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# Life Insurance Consumption as a Function of Wealth Change

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## **Life Insurance Consumption as a Function of Wealth Change**

Running head: Life Insurance Consumption

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### **Abstract**

This paper used a large nationally representative longitudinal dataset to explore the association between changing socioeconomic factors and household consumption of life insurance across time. This study specifically examined the association between changes in wealth and life insurance consumption controlling for household characteristics and psychosocial factors. Empirical results indicate that during the 2004-2008 period, an increase in net worth was positively associated with purchases of additional cash value life insurance at the household level. Women and Black households were also more likely to increase their life insurance consumption during this period. Saving intention was likewise found to be positively associated with an increase in household life insurance consumption. Results suggest that life insurance acts a complement to, rather than substitute for, wealth. Implications of the findings of this study for individual investors, scholars and practitioners have been included.

### **Introduction**

Life insurance consumption, and the factors associated with the demand for life insurance, is among the most studied topics in the general business domain. As a result, much is known about the causal triggers of life insurance consumption and the macroeconomic mechanisms that alter the use of life insurance in different marketplaces. Li, Moshirian, Nguyen, and Wee (2007), for instance, noted that governmental expenditures on social insurance programs tend to be inversely related to life insurance demand. They reported that consumers living in markets where social welfare programs are broad and extensive in coverage tend to have reduced costs associated with unexpected death. As such, social welfare tends to act as a substitute for private market life insurance coverage.

Single-period macro-viewpoint studies using social welfare data offer intriguing insights into insurance consumption patterns. Again, consider the work of Li et al. (2007). Their observation that social welfare expenditures, at the governmental level, are negatively related to life insurance demand are premised on a key assumption; namely, “social security expenditure is a proxy for national wealth” (p. 641). They went on to state that when viewed holistically, self-insurance (i.e., direct purchase of life insurance) can be substituted with wealth. That is, as wealth increases, the demand for life insurance should fall. However, their insight was based entirely on international macroeconomic data comparisons where wealth was measured using social welfare expenditures as a proxy for country wealth. Two ancillary questions come to mind

in the context of the insurance-wealth connection. The first asks if household wealth also acts as a substitute for self-coverage. The second asks if life insurance, at the household level, acts as a complement, rather than a substitute, for wealth.

Surprisingly, there have been few attempts to address these questions directly. Zietz (2003) reviewed 12 studies that explicitly examined the association between wealth (i.e., net worth) and the demand for life insurance. While the majority found a positive association between consumption of life insurance and wealth, the findings were not consistent. Some researchers noted a negative association, while others found non-significant relationships between demand for life insurance and wealth. Mossin (1968) wrote what has since become the seminal piece on the wealth effect and insurance consumption. He found that wealth was associated with risk aversion. Although not necessarily causally related, he noted that consumers who exhibit higher household wealth tend to accept higher levels of financial risk. The implication being that wealth and risk aversion may, indeed, be related to life insurance consumption, with the wealth-insurance association being negative when risk aversion is controlled. Fischer (1973) noted that household wealth appears to act as a form of self-insurance, thus reducing the demand for life insurance over time. To make matters even more confusing, others, including Eisenhauer and Halek (1999), have also noted a relationship between wealth and risk aversion, but concluded that wealthier households are more likely to own life insurance. Their findings suggest the possibility that insurance is more of a complementary, rather than a substitute, good. It also is possible that life insurance consumption decisions are not independent and that wealthy consumers may be just as likely to purchase life insurance as low wealth consumers (Mayers & Smith, 1983) and vice-versa.

The purpose of this paper is multifaceted. The first objective involved testing the wealth-insurance association using household, rather than macroeconomic, data. The second purpose was to evaluate the demand for life insurance as a function of changing socioeconomic factors over time rather than viewing the demand for life insurance on a cross-sectional basis. The third objective entailed the inclusion of saving intention and risk aversion as possible covariates, with wealth, as factors explaining the demand for life insurance. The research reported in this paper adds to the existing literature by showing that Li et al.'s (2007) assertion that the consumption of life insurance declines as wealth increases may only be true at a macroeconomic level. Rather

than being a substitute for wealth, life insurance may act more like a complementary good when household data is examined.

### **Review of Literature**

As mentioned in the introduction to this paper, much is already known about the factors associated with the demand for life insurance. Rather than reviewing this literature extensively, the following discussion highlights some of the key findings from the existing body of knowledge. Readers who are interested in a more comprehensive and historical review of the demand features of life insurance are encouraged to read a summary piece written by Zietz (2003). In her manuscript, Zietz provides one of the most comprehensive overviews of the key variables that have been tested as possible determinants of the demand for life insurance products. The key takeaway from her work is that little consensus exists among researchers, over time, as to what factors cause the consumption of life insurance to change, or when a variable is found to be important in explaining demand, how stable the relationship remains over time. As an example, much of the early life insurance literature points to household size as being a key factor shaping life insurance consumption. The original thought was families with many dependents would find the loss of a breadwinner's income to cause economic hardship, thus increasing life insurance consumption among larger households (e.g., Berekson, 1972; Burnett & Palmer, 1984). While generally true, it is possible to find a few studies that show household size to be negatively associated with insurance demand (e.g., Auerbach & Kotlikoff, 1989), whereas other papers have been published showing no association between household size and life insurance demand (e.g., Anderson & Nevin, 1975; Duker, 1969). What this reveals is the intense interest among researchers to understand and explain life insurance consumption patterns on the one hand, but also, on the other hand, the existing need to more accurately define the determinants of life insurance consumption.

#### ***Wealth and Life Insurance***

Human capital theory provides a starting point in the wealth-insurance discussion. According to Chen, Ibbotson, Milevsky, and Zhu (2006), consumer wealth is comprised of two elements: financial assets and human capital. Human capital is generally defined as the present value of all future labor income. Theory suggests that consumers allocate resources presently to maximize both current and future consumption. In some respects, financial and human capital are substitute assets. That is, younger consumers tend to possess fewer financial resources (i.e.,

they have a low net worth) because they have had fewer years to amass financial wealth. On the other hand, consumers at the beginning of their careers generally have higher human capital than others. Over time, the relationship between financial wealth and human capital wealth tends to shift. Theoretically then it is logical for those with a low financial wealth to human capital wealth ratio to own life insurance as a way to hedge a loss in human capital. Those who exhibit greater wealth ought to be, theoretically and holding bequest motives constant, less likely to demand life insurance.

Although few studies have framed life insurance consumption issues in a human capital framework, there is some evidence to suggest that the wealth-insurance demand choice is negative (Lewis, 1989). Hau (2000), on the other hand, noted, using data from the Survey of Consumer Finances, that wealth was positively associated with insurance demand. However, some of the demand in his study might have been attributable to a need among very wealthy and older households to obtain estate liquidity to fund tax liabilities and charitable bequests. As a way to partially address this potentiality when identifying the demands for life insurance, this research attempts to minimize the effect of outliers in wealth and age-based bequest motives by delimiting the analysis to respondents age 43 and 51 in 2008 and adjusting net worth to reflect changes in wealth over time periods. In effect, this analytical approach alters the debate from hinting that absolute financial wealth determines life insurance demand to one suggesting that changes in wealth may also be an important trigger in changing life insurance consumption. This framework matches more closely with Li et al.'s (2007) notion that increases or decreases in wealth, rather than absolute levels of wealth, relate to life insurance demand.

### ***Income and Life Insurance***

Household income is a factor closely associated with both human capital and financial wealth growth. Income is commonly assumed to be positively associated with the demand for life insurance. Zietz (2003) examined 14 studies that explicitly accounted for income as a life insurance consumption variable. In all but two studies the relationship between income and life insurance demand was positive. That is, those with higher levels of income were found to hold more life insurance. This is not surprising. In terms of the ability to pay premiums, current income tends to be a more important factor than, say, net wealth. Additionally, using human capital theory as a guide, it is reasonable to hypothesize that those with high current incomes ought to seek out a hedge to protect the loss of income in the event of an untimely death. As was

the case with wealth, in this study changes in household income, over two time periods, was examined. This analytical approach was utilized for several reasons. First, if one concedes that income is likely positively associated with life insurance ownership, then an important ancillary question arises; namely, if a household's income were to, say, decrease over two time periods would this trigger a reduction (or increase) in life insurance demand? It may be that once life insurance is purchased, based on a base level of income, future changes in income play no role in shifting insurance consumption. To date, this question and possibility have not been fully tested.

### ***Marital Status and Life Insurance***

Counter to what some assume to be true in relation to marital status and life insurance consumption (i.e., marrieds consume more life insurance), Zietz (2003) reported that the association between marital status and life insurance demand is ambiguous at best. Generally, industry observers believe that those who are married ought to demand more life insurance as a way to create a safety-net for a surviving spouse in event of the other spouse's untimely death. While this makes intuitive sense, the literature does not generally support this notion. It may be that factors such as wealth, income, and the nature of dependents in the household outweigh marital status in shaping insurance consumption decisions. Because the literature is so indistinct, this study was designed around the hypothesis that changes in marital status, rather than current marital status, may be the more important factor associated with insurance demand. While a study looking at changes in marital status, such as moving from single to married or married to widowed, is suggested for future studies, the initial tests developed for this paper were designed to evaluate the association between any change in marital status and life insurance demand.

### ***Household Size and Life Insurance***

The following two insights from Lewis (1989) summarize the general consensus among those who study life insurance consumption patterns. First, the "demand for life insurance depends on the demographic structure of his or her household" (p. 452), and second, "an insured's purchase of life insurance generally represents a transaction made on behalf of his beneficiaries" (p. 463). In other words, the factors that alter demand for life insurance tend to be demographic, and among these, household size is often thought to be paramount, with larger households (i.e., those with more dependents) demanding more life insurance. Zietz (2003) analyzed the literature associated with the association between household size and life insurance demand. Of the 14 studies reviewed, nine showed a positive association, three a negative

association, and two no association between these two variables. Rather than attempt another analytical approach using nominal reports of household size, this paper extends the logic from Lewis by anticipating changes in household size as being an important factor shaping life insurance consumption. Based on the previous literature, it is reasonable to hypothesize that households that increase in size over a given period of time should be more likely to demand more life insurance.

### ***Risk Aversion and Life Insurance***

As noted previously, a consumer's aversion to financial risk is thought to be associated with life insurance consumption. Zietz (2003) noted that although the association between these two factors is thought to be strong, the literature supporting this notion has been quite mixed over the past three decades. Some researchers have concluded that a consumer who is risk averse should be more likely to purchase life insurance; this is particularly true if the potential loss associated with early death is positively related to a consumer's income (Cleeton & Zellner, 1993). In a related study, Grable and Lytton (1999) found using their 13-item risk tolerance scale that approximately a quarter of the respondents (27%) in their study were extremely risk averse, another 60% were moderately risk tolerant, and 13% were highly risk tolerant. Others (e.g., Xiao, 1996) have reported a positive association between willingness to take financial risk and ownership of life insurance. Ultimately, however, it appears that Chesney and Louberge (1986) and Eisenhauer and Halek (1999) may have identified the real association between risk aversion and life insurance demand; namely, the relationship is not a clean one. Rather, risk aversion is linked with household wealth and human capital factors. So, instead of anticipating a causal link between risk aversion and life insurance consumption, it may be more appropriate to hypothesize a wealth connection controlling for a consumer's aversion to financial risk.

### ***Saving Intention and Life Insurance***

Among the numerous variables thought to influence a consumer's life insurance consumption choice, saving intention is a relatively new factor that some believe may be associated with the demand for insurance. Consider a study by Ferber and Lee (1980). They conducted interviews among married couples. Upon analysis, they concluded that in addition to a household's financial status, spending and saving habits predicted the demand for life insurance. Another study of recent revealed that recent retirees with savings held in untapped cash value policies were more likely to seek professional financial advice (Satler, Harness, & Chatterjee,



2010). Consumers, who were predisposed to saving, rather than consuming income and assets, were predicted to hold greater levels of life insurance. This finding fits well with the sale and promotion of cash value life insurance policies (e.g., whole life, variable life, universal life, and variable universal life). Babbel (1985) reported that life insurance is most often a sold, rather than bought, good, meaning that life insurance is rarely purchased on a price-per-unit basis, but rather on the recommendation of a salesperson. Of course, a consumer must seek the advice and counsel of a life insurance salesperson, but once the consumer-salesperson relationship has been established, it is probable that those who have a preference for saving will find the sale of cash value policies attractive.

### ***Demographic Characteristics and Life Insurance***

Age, gender, education, and race are four factors commonly thought to be associated with the demand for life insurance. Interestingly, the age-insurance literature is split almost evenly in terms of the relationship, with some researchers hinting at a positive association (e.g., Truett & Truett, 1990), while others reporting a negative relationship (e.g., Chen, Wong, & Lee, 2001); however, the majority of studies suggest that age is not a particularly useful indicator of life insurance consumption patterns (Zietz, 2003). It may be that within a human capital framework, financial wealth, as a substitute for human capital, weakens the impact of age in shaping insurance demand. As might be expected, some researchers have noted a relationship between being male and an increase in life insurance demand (Gandolfi & Miners, 1984). The gender effect may be due to household earning differences between men and women. It is not unusual for American families to consider a husband's earnings as primary in terms of household production, and as such, use this as a factor in shaping demand for life insurance as a hedge against the male's early death. Ambiguous results related to the education-insurance association have been reported in the literature. Traditionally, higher levels of education have been thought to lead to increased life insurance demand. Within the context of human capital theory, this makes sense. Generally, education, income, and wealth tend to be positively correlated; thus, as a hedge against lost income over time, it is reasonable to hypothesize that those with more education should exhibit an increased demand for life insurance (Gandolfi & Miners; Truett & Truett). Others, however, have noted that the relationship between education and insurance consumption appears to be negative (e.g., Auerbach & Kotlikoff, 1989). It is possible that similar to age, education tends to be superseded by the wealth effect in relation to insurance demand.

Finally, racial preferences in the consumption of life insurance have rarely been studied as explicit determinants of consumption. Rather, researchers have most often included measures of race as control variables. As with many factors thought to be associated with life insurance consumption, published test results have been mixed. As early as the mid-1960s Hammond, Houston, and Melander (1967) noted that race was not associated with the demand for life insurance. More recently, Xiao (1996) found that Hispanics and Blacks were less likely to own life insurance. Whether race plays a role in shaping demand from one time period to another is a question that remains unaddressed in the literature.

### ***General Model of Life Insurance Ownership Status***

The research presented in this paper was conceptualized using the framework shown below:

$\Delta LI_{t-p} = f(\text{AGE, RISKAVERSION, EDUCATION, FUTSAVPREF, BLACK, HISPANIC, GENDER, } \Delta \text{NETWORTH}_{t-p}, \Delta \text{INCOME}_{t-p}, \Delta \text{HHSIZE}_{t-p}, \Delta \text{MS}_{t-p}, \text{MEI})$  (1) Where,

$\Delta LI_{t-p}$  = change in life insurance ownership status

$t$  = current period

$p$  = previous period

AGE = age in years

RISKAVERSION = aversion to financial risk as of 2006

EDUCATION = educational attainment

FUTSAVPREF = saving intention

BLACK = racial background: Black

HISPANIC = racial background: Hispanic

GENDER = male = 1, female = 2

$\Delta \text{NETWORTH}_{t-p}$  = change in net worth: 2004 to 2008

$\Delta \text{INCOME}_{t-p}$  = change in household income: 2004 to 2008

$\Delta \text{HHSIZE}_{t-p}$  = change in household size: 2004 to 2008

$\Delta \text{MS}_{t-p}$  = change in marital status: 2004 to 2008

MEI = Main Effect Interactions

Of particular interest is the relationship depicted as  $\Delta \text{NETWORTH}_{t-p}$ . It was hypothesized that a change in net worth over the period 2004 to 2008 would result in a change in

the consumption of cash value life insurance. Specifically, an increase in net worth was anticipated to be associated with a decrease in life insurance demand, whereas a decline in net worth was expected to be related to an increase in the demand for insurance. This household level hypothesis matches the relationship noted by Li et al. (2007) that was observed using macroeconomic data. Although much of the literature is conflicting, the following directional associations, excluding interactions, were also expected in relation to life insurance demand:

AGE = +

RISKAVERSION = +

EDUCATION = +

FUTSAVPREF = +

BLACK = -

HISPANIC = -

GENDER (male = 1, female = 2) = -

$\Delta$ INCOME<sub>t-p</sub> = +

$\Delta$ HHSIZE<sub>t-p</sub> = +

$\Delta$ MS<sub>t-p</sub> = undefined

### **Methodology**

The model of life insurance consumption was tested using 2004, 2006, and 2008 data from the National Longitudinal Survey of Youth 1979 cohort (NLSY). The survey is a nationally representative source of household data sponsored by the U.S. Department of Labor. The survey was conducted yearly between 1978 and 1993. Since 1994, data have been collected every two years. The original NLSY survey included 12,686 men and women who were age 14 to 21 years on December 31, 1978. In 2008, which was the outcome variable measurement date, respondents were between the ages of 43 and 51. Given both survey attrition and missing data, a total of 5,368 respondents were included in this analysis. Descriptive measures for the variables used in this study are shown in Table 1.

### ***Outcome Measure***

Life insurance consumption was evaluated as a change in demand from 2004 to 2008. Three categories were created to measure life insurance consumption. The first category included respondents who decreased cash value life insurance coverage over the period. The second category included those in the control group who indicated making no change in their life

insurance holdings over the period. The final category included those who purchased cash value life insurance during the period. As shown in Table 1, approximately 11% of the sample decreased their consumption of life insurance, nearly 10% increased consumption, while 79% exhibited no change in consumption.

**Table 1. Descriptive Statistics for Variables Used in the Model (N = 5,368)**

<b>Variable</b>	<b>M (SD)</b>	<b>N</b>	<b>f</b>
Change in Life Insurance Ownership			
Decreased Policy	-	601	11.20%
No Change	-	4,253	79.23%
Purchased Policy	-	514	9.58%
Age (years)	46.62 (2.24)	-	-
Risk Aversion	-		
Very Risk Averse		3,045	56.73%
Risk Averse		607	11.31%
Somewhat Risk Averse		813	15.15%
Low Risk Aversion		903	16.82%
Education			
High School or Less	-	2,730	50.86%
Some College or More	-	2,638	49.14%
Saving intention (%)	34.99 (40.07)	-	-
Race			
Black	-	1,529	28.48%
Other	-	3,839	71.52%
Race			
Hispanic	-	984	18.33%
Other	-	4,384	81.67%
Gender			
Male	-	2,662	49.59%
Female	-	2,706	50.41%
Change in Net Worth			
Negative or No Change	-	2,005	37.35%
Positive Change	-	3,363	62.65%
Change in Income			
Negative or No Change	-	2,032	37.85%
Positive Change	-	3,336	62.15%
Household Size Change	-0.22 (1.09)	-	-
Change in Marital Status			
No Change	-	4,747	88.43%
Change	-	621	11.57%

***Independent Variables***

Four non-dichotomous level variables were included in the analysis. Age was measured in current years. Financial risk aversion was evaluated using three questions within the NLSY, which were based on questions asked in the Health and Retirement Survey (see Barsky, Juster, Kimball, & Shapiro, 1997). Answers to three risk appraisal questions were used to place respondents into one of four risk aversion categories. The questions were as follows:

- A. *Suppose that you are the only income earner in the family, and you have a good job guaranteed to give you your current (family) income every year for life. You are given the opportunity to take a new and equally good job, with a 50-50 chance it will double your (family) income and a 50-50 chance that it will cut your (family) income by a third. Would you take the new job?*

Those who answered no were asked question C; if the respondent answered yes, they were then asked

- B. *Suppose the chances were 50-50 that it would double your (family) income, and 50-50 that it would cut it in half. Would you still take the new job?*

Questioning ended for those answering yes. Those who answered no were asked the following additional question:

- C. *Suppose the chances were 50-50 that it would double your (family) income and 50-50 that it would cut it by 20 percent. Would you then take the new job?*

Scoring was calculated as follows: (a) those who answered no to A and C were classified as very risk averse; (b) respondents who answered no to A and yes to C were categorized as risk averse; (c) those that answered yes to A and no to B were classified as only somewhat risk averse; (d) anyone who answered yes to A and B was considered to have low risk aversion. By far, the largest portion of respondents were found to be very risk averse (56.7%). Respondents were fairly distributed among the other levels of risk aversion. Given the nature of the variable, scores from the 2006 survey were used in the analysis as a means for capturing between period risk aversion. Additionally, in the final analysis, ordinal scoring was used in the regression model.

Saving intention was assessed by asking respondents to suppose they were given an item worth \$1,000. Respondents were then asked if they sold the item how much would they save for the future rather than spend in the next 12 months. On average, respondents indicated they would save 35% ( $SD = 40\%$ ) of the amount received. Finally, change in household size, as an interval

level variable, was estimated by comparing the number of persons living in each respondent's household in 2004 and 2008.

A series of dichotomously estimated variables were included in the model. Gender was coded 1 male, 2 female. Race was categorized within the NLSY as Black, Hispanic, and White. In this study, Black (coded 1, otherwise 0) and Hispanic (coded 1, otherwise 0) were included in the analysis, with Whites used as the omitted category. Education was recoded with 0 indicating a respondent with a high school diploma or lower level of education and 1 being an indication of respondents who had at least some college level education. Respondents were split almost equally between the two groups. Marital status in 2004 was compared to each respondent's marital status in 2008. These data were used to estimate a general marital status change variable, with 1 indicating some change in status, otherwise 0. Approximately 12% of those in the study reported a change in marital status. Change in net worth and change in income were estimated by comparing reported wealth and income values in 2008 with those reported in 2004. Respondents who indicated an increase in wealth over the period were coded 1, otherwise 0. Similar coding was used with the change in income variable; those who exhibited an increase in income were coded 1, otherwise 0.

### ***Data Analysis Process***

Given the nature of the outcome variable (i.e., three non-ordinal categories), a multinomial logistic regression model was developed using Stata®. A customized/stepwise procedure (See Field, 2009) was employed. The main effect for each independent variable was estimated.

### **Results**

As shown in Table 2, only one factor was associated with the likelihood of decreasing consumption of cash value life insurance, compared to making no change in life insurance coverage, over the period 2004 to 2008. In this study, those who reported an increase in net worth were predicted to be less likely to reduce their life insurance consumption ( $b = -0.70, p < .001$ ). Stated another way, those who experienced no change or a decrease in net worth were more likely to reduce their life insurance demand. This finding provides, to some degree, support for suggestions that life insurance complements wealth rather than acting as a substitute for wealth. It is possible that life insurance is used by consumers as a way to hedge their position of wealth over time.

Findings showing differences between the control group and those who exhibited an increased consumption of cash value life insurance were striking. While a diminution in net worth resulted in an enhanced likelihood of decreasing insurance holdings, an increase in net worth was found to amplify the likelihood of purchasing life insurance. Evidence for this insight can be found by observing the coefficient for change in net worth among those who had purchased life insurance ( $b = 0.86, p < .001$ ). Stated another way, the odds of purchasing a cash value policy, compared to making no change in policy ownership status, increased as net worth increased. This finding adds support to the notion that the wealth-insurance connection, at the household level, is more similar to being complementary rather than substitutive.

Other variables were also found to be significantly related to the likelihood of purchasing additional life insurance. The association between saving intention and the purchase decision was found to be positive ( $b = 0.01, p < .05$ ). Those who indicated that they would likely save more of a windfall (i.e., respondents with a higher intention to save) were more apt to purchase insurance. Blacks were found to be more likely, compared to Whites, to purchase cash value life insurance ( $b = 0.27, p < .01$ ). Women were also found to be more likely to purchase insurance ( $b = 0.28, p < .01$ ).

### **Discussion**

Some support was found for the general model of life insurance ownership status as presented in this paper. Of the factors in the model, change in net worth provided the most intriguing insight into the motivation to change the value of life insurance owned. Those who experienced an increase in net worth were more likely to purchase additional life insurance. On the other hand, respondents who reported either no change or a decrease in net worth were more apt to reduce current levels of life insurance. These findings argue against assertions made in the literature that the consumption of insurance stabilizes, and in some cases increases, as socioeconomic security decreases. Li et al. (2007), for example, noted that in countries where expenditures on social programs have increased, the consumption of life insurance tends to decrease. Much of the literature that shows such an association tends to be based on macroeconomic measures. This study is among the first to indicate that the “social security” (Li et al., p. 641) anomaly may be strictly true only in economies where social welfare programs are predominant. In economies where social welfare programs are not universally common or substantial, consumers may estimate that insurance is a worthwhile expenditure to protect

increased wealth from a shock. Stated another way, findings from this study indicate that life insurance acts a complementary element associated with wealth.

**Table 2. Multinomial Regression Results Showing Variables Associated with Changes in Cash Value Life Insurance Ownership between 2004 and 2008**

Variable	<i>B</i> ( <i>SE</i> )	95% CI for Odds Ratio		
		Odds Ratio	Lower	Upper
Decreased Insurance vs. No Change				
Intercept	-2.97 (.94)***			
Age	0.03 (.02)	1.03	0.99	1.07
Risk Aversion	-0.03 (.04)	0.97	0.91	1.05
Education (1 = Some College or More)	0.17 (.09)	1.19	1.00	1.42
Saving intention	0.01 (.01)	1.00	1.00	1.00
Race (Black = 1)	0.17 (.10)	1.19	0.97	1.44
Race (Hispanic = 1)	-0.09 (.13)	0.91	0.72	1.17
Gender (1 = Male; 2 = Female)	0.07 (.09)	1.08	0.91	1.28
Change in Net Worth (1 = Positive)	-0.70 (.09)***	0.50	0.42	0.59
Change in Income (1 = Positive)	0.06 (.09)	1.07	0.89	1.28
Household Size Change	0.02 (.04)	1.02	0.94	1.10
Change in Marital Status (1 = Married to Divorced)	-0.08 (.14)	0.92	0.70	1.21
Purchased Insurance vs. No Change				
Intercept	-5.33 (1.01)***			
Age	0.04 (.02)	1.04	0.99	1.08
Risk Aversion	-0.01 (.04)	0.99	0.92	1.08
Education (1 = Some College or More)	0.02 (.10)	1.02	0.84	1.23
Saving intention	0.01 (.00)**	1.00	1.00	1.01
Race (Black = 1)	0.27 (.11)*	1.31	1.06	1.62
Race (Hispanic = 1)	0.07 (.13)	1.07	0.83	1.38
Gender (1 = Male; 2 = Female)	0.28 (.10)**	1.33	1.10	1.60
Change in Net Worth (1 = Positive)	0.86 (.12)***	2.36	1.88	2.97
Change in Income (1 = Positive)	0.15 (.10)	1.16	0.94	1.42
Household Size Change	-0.01 (.04)	0.99	0.91	1.08
Change in Marital Status (1 = Married to Divorced)	0.25 (.14)	1.28	0.97	1.69

Note:  $R^2 = .05$  (Nagelkerke). Model  $\chi^2(22) = 187.09$ ,  $p < .001$ . \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

In the United States, life insurance and wealth appear to act as complements at the household level. As the wealth of household consumer units fluctuates, the demand for insurance appears to change as well. Consider the situation in which a household owns both real estate and investment assets that are expected to increase over time. Traditional arguments would suggest that as the value of these assets increases, and the corresponding debt burden associated with ownership decreases (e.g., mortgage loan paid down), net worth should increase. The need for



life insurance to fund a debt gap in the event of premature death should also decrease. Findings from this study indicate that this line of reasoning does not fully explain consumer behavior. Consumers who reported an increase in wealth, in fact, increased ownership of life insurance. It is possible that consumers may purchase cash value life insurance as a way to lock in some form of guaranteed return while hedging against possible losses in future wealth in the event of premature death. That is, life insurance may be perceived (and sold) as a consumer good that cushions real and hypothetical losses in wealth.

Other findings from the analysis were generally in line with expectations. In addition to an increase in net worth, among those consumers who were found to be more likely to purchase cash value life insurance, compared to the default position of taking no action, being Black, having a strong saving intention, and being female were of importance. Cash value life insurance is often sold as a risk-free form of tax-deferred investing (Glazer, 2007). As a sold good, life insurance may appeal to those with lower levels of financial knowledge and limited access to financial services (Plath & Stevenson, 2001). The finding related to saving intentions suggests that some consumers may perceive cash value life insurance as more than a tool to insure the present value of a breadwinner's income. As commonly marketed in the United States, cash value life insurance may be purchased as a form of forced savings, which may be intrinsically attractive to those with a high saving intention. The result showing a relationship between being female and increased life insurance ownership is intriguing. It is possible that the gender effect may be due to a narrowing in the gender gap of earnings and wealth over time. While traditionally it has been common for American households to consider a husband as the primary breadwinner, this assumption may be changing to a large extent. This might help explain why women, more so than men, were predicted to increase insurance consumption over the time period. That is, women may view life insurance as an income and wealth hedge against the possibility of early or untimely death.

While the general model of life insurance ownership status was valuable in helping differentiate between groups of consumers, some of the factors included in the model were not significantly related to changes in ownership. The non-significant relationship between age and change in life insurance may be accounted for by the fairly homogenous nature of the sample. All respondents fell within a relatively tight age distribution. Had a different sample been examined, it is possible that consumption decisions might be more pronounced at the age

extremes. It was surprising that risk aversion—particularly as measured in this study—was not associated with the life insurance ownership decision. It may be the saving intentions trump risk attitudes, or it may be that cash value life insurance has a broad appeal across different levels of risk aversion. It was also startling to note that changes in household size and income were not related to the life insurance decision. As suggested by Li et al. (2007), households that experience an increase in size ought to demand more insurance as a way to shelter dependents from hardships associated with premature death of a primary breadwinner. This type of association was not found. A possibility exists that changes in wealth supersede factors such as changes in household size (and income) when shaping life insurance decisions. Finally, changes in marital status were not found to be related to the demand for life insurance. Given this unexpected finding, post-hoc tests (not reported) were conducted to determine if specific changes in marital status, such as moving from single to married status or married to widowed status, might add more explanatory value to the model. In no case did a change in marital status prompt either the decision to decrease or add cash value life insurance.

### **Applications**

Historically, cash value life insurance has been marketed at the household level as a tool to help risk-averse individuals and families provide income replacement in the event of premature death, while concurrently providing a long-term tax-advantaged savings platform. Several assumptions have served as the foundation of life insurance sales. A key assumption is that life insurance acts as a substitute for wealth. That is, as a household's wealth increases, the demand for life insurance should fall as the household substitutes risk retention for risk transference. An exception occurs for very high net worth households who may increase ownership of insurance as a means to fund estate tax liabilities or to help fund charitable bequests; however, for marketing purposes, this core assumption has held a dominant position in the financial service marketplace for many years. Several other assumptions are common as well. For example, because it is thought that life insurance is a wealth substitute, it has been a customary practice to focus marketing efforts on those who may experience the greatest volatility in income. This includes selling to consumers who are married and those who head a large household. Additional assumptions include believing that highly risk averse consumers have a preference for insurance and for those who have trouble saving money to prefer cash

value policies. Results from this study suggest that many of these core assumptions should be reevaluated.

Similar to what Jacobs-Lawson and Hershey (2005) noted in relation to retirement saving behavior and education, it may behoove those involved in the marketing and distribution of cash value life insurance to reconsider the determinants of consumer demand. For example, Chieffe and Rakes (1999) noted that life insurance is often used by households as an intergenerational wealth transfer or estate planning tool. Rather than focus primarily on selling life insurance as a tool for income replacement, financial advisers may also want to promote life insurance as an instrument to hedge against future losses of household wealth. This would effectively change the life insurance argument away from income towards wealth protection.

Additionally, financial advisers and insurance salespersons ought to consider focusing on smaller homogenous market subsets. For instance, in this study Black households were found to be more likely to increase their insurance holdings. This may arise from a cultural preference for financial products that are perceived to be of high quality and low risk. Additionally, a shift in focus away from marketing to males towards a strategy that stimulates demand among women may be beneficial. Over the time period studied, women were significantly more likely to have increased their ownership of cash value policies.

Finally, financial advisers ought to consider how psychosocial preferences influence insurance consumption patterns. It is worthwhile to note that cash value life insurance is often sold as a form of forced savings. This sales technique is premised on the assumption that policy holders need an outside party to enforce regular saving behavior. Results from this study indicate that this assumption may overlook another important determinant of demand. It was determined that consumers who had a strong saving intention were more likely to increase their ownership of life insurance. While it is possible that saving intention is not linked to saving behavior, it is nonetheless important for financial advisers to seek out consumers who do want to save money, rather than focus on marketing to households that should save money.

Findings from this study add to the literature in several ways. To begin with, results contradict, in part, findings by Li et al. (2007) by suggesting that cash value life insurance acts as a complement, rather than a substitute, for those who experience a change in wealth and financial stability. Additionally, results hint at the possibility that consumption patterns for life insurance are likely based on multi-period personal and family factor changes, such as wealth. Rather than

focusing entirely on absolute wealth, for instance, future studies ought to consider replicating the approach used in this study where change in net worth was used to predict insurance consumption. Lastly, results are indicative of the important role life insurance plays in the financial planning behavior of consumers. It appears that life insurance acts both as a complement to wealth as well as a hedge against future decreases in net worth. Researchers are encouraged to explore this possibility in future research endeavors.

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