# Does Smoking Harm Wealth As Much As Health?

This research investigates the effect of smoking on an individual's financial situation. Theoretically there are only three possible effects; smoking reduces wealth, smoking increases wealth and smoking has no effect. Using wealth and smoking data from the National Longitudinal Survey of Youth 1979 cohort, this research shows that the typical nonsmokers' net worth is roughly 50% higher than light smokers and roughly twice the level of heavy smokers. Regression results which account for demographic differences between smokers and non-smokers also find a statistically significant negative relationship between net worth and smoking.

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## Introduction

U.S. residents have been warned that smoking is harmful to your health, starting with the 1964 Surgeon General's Report (U.S. Department of Health and Human Services, 1964). While smoking's health effects are currently known, one key unanswered question is: does smoking also harm your wealth? Over the past few years the average individual smoker spent over $700 a year on tobacco products, with heavy smokers and families with multiple smokers spending far more. Given many U.S. families save nothing and the average saves only a few thousand dollars per year, smoking expenditures potentially represent a large proportion of possible savings. If a smoker reduces spending on other items to pay for their habit, smoking has little effect on wealth. Smokers who do not modify their spending habits, however, will see a dollar-for-dollar reduction in wealth compared to similar nonsmokers. Overall, this research finds smoking is associated with lower wealth, even after holding other factors like income constant. This suggests that among U.S. young baby boomers smokers are potentially not modifying their spending.

The typical family in the U.S. currently has relatively little wealth and saves relatively little money. Data from the Survey of Consumer Finances, a tri-annual survey run by the Federal Reserve, provide the best estimates of U.S. wealth holdings. In 2001 the survey shows the median U.S. family had a net worth of just $86,100 (Aizcorbe, Kennickell and Moore 2003, pg. 7). Among families in the bottom quarter of the wealth distribution, the typical family (mean net worth) had zero wealth. Data from the Consumer Expenditure Survey, an annual survey run by the Department of Labor, provides estimates of both U.S. savings and spending on specific items.[2] In 2000, the average family earned $41,532 after taxes and spent $38,045, resulting in annual savings of less than $3,500.

These low figures trouble many individuals who are concerned that they are holding less wealth and saving less money than is prudent. Financial advisors and planners are constantly asked about simple actions, which will improve an individual's economic status. Many news stories and research articles document the effect simple actions such as automatic payroll purchases of savings bonds, maximizing retirement contributions and rearranging financial affairs to minimize taxes have on improving an individual's economic situation. However, research has not investigated the effect of changing personal habits, such as smoking, on an individual's finances. In the 2000 Consumer Expenditure Survey the average family reported spending over $1,300 during the year on alcohol, smoking, and television. Hence, giving up these three activities, while keeping all other expenses the same, potentially increases average savings in 2000 by over one-third.

The key personal finance questions are does smoking impact wealth and if so, by how much? Theoretically there are only three possible choices; smoking reduces wealth, smoking increases wealth and smoking has no effect. For example, if smokers reduce their spending on other items, like entertainment or alcohol, to finance their smoking habit then smoking has no impact on a person's wealth. If smokers and nonsmokers have identical non-tobacco spending patterns but smokers also spend money on cigarettes then smoking simply reduces savings compared to nonsmokers. The last case is that smokers save more money than nonsmokers. Many smokers state that smoking dulls their taste buds, causing them to consume much less food. If food spending falls sharply because of smoking, then smokers' savings rates are potentially even higher than nonsmokers with the same characteristics. Given all three cases are theoretically possible, the only method of resolving the impact of smoking on wealth is to track actual outcomes.

Previous research has indirectly looked at smoking's impact on personal finances. Ruhm (2000) finds that smoking is related to economic conditions and shows that smoking increases during upturns in the economy, when individuals are richer, and decreases during downturns, when individuals are poorer. Levine, Gustafson, and Velenchik (1997) examined the wages of smokers and nonsmokers. They found that even after taking into account a variety of demographic and other characteristics, smokers earned between 4% and 8% less than nonsmokers. Decker and Schwartz (2000) examine the effect of changes in the price of alcohol and cigarettes on their consumption. They find that higher alcohol prices decreased usage of both alcohol and cigarettes. However, higher cigarette prices decreased smoking but actually increased drinking. Thus most smokers and drinkers are not blindly addicted but modify their behavior partially based on financial considerations. Finally, Browning (1987) shows that spending on smoking among people in Great Britain did not fall dramatically during the key ages when children were born. His research suggests that smokers do not make significant changes in their spending habits when major new expenses are incurred.

The rest of this research directly investigates the financial impact of smoking. First, an overview of smoking trends and expenditures in the U.S. is provided. Then the National Longitudinal Survey of Youth 1979 cohort (NLSY79) data set, which tracks both the financial and smoking status of young baby boomers, is described. The third section uses regression analysis to disentangle smoking's impact on personal finances. A conclusion summarizes the research.

### What Do We Know About Smoking?

Smoking has been slowly waning in the United States over the past few decades. The trend is shown in figure 1, which tracks the percentage of adults who currently smoke.[3] The graph shows a relatively steady drop from almost one-third of adults in 1983 down to just 23% of adults by 2001. While the graph begins in 1983 the downward trend does not extend much before this time period, as cigarette usage only began dropping in the late 1970s (U.S. Department of Health and Human Services, 2000, pg. 40, Huang 2004).

Figure 1
Percentage of U.S. Adults Who Currently Smoke.
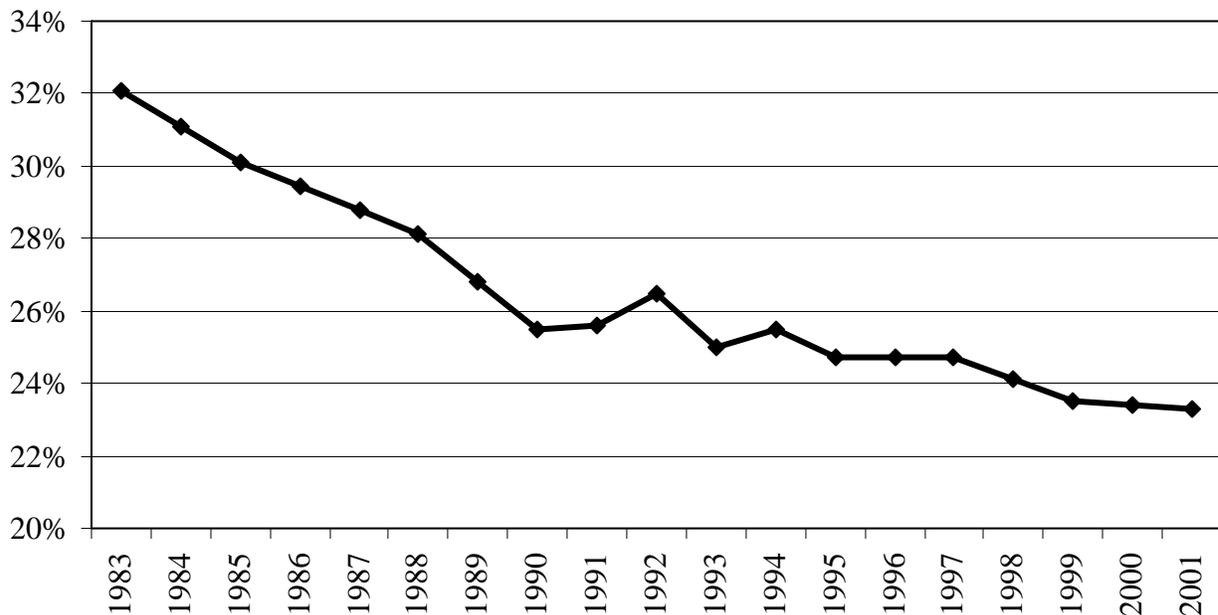


Notes: Data from table 61 of National Center for Health Statistics (2002). The above figure tracks cigarette smoking by persons 18 years of age and over.

The initial impetus for this decline was the Surgeon General's famous 1964 report (U.S. Department of Health and Human Services, 1964) that showed the relationship between smoking and the rise of long-term health

problems such as cancer and emphysema. With this health alert came warning labels on cigarette packs and government regulation of cigarette advertising, especially the banning of ads on television and radio.

Since the 1964 report the U.S. government has tried a multi-prong effort to reduce smoking (U.S. Department of Health and Human Services 2000).[4] Smoking reduction is done via educational programs aimed at both convincing current users to stop and to prevent new users from trying the product. For example, most grade schools now have anti-smoking campaigns designed to convince children not to start. Reduction is also done via regulation. In addition to regulating smoking advertising, many cities and organizations ban indoor smoking, which reduces smokers' ease and convenience. Additionally, stricter rules and enforcement now prevent most minors from purchasing tobacco products, which prevent children from initially trying the product.

A third step to reduce smoking has been the use of litigation. In addition to the many private lawsuits filed against tobacco companies, state governments have successfully sued these companies to recover extra health care costs imposed by smokers. Finally, economic pressure has been exerted on consumers via increased cigarette taxes, which boosts the product's price and reduces demand, particularly among individuals who are not heavy smokers. The success of these four major efforts is clearly seen in the steady decline in smoking tracked by figure 1.

While the percentage of smokers has been falling over time, the amount each smoker spends has not. The amount of money spent on tobacco products each year are tracked by the Consumer Expenditure Survey (CEX). The CEX, a large-scale survey run by the Bureau of Labor Statistics (BLS), asks randomly selected families to track all of their purchases over two-week periods. Aggregate data released by BLS (http://www.bls.gov/cex) show that the average (mean) family recently spent roughly $300 per year on tobacco products.

These aggregate results, however, present a distorted picture. The results are distorted because the majority of U.S. families spend nothing on tobacco products. These families zero spending on tobacco products drags the overall figure downward. Additionally, CEX results are biased because they are not adjusted for inflation or for the shrinking size of U.S. families over time.[5]

Adjusting the CEX information to account for these three biasing factors boosts the $300 figure upward. Figure 2, tracks the adjusted amount of money spent by the average smoker on tobacco products each year. It shows the typical individual smoker spent slightly more than $700 per year on tobacco products in 2001. Over time tobacco spending fluctuates from year-to-year, but there is no overall upward or downward trend.

Figure 2
Amount Spent By The Average Smoker Per Year On Tobacco Products. In 2000 Dollars.
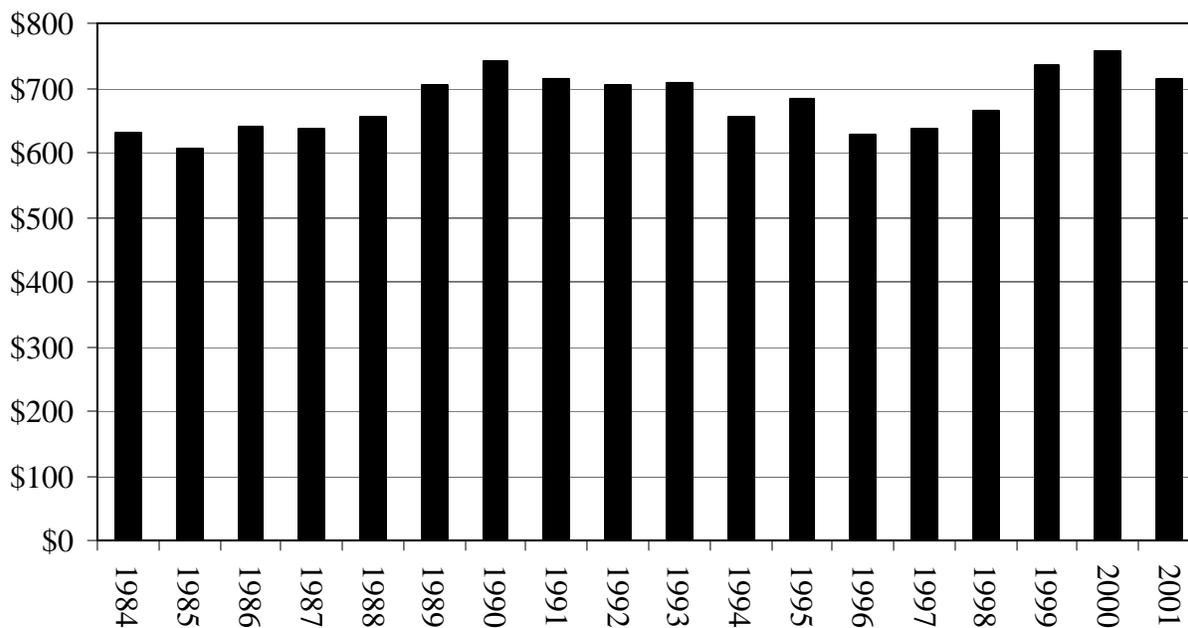


Notes: Tobacco spending data was taken from the multi-year tables of the Consumer Expenditure Survey. The CPI-W and data on the percentage of smokers in figure 1 were used to adjust all current dollar amounts for inflation and the propensity to use tobacco.

While the percentage of individuals smoking has declined over time, a combination of price increases, population growth and strong exports to other countries has not reduced tobacco industry sales. Information from the Bureau of Economic Analysis (BEA), the government agency that tracks U.S. Gross Domestic Product (GDP) reveals that after adjusting for inflation, sales of tobacco manufacturers have risen from over $14 billion dollars in 1987 to approximately $21 billion in 2001.[6] Given the recent change in attitudes toward smoking, tobacco manufacturer's real sales growth of 50% over these 15 years is remarkable, since the overall economy as measured by real GDP grew only a slightly larger 54% over the same time period.

### Young Baby Boomers

While there are many national surveys that provide detailed data on smoking relatively few surveys track both smoking and also provide detailed financial information. This research focuses on the young baby boomer generation because these individuals are tracked by a large-scale survey that contains both financial and smoking information. Young baby boomers, individuals born between the Korean and Vietnam Wars,[7] were also born just before the Surgeon General's famous 1964 report was issued. This means it was the first generation to grow up clearly being warned of tobacco's dangers before ever trying the product.

The National Longitudinal Survey of Youth (NLSY79) tracks the young baby boomers analyzed in this research. The NLSY79 is a panel survey, started in 1979 by the U.S. Department of Labor[8] that periodically goes back and interviews the same people over and over again. Since its inception the survey has questioned the same group of 9,000 people twenty times. This repetitive surveying provides an in-depth picture of how baby boomers are aging over time. While the NLSY79 began in 1979, this research starts its focus in 1984 and ends in 1998, which are the first and last surveys that include smoking information. Additional details about the survey are found in Zagorsky (1997).

The primary goal of the NLSY79 is neither to track smoking or finances. Instead the survey was created to understand how the education and training backgrounds of individuals affect their labor market outcomes. Fortunately, smoking and wealth questions were added to expand the list of factors researchers use to understand the labor market. Beyond the survey's longitudinal aspects the NLSY79 also over-sampled poor individuals, blacks and Hispanics to ensure more accurate research results for these groups.[9]

The two key data series used in this research are the respondent's smoking habits and net worth. Creation of both series is described in the next sections.

Smoking

Young baby boomers in the NLSY79 survey were asked to self-report their smoking status four different times. During the 1984 survey respondents were asked if they had ever tried a cigarette. For those who had smoked, the age they first used a cigarette, the most recent time they had used cigarettes and the number of cigarettes smoked in the past 30 days were recorded. Then in 1992, 1994 and again in 1998 respondents were asked if they had smoked at least 100 cigarettes so far in their life. If they stated yes, they were asked how many cigarettes they smoked each day, the age that they started smoking daily and if they had stopped smoking they were asked the number of months or years since they last smoked daily.

Using this information five variables were created. The first, "Ever Smoke" captures if a respondent ever had at least 100 cigarettes during their life. The second, "Heavy Smoker" captures if a respondent ever reported smoking a pack (20 cigarettes) or more per day on average. The third, "Light Smoker" are defined as individuals who reported ever smoking but never smoked more than a pack a day. The last two created variables, "Years Smoke" and "Years Adult Smoker" track the total number of years the respondent smoked and the total number of years since they were 18 years old. To ensure answers based on these variables are accurate a simple sample selection criterion was used. All respondents used in this research participated in at least three out of the four NLSY79 surveys that asked smoking questions. This criterion ensures a relatively complete smoking history is available for every respondent and the noise caused by respondents with irregular participation is attenuated.[10]

Examining the "Ever Smoke" variable shows that more than half (57.6%) of all boomers reported smoking at least 100 cigarettes during their life. Slightly more than one-third (35%) of young baby boomers were classified as a "Light Smoker" while 22.6% were a "Heavy Smoker" sometime in their life. Looking just at people who reported "Ever Smoking" shows the typical smoker has been using tobacco for over a decade (10.6 years) of their entire life and 7.4 years of their adult lives. Given the typical young baby boomer was less than 37 years old when the last smoking questions were asked, the average boomer who smokes has done so for almost 40% of their adult life. While many boomers smoke for long periods of time, many also quit. The 1998 survey asked respondents if

during their life they ever smoked daily. Among those who classified themselves as a daily smoker: 57% still smoked daily, 33% had quit smoking and 10% smoked only occasionally.

## Wealth

How wealthy or poor are young baby boomers? NLSY79 wealth questions began in 1985 when the youngest respondents were almost 21 years old. Since then survey respondents periodically report details about their assets and liabilities to provide a more complete picture of their financial situation. While the exact number of questions in the wealth module varies, respondents usually provide information on their home's value; outstanding mortgage amount; cash savings; farm, business and real estate holdings; vehicles; possessions; stock and bond holdings; estates and trusts; certificates of deposits; retirement accounts; and major debts.

Each wealth module follows the same simple pattern. Respondents are first asked if they or their spouse currently owe a debt or have an asset. If they answer yes, the interviewer asks them to state the current market value. Summing for each respondent all the asset answers in each wealth module and subtracting from that total all debt answers creates total net worth from each survey. While the complete details of constructing the computed net-worth series are described in Zagorsky (1999), the key equation for computing the total is shown in equation (1). After the total is computed all values are adjusted to account for inflation so amounts are in 2000 dollars.[11]

NET WORTH = HOME VALUE - MORTGAGE - PROPERTY DEBT + CASH SAVING + STOCKS/BONDS/MUTUAL FUNDS + TRUSTS + BUSINESS/FARM/RE EQUITY – BUSINESS/FARM/RE DEBT + CAR VALUE - CAR DEBT + POSSESSIONS - OTHER DEBT + IRA + 401K + CD. (1)

Table 1 shows the median net worth held by young baby boomers when broken down by smoker status.[12] In general the table shows two key facts. First, the median boomer has relatively little net worth no matter which year is examined, with the typical boomer holding less than $75,000 in every year and category analyzed. Second, those who never smoked have much higher net worth in every survey than those who smoked. Among those who smoke, light smokers fare financially much better than heavy smokers. On average those who never smoked have a net worth that is roughly 50% higher than individuals who are light smokers and roughly twice the level of heavy smokers.

Table 1
Median Net Worth of Young Baby Boomers by Smoking Status, in 2000 dollars.

|  | Never Smoked | Light Smoker | Heavy Smoker |
|---|---|---|---|
| **1985** | $6,318 | $4,896 | $3,159 |
| **1992** | $30,809 | $18,950 | $9,414 |
| **1994** | $45,230 | $27,060 | $12,525 |
| **1998** | $73,307 | $49,524 | $23,060 |

Notes: The first wealth module was fielded in 1985, one year after the first set of smoking questions were asked. All other wealth information comes from the same survey as the smoking questions.

## Demographics

What are the demographics of young baby boomers who smoke and who do not? Table 2 answers this question and shows in the top section that whites are over-represented among heavy smokers, while blacks and Hispanics are over represented among the light smokers. The fourth line shows the typical young baby boomer was almost 37 years old in 1998.

The middle section of the table shows that while the overall sample is roughly split between males and females, only 44% of heavy smokers are women. Income appears inversely related to smoking, with less smoking correlated with higher income. AFQT (Armed Forces Qualification Test) scores are used by many in the research community as a proxy for IQ (Hernstein and Murray 1994).[13] By adding roughly 50 points to the AFQT score it approximates IQ. Like income, AFQT scores are inversely related to smoking status with individuals who never

smoked (54.3) having the highest and heavy smokers (38.8) having the lowest scores. Education is also inversely related to smoking status. While 94% of individuals who never smoked received a high school degree only 79% of the heavy smokers finished high school. The next line shows that 61% of the nonsmokers started college but among heavy smokers just 28% started.

The bottom of the demographic table shows that marital status is also related to smoking status. Among individuals who never smoked 74% were married in 1998 but among the heavy smokers only 63% were married at that time. Both heavy and light smokers have slightly more children (1.7 versus 1.6) and also come from slightly larger families (3.5 siblings versus 3.1) than nonsmokers. The final row shows that this research is based on information from almost 9,000 individuals. In general the demographic table shows that heavy smokers tend to be whiter, more male, less married, lower educated and having lower IQ scores than the overall young baby boomer population. Light smokers tend to be more female, come from larger families and be more often a minority than the overall population.

Table 2
Demographics of Young Baby Boomers by Smoking Status in 1998.

|  | *Overall* | *Never Smoked* | *Light Smoker* | *Heavy Smoker* |
|---|---|---|---|---|
| *White* | 78.6% | 78.0% | 74.3% | 86.4% |
| *Black* | 14.7% | 14.9% | 17.5% | 10.1% |
| *Hispanic* | 6.6% | 7.1% | 8.2% | 3.4% |
| *Age* | 36.7 | 36.6 | 36.8 | 36.7 |
|  |  |  |  |  |
| *% Female* | 51% | 51% | 54% | 44% |
| *Income* | $59,243 | $68,788 | $58,156 | $42,962 |
| *AFQT* | 47.9 | 54.3 | 46.0 | 38.8 |
| *High School Degree* | 90% | 94% | 91% | 79% |
| *Started College* | 50% | 61% | 50% | 28% |
|  |  |  |  |  |
| *Married* | 69% | 74% | 68% | 63% |
| *Number Children* | 1.7 | 1.6 | 1.7 | 1.7 |
| *Number Siblings* | 3.3 | 3.1 | 3.5 | 3.5 |
| *Number of Respondents* | 8,908 | 3,804 | 3,352 | 1,752 |

Notes: All variables are weighted using the survey weights, except for number of respondents. Income is adjusted to be in 2000 dollars.

**Financial Effect Of Smoking**

The information above clearly shows young baby boomers that smoke have less wealth than nonsmokers. However, the data also show that smokers are found in lower socio-economic strata than nonsmokers. Does smoking contribute to lower wealth or is smokers' lower wealth the result of a lower socio-economic status? One method of answering this question is to estimate regression models that explain net worth using demographic variables and smoking status. Using a regression framework the specific impact of a particular factor is determined while taking into account the impact of all other explanatory variables.

Table 3, presents the results from all four NLSY79 smoking surveys and shows the effect on net worth of smoking and the other key demographic variables, with t-statistics in parenthesis.[14] To ensure that the small number of extremely wealthy individuals do not exert an undue influence on the results, the top 1% of wealth values in each year were eliminated.

Overall, the coefficients on "Heavy Smoker," "Light Smoker" and "Years Adult Smoker" get progressively larger as the young baby boomers age. For example, a single year of smoking as an adult reduces wealth by just $92 in the 1985 survey, when most boomers were in their early 20s. However, by 1998, when boomers were in their late 30s, each year of adult smoking reduces wealth by $860. These growing coefficients suggest that the detrimental financial impact of smoking increases as the young baby boomer cohort ages.

The rest of the coefficients show that black and Hispanic respondents have lower net worth than white respondents (the omitted group). Being older, more educated and in most years being married increases young boomers net worth, while having more brothers and sisters decreases wealth. Interestingly, AFQT, which is the IQ proxy, does not have a dramatic impact on wealth. Being female and having more children are usually considered key socio-economic factors but the coefficients on these terms are mixed and do not appear to be consistent factors in determining young baby boomer's wealth. The last coefficient shows that individuals with higher income on average have higher net worth.

Table 3
Regressions Showing Impact of Smoking on Net Worth by Survey Year.

| | (1) 1998 Coeff. | T-Stat | (2) 1994 Coeff. | T-Stat | (3) 1992 Coeff. | T-Stat | (4) 1985 Coeff. | T-Stat |
|---|---|---|---|---|---|---|---|---|
| Intercept | -$178,565 | 6.6 | -$134, 680 | 7.7 | -$130,607 | 8.4 | -$38,732 | 7.7 |
| Heavy Smoker | -$11,448 | 1.9 | -$8,473 | 2.2 | -$9,441 | 2.8 | -$2,726 | 2.6 |
| Light Smoker | -$3,618 | 0.9 | -$4,453 | 1.7 | -$652 | 0.3 | -$661 | 0.9 |
| Years Adult Smoker | -$860 | 2.1 | -$566 | 2.2 | -$271 | 1.2 | -$92 | 1.3 |
| Black | -$37,233 | 8.8 | -$27,273 | 10.1 | -$22,910 | 9.5 | -$4,898 | 6.4 |
| Hispanic | -$34,006 | 7.7 | -$15,056 | 5.3 | -$14,106 | 5.6 | -$4,715 | 5.9 |
| Age | $4,525 | 6.4 | $3,636 | 8.0 | $3,432 | 8.4 | $1,136 | 8.1 |
| Female | $855 | 0.3 | $746 | 0.4 | -$905 | 0.5 | -$1,087 | 1.9 |
| Highest Grade | $1,974 | 2.6 | $1,615 | 3.2 | $1,812 | 3.9 | $225 | 1.4 |
| AFQT Score | $188 | 2.4 | $105 | 2.1 | $112 | 2.5 | -$2.9 | 0.2 |
| Married | -$1,761 | 0.5 | $6,472 | 2.9 | $15,316 | 7.8 | $3,287 | 5.0 |
| Num. Children | $260 | 0.2 | $761 | 1.0 | $1,169 | 1.6 | -$515 | 1.5 |
| Num. Siblings | -$733 | 1.2 | -$1,297 | 3.3 | -$1,182 | 3.4 | -$361 | 3.2 |
| Income | $1.86 | 44.7 | $1.04 | 36.5 | $0.75 | 26.6 | $0.48 | 29.8 |
| | | | | | | | | |
| R-Square | 0.35 | | 0.28 | | 0.20 | | 0.21 | |
| Num. Observ. | 7,445 | | 7,984 | | 8,088 | | 8,067 | |

**Conclusions**

Financial advisors and planners are constantly asked about simple actions, which will improve an individual's finances. While the effects of making financial changes are well understood, little research has investigated the effect of changing personal habits. This research investigated the effect of smoking on an individual's financial situation. Theoretically there are only three possible effects of smoking on finances; smoking reduces wealth, smoking increases wealth and smoking has no effect.

To investigate which of the three outcomes actually occurs this research used the National Longitudinal Survey of Youth 1979 cohort (NLSY79), which tracks the life experiences of the young baby boomer cohort over time. NLSY79 respondents were asked in four different surveys about their smoking habits. More than half (57.6%) of all young baby boomers reported smoking at least 100 cigarettes during their life and over one-fifth (22.6%) were heavy smokers sometime in their life. Most young baby boomers that smoked did so for many years. The average respondent who smoked reported doing so for over a decade (10.6 years) of their life and almost 7.5 years since they turned 18 years old.

Using the NLSY79 wealth modules, the net worth of each young baby boomer was also calculated and then divided by smoking status. Overall, the typical nonsmokers' net worth is roughly 50% higher than light smokers and roughly twice the level of heavy smokers. This is not completely surprising since the demographic table shows that individuals who smoke more have less education, less income and less chance they are married, all of which are factors normally associated with lower wealth.

While the net worth penalty is relatively high, how much do smokers spend on their habit? In 2001 the typical smoker spent $715 per year on tobacco products. Multiplying this by the 7.5 years young baby boomers typically have smoked shows the average boomer smoker has spent over $5,300 during their adult life on this habit. This amount is roughly in the range that net worth falls for the typical light smoker and much less than the amount net worth falls for heavy smokers.

Overall, what do all these numbers mean? The results show smoking is clearly associated with reduced wealth. Since the typical family in the U.S. currently has relatively little wealth and saves relatively little money, the financial implications are clear. If you smoke and want to increase your wealth, stop smoking. If you do not currently smoke and want to increase your wealth, do not start.

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<u>Endnotes</u>

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[2] Consumer expenditure data are from the "multi-year" tables.

[3] Data in figure 1 are based on information from the National Health Interview Survey.  Adults who currently smoke are identified via two questions.  The first question asks, "Have you ever smoked 100 cigarettes in your lifetime?" If the respondent answers yes, they are asked "Do you now smoke cigarettes every day, some days, or not at all?"  Respondents stating they now smoke every day or some days are current smokers.

[4] At the same time parts of the government are actively engaged in anti-smoking activities, other portions are supporting tobacco growers.  The Commodity Credit Corporation (CCC) provides loans to farmers when crop prices fall below particular price supports.  In 1999 and 2000 the CCC made $741.5 and $109.2 million dollars in loans to tobacco farmers respectively (U.S. Dept of Agriculture, 2003, pg. XI-2).

[5] CEX data also do not provide information on the number of smokers in the family or the extent of smoking, making it impossible to figure out the amounts spent by heavy and light smokers.

[6] Data from the BEA's "GDP Industry Accounts."  The BEA's Chain-type price index was used to deflate the current dollar figures into 2000 dollars.

[7] The birth dates of NLSY79 respondents and the war dates are close but not an exact match.  The Korean War's armistice was formally signed in July 1953, while the oldest people in the NLSY79 were born in 1957.  The youngest person in the NLSY79 was born in 1964, while 1965 was the first year of significant U.S. casualties in Vietnam with almost 1,900 deaths.

[8] Besides the U.S. Department of Labor a variety of other agencies, such as the Departments of Defense and Justice have provided funding.

[9] Given this over-sampling all results are reported after being adjusted by the survey weights, which removes the over-sampling effects and allows the answers to be considered national totals.  The 1979 survey weights found on the data CD-ROM as variable R02161.00 adjust all data.

[10] The criterion results in 15% of the weighted sample being dropped.

[11] All missing wealth values were imputed.  While many imputation algorithms are available the longitudinal aspect of the NLSY79 data provides a simple but effective solution.  Data were linearly interpolated if bracketing values were available.  This algorithm is a slight refinement to the procedure used in the Netherlands Socio-Economic Panel (Camphuis 1993) and is based on the assumption that wealth changes are primarily low frequency trend movements.  This imputation choice causes some data smoothing because of the interpolation.  However, no matter what algorithm is chosen, the high response rates of the survey mean little imputation was needed.

[12] The median is primarily used in this research instead of the mean to avoid the dramatic fluctuations caused by the presence or absence of very rich individuals.  The mean table (not shown) has very similar results except that all values are roughly a factor of two higher.

[13] The military uses these scores to determine if a candidate is mentally fit to serve.

[14] The survey year variable is equal to the actual year minus 1985.