0.1802)	0.2492 * (0.1453)	0.2069 (0.1928)

Appendix Table 2 (cont.)

	Any Type of ID Theft (1)	Only Unauthorized Credit Card Charges (2)	More than Unathorized Credit Card Charges (3)	New Account & Other Frauds (4)
Education (Relative to High School Graduate)				
Did not complete high school	0.0087 (0.1285)	0.1163 (0.1928)	-0.0335 (0.1399)	-0.0270 (0.1829)
Attended some college	0.1747 * (0.0910)	0.1167 (0.1350)	0.1593 (0.1012)	0.1422 (0.1324)
Graduated from college	0.1313 (0.0962)	0.2462 * (0.1349)	0.0432 (0.1106)	0.0125 (0.1404)
Post-graduate training	0.2013 (0.1235)	0.3554 ** (0.1605)	0.0465 (0.1496)	-0.0619 (0.2117)
Number of Adults in Household (Relative to More than One)				
One adult in household	0.2681 *** (0.0967)	0.1422 (0.1385)	0.2535 ** (0.1088)	0.1958 (0.1425)
Number of Children in Household (Relative to None)				
1 or 2 children	-0.0099 (0.0857)	-0.2268 * (0.1239)	0.1238 (0.0944)	0.2011 * (0.1192)
3 or more children	0.2567 ** (0.1218)	-0.1365 (0.1941)	0.3982 *** (0.1311)	0.3296 * (0.1812)
Gender (Relative to Male)				
Female	0.1904 *** (0.0672)	0.1652 * (0.0948)	0.1718 ** (0.0755)	0.2570 *** (0.0969)
Marital Status (Relative to Single)				
Married	0.1446 (0.0930)	0.1601 (0.1301)	0.0817 (0.1060)	0.1159 (0.1405)

Appendix Table 2 (cont.)

	Any Type of ID Theft (1)	Only Unauthorized Credit Card Charges (2)	More than Unathorized Credit Card Charges (3)	New Account & Other Frauds (4)
Race and Ethnicity (Relative to Non-Hispanic White)				
Black or African American	0.1052 (0.1168)	0.1052 (.1680)	0.0876 (0.1282)	0.1480 (0.1628)
Hispanic	0.2288 * (0.1244)	-0.0132 (0.1982)	0.2864 ** (0.1323)	0.1568 (.01729)
Asian	0.1754 (0.2238)	0.1668 (0.2902)	0.0540 (0.2716)	-0.3874 (0.3292)
Other	0.7443 *** (0.1740)	0.7120 *** (0.2437)	0.5586 *** (0.1871)	0.6427 *** (0.2257)
Region of the Country (Relative to Pacific)				
Northeast	-0.1414 (0.1134)	0.0649 (0.1565)	-0.2939 ** (0.1291)	-0.5709 *** (0.1702)
Midwest	-0.2849 ** (0.1131)	-0.3077 ** (0.1569)	-0.2496 * (0.1290)	-0.2992 * (0.1755)
South	-0.1583 (0.0979)	-0.1732 (0.1395)	-0.1224 (0.1079)	-0.0860 (0.1366)
Mountain	-0.5996 *** (0.1691)	-0.5613 ** (0.2379)	-0.4961 *** (0.1909)	-0.3731 (0.2451)
Constant	-1.4620	-2.0696	-1.6333	-2.0021
Number of Observations	*3109*	*3116*	*3176*	*3147*
Percent Positive Values	*13.01%*	*4.82%*	*7.79%*	*5.16%*
Chi-Square for Overall Significance	*97.61* ***	*69.05* ***	*85.14* ***	*68.22* ***

Note. a Figures in parentheses are standard errors