# Relative income and financial satisfaction across the lifespan

by

Benjamin Daniel Strother

B.S.E., Hannibal LaGrange University, 2009
M.S.E., William Woods University, 2012

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

School of Family Studies and Human Services
College of Human Ecology

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2020

# Abstract

What is the relationship between change in financial situation over the lifespan and later life stage financial satisfaction? Framed within the Relative Income Hypothesis, this dissertation investigates the impact of personal background distinctions and lifetime financial change upon financial satisfaction for respondents near or at retirement age. Using the Wisconsin Longitudinal Study, financial satisfaction is measured against changes in income, comparison of financial situation to a reciprocal friend, and present absolute income and net worth using ordinal logistic regression analysis. Relative income effects, measured through longitudinal change from past personal experience (Easterlin approach) and relational standing in society (Duesenberry approach), may offer relevant evidence linking economic origin and comparison feelings regarding a reciprocal friend to financial satisfaction for those at or nearing retirement age.

Results suggest that relative income is, at least to some extent, a determinant of financial satisfaction. Downward financial change is correlated with lower financial satisfaction levels. However, evidence does not suggest upward financial change to be correlated to higher financial satisfaction levels. Peer comparison effects do exist, as do absolute income effects in the cross-section.

The findings from this dissertation suggest that financial comparison has the power to negatively affect financial satisfaction. In support of the Relative Income Hypothesis, these results encourage a holistic approach to financial planning that appropriately assimilates personal background distinctions and socioeconomic comparison and transition as noteworthy elements of personal financial planning. This dissertation specifically supports the importance of establishing objective and measurable client financial goals, moving clients away from relative income comparisons which lead to lower reported financial satisfaction. The financial planning

community can use these findings to incorporate financial background, financial change, and relative social standing into practice as they influence money relationship, money scripts, financial objectives and financial realities of clientele.
*Keywords:* Relative income, Financial satisfaction, Financial change, Financial planning, Retirement

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Praise be to God for the ways that he has used this education to change my heart, opening my vision to those in need, stretching me to seek for truth, humbling me to see people and money beyond my egocentric and limited opinions, and challenging me to see His economies of life through the abundance of his kingdom.

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# Chapter 1 - Introduction

Research is growing at an incredible rate in the personal finance field on the link between subjective measures of financial satisfaction and external outcomes. (Beja, 2014; Bruggen, Hogreve, Holmlund, Kabadayi, & Lofgren, 2017; Clark, 2018; Kahneman & Krueger, 2006). These studies are an empirical, albeit new, approach to the ageless debate of money's influence upon happiness, with researchers on each side documenting the meaningful interplay of internal and material financial factors upon life satisfaction (Argyle, 1997; Caporale, Georgellis, Tsitsiansi, & Yin, 2007; Clark, 2018; Tay, Zyphur, & Batz, 2017). In the field of personal finance, findings are mixed. Research does suggest a correlation between high levels of absolute income and higher levels of happiness (Argyle, 1999; Diener & Oishi, 2000; Stevenson & Wolfers, 2008; Veenhoven, 1991). Other research suggests this correlation may not have a causal link, citing that, despite major income increases in the United States in the later half of the twentieth century, aggregate happiness levels remain flat (Clark, Fritjers, & Shields, 2007; Easterlin, 2001). A micro literature is emerging that introduces new behavioral and psycho-social variables into this conversation. According to these studies, feelings of status and position may have significant impact on the present financial satisfaction levels of individuals and households beyond that of absolute measures like income or net worth (Carroll, Overland, & Weil, 1997; Clark & Lee, 2017; D'Ambrosio & Frick, 2007; McBride, 2001; Tay et al., 2017; Wolbring, Keuschnigg, & Negele, 2013). This dissertation seeks to assess these feelings of status and position by measuring the influence of past comparison and peer comparison upon financial satisfaction.

In the field of personal finance, financial satisfaction is defined as one's overall feeling of fulfillment derived from money conditions and money decisions (Joo & Grable, 2007).

Financially fulfilled individuals have been shown to have significantly higher savings patterns, stronger marriages, higher workplace effectiveness, and lower stress levels (Freeman, Carlson, & Sperry, 1993; Garman, Leech, & Grable, 1996; Joo & Grable, 2007; Robb & Woodyard, 2011; Williams, Haldeman, & Cramer, 1996). Financial satisfaction has been shown to be a strong determinant of overall life satisfaction as well (Plagnol & Scott, 2011; Joo & Grable, 2007). Research delineating the impact of financial satisfaction upon outcomes abounds, yet less is known of the determinants of financial satisfaction. These determinants are understood to be multi-dimensional, incorporating objective, subjective, and reference-specific variables (Porter & Garman, 1993). According to Joo and Grable (2007), while financial satisfaction is growing in use in the research field, both the concept and frameworks for understanding it need further developing. Financial satisfaction is also seen as a subcategory of well-being (Vera-Toscano, Ateca-Amestoy, & Serrano-Del-Rosal, 2006). As such, an individual's financial satisfaction contains important clues about attitudes and feelings that result from the interplay of intrinsic and extrinsic factors (Tay & Kuykendall, 2013).

This dissertation has the potential to provide relevant implications in the field of personal financial planning by incorporating the impact of personal background distinctions and lifetime financial change upon financial satisfaction. It has implications for the goal-based, client-focused subfields of financial counseling and financial therapy. It further may question ongoing policy and economic goals that aim to increase well-being by increasing household incomes (Caporale et al., 2007; Clark & Lee, 2017; Van Praag, Fritjers, & Ferrerr-Carbonell, 2003).

This dissertation suggests that relative income comparisons directionally affect financial satisfaction. Downward financial mobility and being in worse financial condition than a reciprocal friend are strong determinants of lower financial satisfaction. However, upward

financial mobility and being in better financial condition than a reciprocal friend are not associated with an increase in financial satisfaction. Implications include a call to the financial planning community for greater awareness of the negative impact of relative income comparison. Emphasis is placed on the value of goal-based financial planning to help clients mark their progress in relation to their personal objective goals as opposed to subjective comparisons to self and others.

## Conceptual Framework

This dissertation attempts to measure the impact of childhood financial situation and lifespan change in financial situation upon later-life financial satisfaction by assessing the Easterlin (past habituation) and Duesenberry (social comparison) approaches to the Relative Income Hypothesis (Carroll et al, 1997; Duesenberry 1949; Easterlin, 2001). This dissertation aims to link financial status, personal background, comparison to a reference group, and economic change to financial satisfaction. Aspirations and expectations, formed by both past experience and present comparison, help to form beliefs about financial fulfillment and satisfaction (Caporale et al., 2007). By underscoring personal history as an independent variable of emphasis, a refined understanding of the impact of longitudinal change in financial condition over time upon financial satisfaction may emerge. This can provide a better understanding of the psycho-social determinants of financial satisfaction (Clark et al., 2007; Hansen, Slagsvold, & Moum, 2008).

This dissertation focuses on non-material psychological and sociological factors relating to personal background and social comparison with the goal of better understanding present financial satisfaction. While the debate relating money and happiness is a popular one, there is no denying the intrinsic complexity that shapes the interwoven nature of money outcomes like

income and net worth and money feelings like financial satisfaction (Caporale et al., 2007). Such research traditionally revolved more around the effect of external stimuli, like income or education, on financial satisfaction and less upon internalized variables like perceptions, background, comparison, or other relative factors (Kahneman & Krueger, 2006; Plagnol, 2010b). An underlying premise in personal finance follows this idea, asserting higher income and net worth to be a central purpose of the field, equating more financial assets to greater utility and satisfaction levels (Johnson & Krueger, 2006). However, behavioral finance research suggests that material emphasis may not lead to higher levels of life or financial satisfaction, but instead to materialism and aspirational desire for more, both of which may be associated with reported lower well-being levels (Clark, Kamesaka, & Tamura, 2014; Nickerson, Schwarz, Diener, & Kahneman, 2003; Sirgy, 1997).

A recent and considerable shift in the academic field of personal finance toward behavioral finance recognizes the immense effect that psycho-social factors have upon financial outcomes (Furnham, 1984; Barberis & Thaler, 2005). Behavioral finance is now considered to be established by the academic community (De Bondt, Muradoglu, Shefrin, & Stalkouras, 2008). Nevertheless, very little research exists relating to the impact of personal background distinctions and lifetime financial change upon present financial outcomes. Findings do suggest that economic origin from childhood impacts adults even to old age and financial changes do have at least a marginal amount of impact upon financial satisfaction levels (Clark & Lee, 2017; Flèche, Lekfuangfu, & Clark, 2017; Heady, Muffels, & Wooden, 2008).These variables, framed within the Relative Income Hypothesis, may facilitate new conversation in the field on the impact of childhood setting and socioeconomic transition upon financial satisfaction.

Researchers have noted in the literature the lack of relative income research in relation to measures of subjective well-being (Brown, Gray, & Roberts, 2015; McBride, 2001). This dissertation attempts to shed light on these gaps in the literature. Using the Wisconsin Longitudinal Study (WLS) relative factors including past childhood family financial situation and peer comparison are measured against present net worth and income figures to assess the impact of personal financial change and comparison upon financial satisfaction in later life stages. This dissertation seeks to provide findings about the impact of financial background, financial change, and relative social standing upon financial satisfaction, holding application in the field of financial planning as a variable of consideration when recognizing money scripts, money relationships, and financial objectives of clientele. In summary, this research may serve to move forward the awareness of certain unique determinants of financial satisfaction through its application of the Relative Income Hypothesis, its measurement across the lifespan, its emphasis upon change as an impact variable, its consideration of financial background situation, and its use of peer comparison factors.

## Purpose and Problem Statement

This research is framed within the Relative Income Hypothesis. The Relative Income Hypothesis states that utility from consumption and savings is contingent upon the relative condition of oneself in relation to others in society (Duesenberry, 1949).

Utility derived from an individual's socioeconomic standing may depend not only upon income and net worth, but also upon feelings of status in relation to others and past experiences. These relative factors and their change, when viewed longitudinally, may provide important clues about financial satisfaction. Feelings of status and past experience may be better delineated

when considered within the context of change throughout the lifetime, as opposed to most cross-sectional studies of its relationship to wealth.

This dissertation aims to measure the impact of lifetime change in financial status upon financial satisfaction in later-life stages. The primary research question of this study seeks to measure relative income effects, through change from both past personal experience (Easterlin approach) and relational standing in society (Duesenberry approach).

The Easterlin approach concentrates on the tendency to reference one's own preferential past when making judgments about present satisfaction (Easterlin, 2001). Levels of subjective well-being do not rise with income increases throughout the lifetime because others also see a rise in income. This, the Easterlin Paradox, follows the logic that people base their present financial satisfaction in reference to their personal financial past, including their childhood household financial situation (Easterlin, 1974). The Easterlin approach stresses the inward-looking comparison to self. The Easterlin approach is operationalized through mobility categories that combine average parental income through high school with net worth and income at ages 63 to 66. Those experiencing significant changes in financial situation throughout their lifespan may show lower and higher levels of financial satisfaction, as their experience stands outside the normative experience of a steady increase in financial condition over the life cycle.

The Duesenberry approach highlights outward comparison to others (Duesenberry, 1949). In this framework, the financial standing of people in one's reference group significantly impacts relative feelings of financial satisfaction. This reference group is comprised of friends, co-workers, family, and neighbors. The Duesenberry approach is operationalized through the utilization of a unique measure in the Wisconsin Longitudinal Study that asks respondents to compare their financial situation to that of a reciprocal friend.

Two separate models will measure financial satisfaction for respondents age 63-66. The first model utilizes the Easterlin and Duesenberry approach. The second model focuses on absolute income and net worth effects. Comparison across these models should lead to a better understanding of relative income effects upon later life financial satisfaction.

Research on financial satisfaction with the Relative Income Hypothesis as a framework has the potential to add significant meaning to the present financial planning literature. First, the Relative Income Hypothesis has been noted as a conceptual framework receiving very little attention in empirical studies (Alvarez-Cuadrado & Van Long 2009; Easterlin, 2001). As personal financial planning continues to develop and grow, there will continue to be more need to assimilate the psychological and sociological characteristics of these concepts into the field (Frey & Stutzer, 2002; Hansen et al., 2008). Second, research focusing on the internalized understanding of one's relative past may provide some meaningful additions to the literature. Finally, a growing body of research on well-being suggests that current satisfaction levels are significant predictors of future behavior (Clark et al., 2007; Layard, Powdthavee, Clark, Vernoit, & Cornaglia, 2014; Plagnol, 2010b).

All of this has the potential to shed light on financial satisfaction, a variable that receives much attention in the personal finance field. Research findings may further encourage financial planners, therapists, and counselors to apply a holistic approach to understanding the situation of clientele, factoring in how their backgrounds, financial change, and relative social standing affect their money relationships and sense of financial satisfaction.

## Hypotheses

Most of the hypotheses in this study center on the strength of associations among relative factors that affect financial satisfaction. There are three sets of hypotheses in this dissertation.

The first set covers relative income effects; the second set focuses on absolute income and net worth effects; the third set covers psychological/perception variables that are intended to capture important subjective outcomes that relate to feelings of positive change and control over life outcomes. Table 1.1 summarizes the hypotheses.

**Table 1.1 Hypotheses**

| Hypothesis | Predictor Variable(s) | Predicted Relationship |
|---|---|---|
| | **Relative Income** | |
| $H_1$ | Financial Change (Easterlin Approach) | + |
| $H_2$ | Financial Change (Duesenberry Approach) | + |
| | **Absolute Income and Net Worth** | |
| $H_3$ | Household Income, Net Worth | < Relative Income |
| | **Psychological/Perception Variables** | |
| $H_4$ | Personal Growth | + |
| $H_5$ | Environmental Mastery | + |

The first two hypotheses relate to the effect of relative income. There is a positive association between changes in financial situation from childhood to adulthood (Easterlin approach) and financial satisfaction ($H_1$). There is a positive association between relative comparison to peers (Duesenberry approach) and later life stage financial satisfaction ($H_2$).

Another hypothesis focuses upon associations between absolute factors, like income and age, and financial satisfaction. Absolute income and net worth will be less predictive of financial satisfaction than relative income ($H_3$). These first three hypotheses will be tested in two separate models, the relative income approaches of Duesenberry and Easterlin, and the absolute income and net worth approach. This allows comparisons to be made between the strength of relative and absolute factors upon financial satisfaction with another expected relationship being that the relative income approaches will show higher correlation with financial satisfaction than absolute income and net worth.

The final two hypotheses relate to two internal characteristics, personal growth and environmental mastery, that work to capture the attitudinal and psychological building-blocks of satisfaction. There is a positive association between personal growth and financial satisfaction ($H_4$). There is a positive association between environmental mastery and financial satisfaction ($H_5$). These subjective measures are used as a determinant of satisfaction and are meant to help capture feelings of control over one's finances. Those with feelings of high personal growth and environmental mastery may experience a strengthened sense of authority over their greater financial outcomes and feeling of momentum toward an improved financial condition. This would result in potential increased levels of relative financial satisfaction. Conversely those with feelings of low personal growth or environmental mastery may report lower financial satisfaction levels because they have not seen progress or success in the life of their finances. These variables further do not represent a respondent's absolute financial condition, but instead mark their feeling of progress from a past situation to a present one.

## Summary

In summary, the purpose of this dissertation is to shed light upon the impact of financial change on financial satisfaction. Utilizing the Relative Income Hypothesis, this dissertation may help to solidify empirical evidence explaining the relationship between relative and absolute dimensions of financial satisfaction. The results may further encourage financial planners, therapists, and counselors to apply a holistic approach to understanding the situation of clientele, factoring how their personal backgrounds and relative social standing may affect their money relationships and sense of financial satisfaction.

The remaining chapters are organized as follows. Chapter 2 provides a review of the Relative Income Hypothesis, financial satisfaction, financial change and longitudinal studies,

contextualizing the ideas held within this dissertation in relation to previous literature. Chapter 3 delineates the methodological process. Bivariate means analyses of childhood family financial background and later life stage net worth will be utilized to help understand the impact of financial change upon financial satisfaction. Ordinal logistic regression will be applied to two models. Model 1 will capture relative income effects upon financial satisfaction, and Model 2 will capture absolute income effects upon financial satisfaction. Results will be reported in Chapter 4. It will define the relationship between change in lifespan financial situation and financial satisfaction, define the relationship between financial comparison to a reciprocal friend and financial satisfaction, compare absolute income and net worth effects to relative income, and measure conscientiousness factors of personal growth and environmental mastery. Chapter 5 will involve the discussion of results regarding the impact of financial change, peer comparison, absolute income and net worth, and psychological/perception variables upon financial satisfaction. Contributions and implications for the financial planning field, strengths and limitations of this dissertation, and recommendations for future research will all be examined.

# Chapter 2 - Literature Review

Previous research connecting the Relative Income Hypothesis, longitudinal processes, and financial satisfaction to financial change charts a course that winds through an array of fields of study from psychology to behavioral studies to sociology to finance. This literature review first provides an overview of the theoretical framework in the Relative Income Hypothesis section. The next section is Financial Satisfaction, with important studies on the relation of income, net worth, financial change, age, older adulthood, and lifetime change to financial satisfaction being noted. The literature review section Longitudinal findings and the Wisconsin Longitudinal Study highlights research that follow early life determinants throughout the lifespan. The final section, Financial Change and Social Mobility focuses on the studies that specifically follow change as an important determinant of financial satisfaction.

The Relative Income Hypothesis is defined as a framework of comparison between one's own present situation and that of others or from another time. The Relative Income Hypothesis has application in two different methods, an inward-looking (Easterlin) and outward-looking approach (Duesenberry) (Carrol et al., 1997). The Relative Income Hypothesis suggests that financial satisfaction is more sensitive to one's standing in reference to others and to one's past than to real dollars like income and net worth. Relative Income Hypothesis research is sensitive to the reference group of choice and there exists overwhelming evidence that it is underutilized as a framework (Blanchflower & Oswald, 2004; Brown et al., 2015).

Financial satisfaction is defined as one's overall feeling of fulfillment derived from money and money-related decisions and behaviors (Joo & Grable, 2007). Financial satisfaction has been shown in the literature to be affected by gender, emotional well-being, confidence, financial behaviors, and age. Longitudinal research with a longer time horizon has shown mixed

results between financial change and financial satisfaction. Some evidence does show that childhood economic origin impacts individuals even to older ages, while other evidence suggests that adaptation and increased expectations for more dissolve any longer lasting effects of positive change in financial condition. There is consensus that longitudinal research is the best option available to answer questions relating to financial change across the lifetime.

## Relative Income Hypothesis

The Relative Income Hypothesis is an economic theory that assumes that intertemporal money feelings and decisions are based more upon the current income of others in society and personal incomes from one's past (relative income) than current household economic resources. Important components of the Relative Income Hypothesis include social comparison and past habituation and adaptation (Clark, Flèche, Layard, Powdthavee, & Ward, 2018). The Relative Income Hypothesis claims that relative income is a stronger determinant of consumption/saving activity and the utility it produces than income in dollars, also known as absolute income (Duesenberry, 1949). Two main branches of the Relative Income Hypothesis have developed over time. The first by Duesenberry (1949), takes the approach that we compare our relative selves to the relative state of others and often references cross-sectional data. This has become known as the "outward approach" to the Relative Income Hypothesis. The other, developed by Easterlin (1974), takes the approach that we also compare our relative selves to past conditions and experiences, emphasizing upbringing and life change through a longitudinal lens. This is known as the "inward approach" to the Relative Income Hypothesis.

The concept that status and comparison shape savings and consumption behavior does predate Duesenberry. An economist and social scientist, Veblen (1899), conceptualized conspicuous consumption to explain the rise of status spending as a prime economic objective.

Other research in early psychology attached a high value to aspirational desire, a propellant that drives self-esteem and affects human choice (Horney, 1937). Aspiration is inextricably tied to our perception of financial success or failure, as we compare ourselves to those in our reference group, some of whom fall above and below our rank on the social standing spectrum. This urge drives us to be competitive, striving, and acquisitive with income, capital, and possessions that reflect levels of economic success (Kardiner, 1945).

The Relative Income Hypothesis is supported by two primary empirical observations. The first, utilizing cross-sectional data, showed a positive correlation between savings and income (Duesenberry, 1949). When viewed at a specific point in time, there existed a positive correlation between higher income and higher satisfaction levels. While the second, viewed longitudinally, recognized that household savings rates do not increase as income increases (Duesenberry, 1949). Satisfaction levels similarly did not rise with the rise of aggregate incomes over time (Easterlin, 2001). The Relative Income Hypothesis was created to reconcile these empirical occurrences by first detaching absolute income from absolute savings and then establishing the connection between consumption and relative social standing in society (Koçkesen, 2007). This relative social standing is the process through which we compare our position to others in society, serving as a sort of reference group by which we form our own understanding of what spending and consumption patterns should look like (Alvarez-Cuadrado & Long, 2011). The Relative Income Hypothesis claims that a person's place in the income distribution will influence saving and consumption patterns, as well as the utility derived from each, providing a framework to interpret financial satisfaction levels that stand in potential contrast to absolute income.

The Relative Income Hypothesis preceded many of the budding developments in the fields of behavioral finance, including studies of subjective well-being, conceptual models of comparison utility, adaptive aspirational metaphors like the hedonic treadmill, and social aspects of financial comparison to a reference group (Argyle, 1999; Brickman & Campbell, 1971; Carroll et al., 1997; Caporale et al., 2007; Clark & Oswald, 1996; Diener, Suh, Lucas, & Smith, 1999; Skitovsky & Frank, 1992). Many of these ideas were further developed in the economics of happiness, a movement that seeks to emphasize welfare-based measures over the traditional income-based measures (Clark, 2018; Clark et al., 2018; Graham, 2009). The economics of happiness has been able to produce surprisingly specific results, even going as far as finding the equal value in happiness of dollar amounts and life events. For instance, according to one study a happy marriage holds the same relative happiness as an additional $10,000 a year in income (Blanchflower & Oswald, 2004). The policy implications of the economics of happiness literature are straightforward: policymakers would do better to focus on subjective well-being and satisfaction instead of GDP and household incomes (Beja, 2014; Clark et al., 2018; Frey & Stutzer, 2002; Graham, 2009; Layard et al., 2014). Such research tends to emphasize relative income over absolute income as a variable of focus, sometimes contrasting the two.

The Relative Income Hypothesis is a cousin to the Theory of Relative Deprivation, a sociological framework which claims that a lower social status and level of living in comparison to a reference group leads to feelings of dissatisfaction, resentment, and desire for change (Bernstein & Crosby, 1980; Runciman, 1966). While the Relative Income Hypothesis focuses more on utility derived from relational aspects of money, and Relative Deprivation focuses on the lack thereof, each are explained through the lens of social comparison.

> If people have no reason to expect or hope for more than they can achieve, they will be less discontent with what they have, or grateful simply to be able to hold on to it. But if, on the other hand, they have been led to see as a possible goal the relative prosperity of some more fortunate community with which they can directly compare themselves, then they will remain discontent with their lot until they have succeeded in catching up (Runciman, 1966, p. 9).

Relative Deprivation has been applied in the field of personal financial planning in many similar ways to the Relative Income Hypothesis, with the emphasis being placed upon the consequences of inequality, the prejudice and envy toward the wealthy, or the lack of access to resources arising from comparison to others with greater income and wealth in one's social group (Klontz, Sullivan, Seay & Canale, 2015). Those reporting higher relative deprivation of income have been shown to also report lower health status (Kondo, Kawachi, Subramanian, Takeda, & Yamagata, 2008).

In research relating relative deprivation to income satisfaction, D'Ambrosio and Frick (2007) asked the question, "are we satisfied with our income?" Relative deprivation was defined as the difference between the respondent's income and the income of richer individuals. The hypothesis was upheld that position on the income distribution matters because of social comparison. The results suggested satisfaction from income is less correlated to being rich and more related to being richer than one's reference group (D'Ambrosio & Frick, 2007). Research with similar supporting evidence suggests that higher reference group incomes negatively predict well-being (Clark & Oswald, 1996). Literature on rank income further validates this hypothesis, suggesting that higher position-rank in the income distribution does lead to higher life satisfaction levels, validating the importance of relative income comparison (Boyce, Brown, &

Moore, 2010; Brown, Gardner, Oswald, & Qian, 2008; Clark, Kristensen, & Westergaard-Nielsen, 2009). Position near the bottom of one's rank-income and rank-wealth comparison group has further been associated with higher rates of depression (Osafo, Wood, Brown, & Dunn, 2015). It should be noted that rank-income perspectives do deviate from the Relative Income Hypothesis in relation to status. Rank-income sees comparison as an ordinal process, whereas the Relative Income Hypothesis sees comparison as a cardinal process, emphasizing the difference in dollars, not ranking (Bilancini & Boncinelli, 2008).

### *Other Income Hypotheses*

The Relative Income Hypothesis stands in contrast to two other models of consumer behavior, Keynes' Absolute Income Hypothesis (1936) and Friedman's Permanent Income Hypothesis (1957). The Absolute Income Hypothesis postulates a proportional change in consumption with increased income. The Permanent Income Hypothesis stresses the attempt to smooth consumption over the lifetime. All three models seek to identify the elements that yield greatest utility from individual saving and consumption patterns. Economists have long applied the Absolute and Permanent Income Hypotheses to the macro-economic goal of most modern nations to increase income and economic output. Happiness and satisfaction levels are assumed to rise along with income. Some analyses suggest correlations as high as .50 between national income and life satisfaction levels (Diener & Oishi, 2000; Veenhoven, 1991). The correlation between individual income and life satisfaction in the micro-economic literature has been found to be much lower at .20 (Easterlin, 2001).

At the micro level, the idea that money buys happiness is rational, with the conventional wisdom that more money leads to more opportunities for people to actively pursue self-improvement, which should lead to higher well-being (Schwartz, 2004). However, the strong

evidence suggesting no longitudinal correlation between increases in income and happiness does challenge the idea that absolute income leads to higher satisfaction levels (Shefrin & Thaler, 1988). This dichotomous phenomenon, known in the field as the Easterlin Paradox (1974), arises from empirical findings that no increase in general happiness levels could be found in wealthier nations even after increases in living standards and incomes throughout most of the twentieth century (Easterlin, 1974; McBride, 2001). The Easterlin Paradox (1974) has been called the paradox of unhappy growth, separating the traditional metrics of financial success, namely income, from subjective measures of well-being, and advancing the need in the literature for more research on relative determinants of subjective well-being (Graham, 2008).

These studies provide a macroeconomic assessment of the income-happiness link. When viewed through the lens of the individual, research follows a similar footprint. Higher individual income levels equate to higher levels of individual satisfaction in cross-sectional surveys (Ahn et al., 2006). However, when income levels rise over time at the household level, no patterns emerge to suggest higher satisfaction. Instead patterns suggest strong preferences to hold at a constant level of financial satisfaction even when incomes and net worth increase (Easterlin, 2001; McBride, 2001). As described, the Relative Income Hypothesis offers a theoretical explanation for both micro and macro assessments of this empirical data.

Social standing and outward comparison, as well as internal comparison, strongly affect happiness and satisfaction levels (Diener, 1984). These ideas have formed the foundation for studies suggesting a bifurcated view of utility derived from income, one which sees it absolutely as a means to pay for the basic needs of life, and the other which sees it relatively as a signal of status (Graham, 2009; Tay et al., 2017; Wolbring et al., 2013). One widespread interpretation by Clark et al. (2007) sought to explain this bifurcation, suggesting that income may lead to higher

levels of satisfaction up to the point where it sufficiently covers basic needs for living and security. Some have even delineated that mark at around $75,000 per year per household in the United States and 800 Euro per month in Germany (Kahneman & Deaton, 2010; Wolbring et al., 2013).

The Relative Income Hypothesis suggests that satisfaction has a strong social and psychological foundation. In the sociology and psychology fields, this idea is related to social framing, and norm-referencing. As humans, we are sensitive to the status of others in relation to ourselves. Other psychosocial dynamics like habituation and aspiration further impact feelings of satisfaction (Graham, 2009; Wolbring et al., 2013).

Research has demonstrated that the Relative Income Hypothesis can be viewed outward-looking and inward-looking (Carroll et al., 1997). Outward-looking is present comparison to others and inward-looking is comparison to past self. For this dissertation, the outward-looking approach is associated with the Duesenberry approach to the Relative Income Hypothesis. The inward-looking approach is associated with the Easterlin approach the Relative Income Hypothesis.

Outward-looking compares one's present situation to that of others in one's reference group. People constantly compare their situation and status to that of others. Therefore, if incomes rise in the aggregate, the satisfaction that should come from higher incomes would be offset by the rise in the income of others. The "percentile position in the income distribution" would remain constant, and satisfaction would not rise (Duesenberry, 1949). In this dissertation, the outward comparison method is referred to as the Duesenberry approach to the Relative Income Hypothesis, referencing the economist James Duesenberry who examined the

implications of status upon income satisfaction in his *Income, Saving and the Theory of Consumer Behavior* (Duesenberry, 1949).

In the literature, comparison of income has been measured across many different reference groups, being clustered by spatial, occupational, educational, and income-specific categories (Brown et al., 2015). Regarding neighbors, the attempt to keep up with the Joneses may be true, as those who live alongside of wealthier neighbors report lower levels of subjective well-being (Clark et al., 2009; Luttmer, 2005). Reports of subjective well-being fall when incomes are markedly lower than incomes of coworkers (Brown et al., 2015). These results are exacerbated when wages are more highly visible (Card, Mas, Moretti, & Saez, 2012). Comparison can also be made in relation to those in one's geographical region as well as to top earners in society (often this last method of comparison is measured by looking at income inequality) (Blanchflower & Oswald, 2004; Kondo et al., 2008). Research suggests that comparison is an antecedent to greater sensitivity from loss of employment and reduction in income (Carrol et al., 1997).

This relative income effect not only exists in external comparison, but also may be further applied to one's own personal background, as people compare their present status to their own past consumption behavior and expectation (Carroll, Overland, & Weil, 2000c). Inward-looking compares one's present financial situation to one's own personal history. This is denoted in this dissertation as the Easterlin approach to the Relative Income Hypothesis, referencing Richard Easterlin's controversial finding that increases in national income in the United States in the mid-Twentieth century did not suggest increases in satisfaction (Easterlin, 1974). Easterlin reconciled his puzzling findings by hypothesizing that satisfaction is dependent upon aspiration, a variable that is, by nature, ever-changing (Easterlin, 2001; Plagnol & Easterlin, 2008).

The Relative Income Hypothesis provides a framework that interlocks financial satisfaction to the relative state of others and an individual's own personal background. The understanding of one's past will thus have a direct impact on financial satisfaction, as present experiences and feelings are framed within the context of past savings and consumption patterns. Financial change represents this in the model, capturing the internal comparison made to past experiences and expectations relating to income and consumption (de la Croix, 1998; McBride, 2001). Therefore, the threshold for financial satisfaction should be higher for those who grow up in a wealthier family setting than those who grow up in poverty. Further, if a person has experienced a drastic change in her financial past, one could assume it will seriously impact satisfaction in the present.

The Duesenberry and Easterlin approaches to the Relative Income Hypothesis have been applied side-by-side in the literature, though often with a wide variety of labels. Both are models of comparison, with the Duesenberry approach an "outward-looking" comparison of "self versus others" and the Easterlin approach an "inward-looking" comparison of a self's "now versus then" (Carroll et al., 1997; Liang & Fairchild, 1979). The Duesenberry approach has also been popularized by slogans like "keeping up with the Joneses" and connected to concepts like conspicuous consumption – ideas that conclude we are very much impacted by our social state in relation to others. The Easterlin approach, known as comparison to the "good old days," is marked by feelings of intertemporal perception in relation to the change, habit formation, and growth over time (Hagerty, 2003; Wolbring et al., 2013). Both the Duesenberry and Easterlin concepts are founded on the idea that we reference the norm to determine our own feelings of satisfaction. The results of previous studies suggest that both are significant determinants of financial satisfaction. The Duesenberry approach to the Relative Income Hypothesis is more

prevalent in the literature than the Easterlin approach, which necessitates the use of longitudinal data or questioning which compares the past to present (Clark et al., 2018). Research utilizing both approaches suggests the Duesenberry approach to be more robust than the Easterlin approach (Liang & Fairchild, 1979; McBride, 2001).

The Relative Income Hypothesis is used in this dissertation to guide questions regarding the impact of personal background distinctions and lifetime financial change upon present financial situation. If prior research has established that, generally, reference-based models display very different savings, consumption, and satisfaction patterns when compared to absolute measures like income and net worth, and if that research has also established, specifically, that past habituation and feelings of status impact satisfaction levels, then research focusing on financial change from childhood through late adulthood should predict levels of financial satisfaction (Bilancini & Boncilnelli, 2008; Duesenberry, 1949; Easterlin 1974; Heady et al., 2008; McBride, 2001). Ancillary considerations regard peer comparison, one aspect of the Relative Income Hypothesis that is strongly supported by research (Clark & Oswald, 1995; Clark et al., 2009). According to this idea, community and personal past consumption norms become the base upon which people set their own satisfaction expectation. Those in settings with people of higher income and spending habits would be expected to have a higher consumption expectancy. Also, those who are raised in more prosperous socioeconomic settings would be expected to have a raised consumption expectancy.

Finally, other relative factors that influence financial satisfaction, such as feelings of environmental mastery, control, confidence, and personal growth do exist (Johnson & Krueger, 2006; Wilhelm, Varcoe, & Fridrich, 1993). An example of these can be found in a study that focused on the impact of relative income upon financial satisfaction within the household, with

results suggesting that those who contribute the most income to a household (control) also have the highest financial satisfaction within the household (Ahn et al., 2006). Feelings of mastery have also been a key indicator in research on financial satisfaction among the elderly (Hennon & Burton, 1986)

The Relative Income Hypothesis has most frequently been applied in research relating to saving patterns and the effect of social status. Past research has shown that the Relative Income Hypothesis has credence as a theoretical construct, as household savings typically are dependent upon the social status system surrounding a household and savings increase when income increases relative to others (Alvarez-Cuadrado & Van Long, 2009). Even in published research that does not fully apply Relative Income Hypothesis as a theoretical underpinning, relative income has grown as a concept that is often mentioned as a variable to explain certain phenomena relating to saving patterns (Carrol et al., 2000). In all however, there exists very little empirical research about the Relative Income Hypothesis and financial satisfaction, and thus there exists much need to further develop empirical studies utilizing this theoretical foundation (Brown et al., 2015).

The Relative Income Hypothesis emphasizes the important role that comparison has in understanding present financial satisfaction. This framework fits well within research emphasizing financial satisfaction, as financial satisfaction is highly dependent upon our human instinct to compare to others and our own past. This assumption is the driving force behind this study's research question: what is the relationship between change in lifespan financial situation and later life stage financial satisfaction?

## Financial Satisfaction

Empirical research about financial satisfaction provides integral clues about the overall sense of well-being held by individuals and households regarding money relationships. It is a dimension that has been heavily investigated throughout the history of household economics research, growing in popularity from the 1970s to present-day (Vera-Toscano et al., 2006). Yet despite the amount of research on the topic, there exists little consensus about which factors influence it most (Joo & Grable, 2007). If research connecting satisfaction to absolute outcomes, such as income and net worth, is notably lacking (Stevenson &Wolfers, 2008), then the study of relative factors and financial satisfaction is still in its infancy (Brown et al., 2015; Furnham, 1984; Joo & Grable, 2007; Wolbring et al., 2013).

Financial satisfaction is defined as one's overall feeling of fulfillment derived from money and money-related decisions and behaviors (Joo & Grable, 2007). It is a construct formed from both extrinsic and intrinsic forces. Financial Satisfaction is a subjective measure, often attached to the perceived sufficiency of an individual's financial resources (Hira & Mugenda, 1998). Recent research conceptualized financial satisfaction within the broader category of well-being (Joo & Grable, 2007). Being understood as an outshoot of happiness in general and a component of utility in economics, it is a context-specific element of life satisfaction and well-being (Blanchflower & Oswald, 2004; Van Praag et al., 2003).

Financial satisfaction is often seen as an essential money attitude that is the result of multiple determinants. The focus most often rests upon objective indicators such as net worth, education level, and income (Cramer, 1982; Williams, 1983). Previous research suggests that financial satisfaction may be better understood as an intermediary linking money and happiness (Diener & Biswas-Diener, 2002). Subjective indicators, like stressors, feelings of solvency,

financial attitudes, and knowledge have also been shown to affect financial satisfaction levels (Joo & Grable, 2007). Therefore, financial satisfaction can be viewed through an objective lens, subjective lens, or a combination of the two (Bruggen et al., 2017). Financial behavior also suggests influence upon financial satisfaction (Anderson, Granbois, & Rosen, 2014). Financial satisfaction has been shown to correlate with marital health, social decisions, consumption patterns, and work efficiency (Freeman, Carlson, & Sperry, 1993; Garman, Leach, & Grable, 1996; Williams, Haldeman, & Cramer, 1996).

In psychology and sociology, money is seen as an essential element for the functioning of households and society, one so interconnected to work and life that it is the prime societal determinant of success (Lindgren, 1980). In the field of household economics, finances are more often seen as an objective measure of wealth and a physical representation of utility (Porter, 1993). However, in the past twenty years an emphasis has been placed upon the relative factors influencing money and financial satisfaction (Clark et al., 2014). These models incorporate aspiration and comparison as important aspects leading to satisfaction (Boyce et al., 2010; Caporale et al., 2007; Wolbring et al., 2013).

In the neoclassical economic literature, extrinsic forces such as income, net worth, and the utility derived from personal possessions were the central focus of household economic theory in the early twentieth century, revolving around the concepts of utility maximization and consumption modeling (Friedman, 1957; Keynes, 1936). Out of these neoclassical models developed a positive theoretical framework that attempts to explain how saving and consumption can create optimal financial satisfaction based upon absolute income levels and consumption levels across the lifetime (Modigliani, 1986). Both Friedman (1957) and Keynes (1936) emphasized the objective and quantifiable aspects of choice. According to these frameworks,

financial satisfaction and income should be highly correlated in every measurable aspect. When measured empirically, however, these models have often failed to describe the real activity of households and individuals (James & Sharpe, 2007; Johnson & Kruger, 2006). Out of this came a bourgeoning new branch of economics, known as the economics of happiness. The economics of happiness emphasized subjective measures of satisfaction and well-being, both overall and domain-specific, over the traditional objective measures of income and money (Campbell, 1972; Easterlin & Sawangfa, 2009). This new emphasis upon the economics of happiness has provided new depths of focus that cross into the disciplines of psychology and sociology in an attempt to better understand what drives satisfaction, with more and more empirical research moving the field forward at a rapid pace (Clark, 2018).

There exists strong evidence that individuals with higher incomes show a strong tendency to be happier at any given point in time (Diener, 1984; Argyle, 1999; Frey & Stutzer, 2002). Greater levels of income should mean more needs are met in a household, thus increasing well-being (Veenhoven, 1991). Additional research backs this, finding a positive correlation between income and steady work, a functioning family, high ambition levels, and active community involvement (Easterlin, 2001; Joo & Grable, 2007; Judge & Kammeyer-Mueller, 2012). Conversely, some published research suggest the opposite – that money is not a strong determinant of financial satisfaction. The correlation in some models indicated that, though income is a factor, it has a notably lower correlation to happiness than expected (Easterlin, 2001). Other studies indicated that materialism (those who value material objects) intensifies this relationship (Sirgy, 1997), and being intrinsically motivated might lessen this relationship (Kasser & Ryan 2001). Research findings also suggested that those with the highest aspiration for more, phrased as the American Dream for material wealth, may have a lower sense of general

well-being (Nickerson, Schwarz, Diener, & Kahneman, 2003). Researchers posit that money may impair ability to savor positive emotions and experiences (Quiodbach, Dunn, Petrides, & Mikolajczak, 2010). This concept, called experience-stretching, suggests that general happiness in the present is informed by past habituation, culling example from how extremely positive experiences tend to numb future indulgences. In short, money can spoil (Gilbert, 2006).

There exists a strong trend in the financial satisfaction literature that should be noted. A case is made that wealth, or net worth, may have more significant impact upon satisfaction than income (Heady et al., 2008). Those who can store away more assets have been shown to be less sensitive to life catastrophes that burden finances. They have also been shown to have less financial stress and a stronger desire to follow their passions when compared to those with equal incomes and less net worth (Klontz et al., 2015). As a variable of study, net worth has received less attention than income, possibly because of the ease of quantifying income and the complex challenge that comes with measuring net worth (Aboohamidi & Chidmi, 2015; Juster, Smith, & Stafford, 1999; Pfeffer, Shoeni, Kennickell, & Andreski, 2016). Further research suggests that assets and liabilities may each independently explain financial satisfaction better than when combined into net worth (Plagnol, 2010a).

Men tend to show more sensitivity to their financial condition than women. In a study on twins taken from the Survey of Midlife Development, subjective well-being was more highly correlated to income for men (Zyphur, Li, Zhang, Arvey, & Barsky, 2015). There is a strong tie between male satisfaction in domain-specific areas relating to finances, like goods, family security, and aspiration-fulfillment, and overall happiness (Plagnol & Easterlin, 2008). This disposition among males may be explained by the gender stereotypes that pressure men to feel competent as a breadwinner in order to feel accomplishment in a household (Crowley, 1998).

Both men and women respond to source of income within the household, showing higher financial satisfaction levels when earning a higher percentage of household income (Ahn et al., 2006).

Age has been known to affect satisfaction levels as well. Findings in literature suggest that satisfaction typically follows a U-shaped pattern throughout the life cycle, starting high in early adulthood, then decreasing through middle-age, and finally increasing through the 50s and 60s into the early 70s (Ahn et al., 2006; Blanchflower & Oswald, 2004; Clark, 2018; Clark et al., 2018; Joo & Grable, 2008; Van Praag et al., 2003; Wolbring, 2013). This trend extends to financial satisfaction as well, with the reasoning that as people age through their fifties, dependents leave, income peaks, and net worth rises faster than any other life stage (Heady et al., 2008; Plagnol, 2010a; Steptoe, Deaton, & Stone, 2015). Income needs are alleviated during this time, especially for parents whose children reach financial independence (George, 1992; Hennon & Burton, 1986). However, headwinds do exist that should lead to lowered levels of financial satisfaction for the elderly. Retirement results in significantly lowered incomes for a large percentage of the population, as most retirees do not adequately prepare for retirement (Hira & Mugenda, 1998). This phenomenon is known as the retirement security gap, and it is a very well-documented issue in personal finance and gerontology (Hershey & Jacobs-Lawson, 2012). Some reports suggest that only 53% of U.S. households have a retirement account, the median value being just $100,000 (Adams & Rau, 2011; Purcell, 2009). Further, social security in the United States does not adequately satisfy retirement income needs, accounting for an average of 40% income replacement, far from the 70% suggested by retirement planners (Reno & Lavery, 2007). These challenges only appear to loom larger into the future for young adults who have earlier

and larger debt loads, and less opportunity at employee-sponsored pensions (Munnell & Hou, 2018).

Combined with dissaving and the concern over whether one's resources will last through to the end of life, financial burden and strain are still very relevant for those age 65 and older (George, 1993). Despite this, retirees still report much higher levels of financial satisfaction than younger cohorts (Clark, 2018; Hsieh, 2000; Plagnol & Scott, 2011). When controlling for income and net worth, retirees report higher financial satisfaction levels than younger adults, an occurrence that has been noted in some circles as the "satisfaction paradox" (Hansen et al., 2008).

Little evidence links mortgage holding in retirement, commonly thought to be a sign of financial fitness for retirees, to financial satisfaction (Seay, Asebedo, Thompson, Stueve, & Russi, 2015). Supporting evidence suggests that the desire for high income and free cash flow peaks well before retirement, in the heart of one's middle years between 30 and 50 (Cheung & Lucas, 2015). A reason for this phenomenon may be intra-generational, as financial satisfaction's upward movement in older cohorts may be the result of unusually dissatisfied younger cohorts, not necessarily a lifespan trend for older respondents (Hsieh, 2000). In summary, retirement as a life event does bring with it many salient life changes that shift perspectives on satisfaction. Less personal attention is given to situations associated with the workplace and more consideration to health and relationships. The positives and negatives appear to weigh evenly, as the act of retirement suggests little correlation to either a rise or fall in level of satisfaction (Clark et al., 2018; Westerlund, Kivimaki, Singh-Manoux, Melchoir et al., 2009)

Research on the topic of financial satisfaction and relative income among older adults dates to a 1979 paper focusing on relative deprivation and income sufficiency. With data drawn

from the General Social Survey, the sharp discrepancy between absolute income and financial satisfaction was noted among respondents older than 65, potentially owing to retirement effects and a lessened correlation between workplace activity and income comparison (Liang & Fairchild, 1979). Strong unanimity exists in the field of gerontology that high financial satisfaction among older adults is the result of a lessened desire to compare, lowered needs, and diminishing levels of aspiration (Hansen et al., 2008; Hsieh, 2003; James & Matz-Costa, 2016). While it has been found that financial satisfaction trends upward with age, satisfaction levels do tend to peak around four years into retirement (Gorry, Gorry, & Slavov, 2018). Additional research found support for no correlation between retirement saving and comparison effects. One example in the literature exposed those who have no retirement savings plan to the positive savings activity of their peers. The results suggest that such activity caused a discouraging effect in the zero-retirement population, possibly because of negativity surrounding social comparisons to those in a more favorable retirement situation. (Beshears, Choi, Laibson, Madrian, & Milkman, 2015).

As the United States ages, retirement-aged individuals have become a target cohort of researchers and policymakers. Most baby-boomers have reached retirement and retirees are living longer. In the United States, individuals age 65 can now expect to live to 85 (Cutler 1992; James & Matz-Costa, 2016). This longer retirement time horizon, along with increasingly complex financial considerations (like the change from defined benefit retirement pensions to defined contribution retirement savings) means that there is more at stake in planning for the golden years (Beshears et al., 2015). These trends in the literature on retirees and financial satisfaction must be accounted for in this research, with possible implications that relative

income effects may be drowned out by the general upward trend in financial satisfaction of those around age seventy.

Financial satisfaction also shows a strong connection toward behavioral effects. Those who display a tendency toward the activities of saving, budgeting, and planning for emergency report higher levels of financial satisfaction (Anderson, Granbois, & Rosen, 2014). Other activities, like paying off credit cards on time and managing other debts without getting behind, also suggest increased financial satisfaction levels (Joo & Grable, 2007). The strong correlation between behavior and satisfaction suggests the importance of feelings like environmental mastery, confidence, growth, and control as components of both relative and absolute income.

All this evidence provides only a snapshot understanding of financial satisfaction. The data highlighting change over time shows a much different picture. Longitudinal studies indicate little if any relationship exists between increases in income over a given period and increases in financial satisfaction levels (Frey & Stutzer, 2002). Even at the national level, an increase in income for the masses does not guarantee an increase in aggregate satisfaction (Graham & Pettinato 2001). These findings have been widely interpreted. The most common response from the psychology field is known as adaption level theory, the idea that any happiness resulting from a better situation is often muted by habituation (Brickman & Coates, 1978). In finance, the hedonic treadmill, or the human inclination to quickly increase expectation and desire to match any increase in income or financial situation, is the term widely applied to this phenomenon. The hedonic treadmill idea assumes that satisfaction is less dependent upon one's actual situation than it is upon one's increasing desire for more (Diener, Lucas, & Scollon, 2006).

Other interpretations emphasize the importance of the status that income can create, with some asserting that money spent on items solely because they are symbols of positional rank

decreases happiness (Winkelmann, 2012). Another approach applies what are known as individual welfare functions, which ask individuals to rank happiness in relation to income ranges for each of their individual households. The results suggest that the threshold for anticipated future satisfaction increases with higher present income levels (Van Praag, 2003). These results in the literature suggest that change in financial condition may not equate to change in financial satisfaction. Instead, the strong pull of comparison shapes feelings of satisfaction in stark ways.

One very significant factor of financial satisfaction is relational in nature. Individuals gauge satisfaction by looking at their condition relative to the individuals around them: their family, friends, neighbors, and even their past selves. Duesenberry (1949) developed the Relative Income Hypothesis based upon this human tendency, stating that community consumption norms are assimilated into the individual household and thus the household's financial circumstances would also be contingent upon such comparisons. Our standard for satisfaction draws from experiences in past and present (de la Croix, 1998). This line of thought has been applied to satisfaction levels in other fields, showing effective relationships between confidence and fitness levels (Griffin & Tversky, 1991) as well as correlations between a general past negative experience and present positive experience (Smith, Diener, & Wedell, 1989). When applied directly to the field of personal financial planning, relative factors provide integral clues that may help explain the relationship between time, status, spending, consumption, change in financial condition, and financial satisfaction. Relative factors may further offer a more holistic approach to understanding financial satisfaction that encompasses human emotion, locus of control, and personal background.

While previous literature has been able to answer some questions on the relationship between relative factors and financial satisfaction from interpreting cross-sectional data, the question of influence of relative and absolute income across the lifespan demonstrably requires the use of datasets that follow cohorts throughout the life cycle (Clark et al., 2018). The utilization of longitudinal data on happiness outcomes first led to the Easterlin Paradox (1974) and continues to push empirical research toward a better definition of relative and absolute effects upon financial satisfaction (Clark & Lee, 2017; Easterlin, 2001; Flèche, Lekfuangfu, & Clark, 2017)

## Longitudinal Findings and the Wisconsin Longitudinal Study

Panel data provides an open door to explore the determinants and direction of causality of financial satisfaction in relation to lifespan outcomes, providing a means to connect childhood and adolescent experience to adult outcomes (Layard et al., 2014). A strong case is made in the literature that there is need for more longitudinal research on subjective well-being (Feist, Bodner, Jacobs, Miles, & Vickie, 1995; Plagnol, 2010b; Wooden & Li, 2014). While there do exist fewer longitudinal datasets with more restrictions on variable selection within, they fit research on distal variables like change over the life course and are required in order to measure adaptation and habituation (Clark et al., 2018; Graham, 2004; Van Praag et al., 2003). In The Wisconsin Longitudinal Study: Designing a Study of the Life Course, Hauser et al. (1992), posited that a main question in need of answering is, "what are the earlier life factors, both individual and contextual, that lead to better outcomes in the post-retirement years?" The WLS provides fertile grounds to discover lifelong influencers upon satisfaction for those in their twilight years (Clark & Lee, 2017).

In the family influence literature, early life determinants often significantly correlate to adult education, profession likelihood, and income (Becker & Tomes, 1979; Heckman & Mosso, 2014). There is an extensive research history on the influence of childhood cognition upon earnings. Results suggest that we tend to overstate the correlation between IQ and income and underestimate the influence of psychosocial indicators, like aspiration and emotional health, upon income (Zax & Rees, 2002). There also exists a strong case for the importance of family environment as a time for children to develop skills which become strong determinants of future adult outcomes (Heckman & Mosso, 2014). Early life characteristics exert at least some influence upon adult outcomes, and recent efforts have been made to grow the literature on adolescent personality, cognition, and sociability, as learned within the family, upon general and domain-specific life satisfaction (Fritjers, Johnson, & Shields, 2014). Much of the literature on change over the life course exclaims a need for more examination of longitudinal data upon subjective well-being measures (Graham, 2009; Plagnol, 2010b). This holds implication, as very little emphasis has been applied to the impact of personal background distinctions and lifetime financial change upon present financial outcomes.

Most conclusions on this topic rest on the apparent connection between childhood and early adulthood, with little published on longitudinal effects lasting over twenty years (Fritjers, Johnson, & Shields, 2014). Yet, childhood experiences have been shown to predict levels of well-being even into later adult stages (Clark & Lee, 2017). Life-course models applying longitudinal data in the National Child Development Study and British Cohort Study suggest the distal connection to childhood indicators, especially emotional health, behavior, family economic and psychosocial condition, are significant well beyond the forties (Flèche et al., 2017). Additional support using WLS data even carries the time horizon beyond the fifties, suggesting

that the responses from high school graduates in 1957 still held predictive power around age 72 (Clark & Lee, 2017). Findings run parallel in panel data from British Cohort Studies, suggesting that variables from childhood show stable significance throughout the life course (Flèche et al., 2017).

Other findings from the British Cohort Studies indicate that most family and childhood characteristics from age two to sixteen provided a relatively poor forecast of adult life satisfaction. At its highest, the model predicted 6.8% of variance in adult life satisfaction. The socioeconomic situation of a child's family was much less important than childhood emotional and behavioral well-being, according to this data. Conclusions follow that, at least in Britain in the 1970s and 1980s, life satisfaction was largely determined by factors that are both controllable and changing throughout the lifespan (Fritjers et al., 2014). Even more research from these same cohort studies suggest income has a strong intergenerational connection; trends show that children tend to remain in the same income bracket as their parents (Blanden, Gregg, & Macmillian, 2007).

The English Longitudinal Study of Ageing, the United States General Social Survey, and Roper Survey have all established important late life trends regarding happiness and satisfaction. While women tend to show higher satisfaction levels at earlier stages in life, men show higher levels of satisfaction between age 50 and 75 (Clark et al., 2018). Men report higher levels of fulfillment relating to goods, family life, and financial situation at this age (Plagnol & Easterlin, 2008). In a WLS study, men show greater sensitivity to financial wealth and job-related feelings at this life stage (Bettina, Korunka, Raymo, & Hoonakker, 2011). These differences between men and women have been attributed to the relative importance that men give to aspiration and attainment of employment and financial outcomes (Plagnol & Easterlin, 2008). Research

utilizing these surveys has also confirmed the life stage trend of increasing happiness for men and women from late adulthood up through ages 70 to 74 , with varied explanations for this phenomenon ranging from less stress, fewer dependents, greater assets, and a renewed social life (Clark et al., 2018; Heady et al., 2008; Plagnol, 2010a; Steptoe, Deaton, & Stone, 2015).

Literature utilizing the WLS provides a strong backdrop for studying early life determinants upon later life outcomes. One study found that living in poverty in adolescence does affect life chances of high school graduates, as it limits educational opportunities for college. Consequentially, a ceiling exists for those from families with limited financial resources. However, the conclusion rests that poverty's impact upon adulthood is no greater than other influencers from one's upbringing; it does not stretch far out of adolescence into middle adulthood. (Hauser & Sweeney, 1997). Other time series panel data support these findings. The Avon Longitudinal Study of Parents and Children, a British survey containing many of the same characteristics as the WLS, reaches an even younger age demographic, with findings that childhood poverty had impact on academic performance throughout all stages of childhood, stretching into the attainment of an occupation in adulthood. Emotional, physical, and behavioral well-being all showed less sensitivity than cognitive determinants from children of low-income households (Clark et al., 2018).

In the WLS, sibling data is tracked on four separate occasions, providing an opportunity to study the lifetime effects of family background upon life outcomes. Findings suggest that siblings do show significant likeness in cognition, educational attainment, and choice of occupation. This similitude lessens into later adulthood (Warren, Hauser, & Sheridan, 2002). Another research study from the WLS pulled the multigenerational effect of grandparent schooling, employment, and income upon the educational attainment and occupational status of

grandchildren. Controlling for parental characteristics, they found little evidence to connect outcomes of children to the characteristics of their grandparents (Warren & Hauser, 1997).

The WLS is filled with a wealth of psychological and sociological variables that fit the Relative Income Hypothesis framework (Sewell & Hauser, 1980). One of the goals of the WLS is "to investigate self-assessments of well-being in context of aspirations, accomplishments, and social relationships with significant others" (Hauser, Sewell, Logan, Hauser, Ryff, Caspi, & MacDonald, 1992). Such an aim aligns with the status and aspirational elements of the Relative Income Hypothesis. The Relative Income Hypothesis has been applied using WLS data to predict marriage timing with results suggesting that parental income had no relative income impact upon the decision of when to marry (but it does have absolute income impact) (MacDonald & Rindfuss, 1981). This stands as the only piece of research in the WLS literature to date that utilizes the Relative Income Hypothesis as a central framework.

The marriage of longitudinal data to the Relative Income Hypothesis in existing literature is markedly scarce. One research article from the General Social Survey measured relative income as the variable of focus, doing so in two different ways. The first took the ratio of an individual's income to the state income per capita in an attempt to capture regional income and consumption similarities. Findings suggest that income in relation to others in one's state was marginally better at predicting happiness than absolute income. The second took the ratio of income within one's quintile and measured satisfaction levels within that income cohort. Results were measured by movement from quintile to quintile over time, with findings that people choose to compare themselves more to those above them than below (Blanchflower & Oswald, 2004).

Another research study, utilizing the German Socio-Economic Panel, compared satisfaction levels to absolute income and relative deprivation of wealthier individuals in East and West Germany. The further one was from those with highest incomes more accurately predicted satisfaction than income itself (D'Ambrosio & Frick, 2007). Another research article posited that, utilizing panel data from multiple nations, change in financial situation over time could be utilized as a means for measuring relative income. When change in economic well-being was measured against change in satisfaction, relative income was seen through the lens of adaptation. The hypothesis was that change should be positively correlated to satisfaction levels. In the German panel data, an income increase of 1,000 marks suggested an increase of .14 percentile on the satisfaction scale over time. An increase in income and net worth did lead to a modest bump in financial satisfaction in The Netherlands. In Hungary, evidence from a longitudinal study spanning 1992 to 1997 highlighted the same result as in The Netherlands for income and net worth. Increases in consumption levels did not correlate well with any satisfaction increase (Heady et al., 2008).

Previous experience is also a powerful component of the Relative Income Hypothesis. One's personal history and past carries forward to influence present judgement of progress, normalcy, and satisfaction (Carroll et al., 1997). This inward-looking process, known in this dissertation as the Easterlin approach to the Relative Income Hypothesis, is supported in the subfield of finance focusing on change over time. Those experiencing drastic market swings in their teens and twenties allow such events to profoundly affect feelings about market potential and market risk later in life (Malmendier & Nagel, 2011). In fact, these generational trends need strong consideration, especially regarding panel studies following one age cohort through different life stages. Research has shown that those who grow up in certain eras tend to share

certain money predispositions based upon economic situations and market trends like stock market performance and interest rate yields (Piazzesi & Schneider, 2006). Further, longitudinal data has shown the possibility that changes in financial satisfaction may result from a larger generational trend. For instance, not only do younger cohorts report lower financial satisfaction than older cohorts, but they report lower financial satisfaction that older cohorts reported at that same age (Hsieh, 2000).

One's economic origin through adolescence, also known as family financial situation, along with cognitive abilities and parental education level, have been shown to even impact distal variables deep into later adulthood, controlling for proximal correlates. In a study utilizing Amazon's Mechanical Turk platform, parent socialization, often informal, played a noteworthy role in adult money scripts, even causing ripples in late life stage financial solvency and satisfaction levels (Mathur & Kasper, 2019).

Parental income is a very strong predictor of eudaimonia (eudaimonia is similar to well-being with emphasis on the feeling of progress, control, and purpose), showing higher levels of influence on those age 72 than present income. The authors speculate that income may possibly matter more in early life because of the opportunity it represents to pursue an education, career, and life path that is most desired (Clark & Lee, 2017). Flèche et al. (2017), found a similar connectedness between childhood predictors and adult outcomes at all stages. Emotional health stood out as a strong predictor of outcomes in adulthood. Childhood determinants have also shown incredible ability to predict wages over the lifetime, with some research suggesting that as much as 50% of variance in earnings can be determined by age 18 (Cuhna, Heckman, & Navarro, 2005).

## Financial Change and Social Mobility

The Relative Income Hypothesis emphasizes the importance of context. This dissertation conceptualizes context as feelings derived from referencing neighbors, family, and one's own past. In this light, change would affect upon one's present circumstantial satisfaction as most relative factors remain steady. Change may be defined as intragenerational mobility of financial situation that may or may not be connected to one's socioeconomic place in society. In the literature, change has scarcely been implemented as a variable of interest, necessitating the use of longitudinal data (Clark et al., 2018). However, perceived changes in financial state over time have suggested significant control over present financial satisfaction (Davis & Helmick, 1985). Most studies involving change focus on major life events that spur on increased stress levels. Often such episodes, like divorce, loss of a job, or loss of a loved one, tend to lower most domains of life satisfaction and have an impact on financial satisfaction as well (Joo, 1998). Such research provides complimentary support for the Relative Income Hypothesis, as change affects satisfaction and is a relative element to understand how present conditions are measured. Previous literature suggests that these episodes in life, called stressors, act as the drivers of life change and become palpable determinants of financial change.

It should also be noted that an argument is made in the literature that change in situation often does not bring about as much a change in satisfaction as would be expected (Frey & Stutzer, 2002; Kahneman & Krueger, 2006). The seminal paper on this concept followed the ability of lottery winners to enjoy normal life events after they experienced these drastic life changes. It is hypothesized that adaptation and habituation counteract the positive gains from winning the lottery (Brickman, Coates, & Janoff-Bulman, 1978). Estimates were made that after

three years, people fully adapt to increases in income (Wolbring et al., 2013). In such examples, the weight of change is slowly neutralized by our human nature to acclimatize.

Change is an important element in understanding satisfaction, providing a backdrop of comparison to present condition. The research that longitudinally assesses the impact of change upon financial satisfaction suggest that there is a significant, albeit weak, correlation between positive financial change and increases in satisfaction. One project measured economic change by using the illustration of lateral movement up or down on the economic ladder. This was materialized by assessing net worth change. Those with a drastic move of 50% or more in Hungary and Britain showed an increase of 4.6% and 3.1% on the life satisfaction scale (measured 0-100), respectively. These are notably small increases when considering such a drastic increase in status (Heady et al., 2008). Such findings are supported by other research comparing income change to subjective well-being (Luhman, Schimmack, & Eid, 2011). Other findings suggest a very short time horizon for impact of income change – about three years (Wolbring, 2013).

Findings on income and change are dissenting, as some suggest a real benefit to income growth over the lifetime. Using the German Socioeconomic Panel and focusing on the rapid increase in East German incomes after the fall of the Berlin Wall (a 60% increase over 11 years), social scientists found an increase in life satisfaction between 35 and 40% for this sample, holding all else equal. These results do suggest a much higher correlation between income change and satisfaction than the rest of the literature. There is a chance other dynamic changes in geopolitical and socioeconomic landscapes were captured along with income increase in this example (Fritjers, Haisken-DeNew, & Shields, 2004).

While we see differing conclusions from longitudinal data on financial change over the lifetime and satisfaction, there does exist motivation in the field of personal financial planning to figure out just what it is that drives us toward conclusions of financial satisfaction. Findings suggest that an important piece of this conversation are the other psychosocial and personality-related factors driving relative money feelings (Luhman et al., 2011). To this regard, a great question is posited in the literature: "[d]o Spending and sense of control and self-esteem matter more to financial satisfaction than income?" (Hansen, 2008)

Attitudes and feelings of control, growth, mastery, and autonomy affect financial satisfaction (Ryff, 1989). In one study, respondents answered pointed questions about money beliefs and financial satisfaction. Their material possessions, income state, and demographics acted as controls. The results suggest money beliefs taken from Furnham's (1984) Money Beliefs and Behaviors Scale, covering money obsession, power, retention, security, inadequacy, and effort are paramount to predicting financial satisfaction and, in many ways, even supersede the traditional measures of financial satisfaction, namely income and net worth (Wilhelm et al., 1993).

Research by Furnham (1984), a pioneer in the field of money and psychology, suggests that financial satisfaction is a multi-faceted, layered construct that derives from psycho-social roots. The power and control of money, as well as how it is created, may more clearly affect money attitudes than money itself. Further, time and age may influence satisfaction levels, as needs and money perspectives change with life stages. Perceptions of past money experiences, as well as beliefs about future trends play an integral role in present satisfaction levels (Furnham, 1984). Additional research suggests that money scripts, or intrinsic beliefs held about money, developed in formative childhood years also affect saving habits, income attainment, and

subjective financial well-being throughout adulthood. The interplay of money scripts with absolute income and relative beliefs may be yet another variable shaping overall financial satisfaction levels (Klontz, Britt, Mentzer, & Klontz, 2011; Mathur & Kasper, 2019).

Poverty-related research also provides some interesting findings relaying change and satisfaction. One study reports that those who managed to break away from an impoverished childhood did not report higher satisfaction levels at later life stages despite higher incomes. This, according to the authors, may have been caused by an acute fear of falling back into an impoverished state (Graham & Pettinato, 2002). These findings challenge the hypotheses established in this dissertation, namely that a change in state from low to high income would equate to higher financial satisfaction levels, instilling in someone a sense of mastery and confidence over a positive financial situation that stands in contrast to their past and the situation of others.

Social mobility allows for the movement of individuals up or down the socioeconomic ladder. It therefore amplifies the tendency of people to constantly and relatively measure themselves to the standing of others. Pioneering literature from psychology and sociology on the matter connect the rise of social class ranking, spending on leisure items not required for subsistence, and the capitalistic idea of success as a chief goal for modern man (Kardiner, 1945). This environment, according to Duesenberry (1949), gives rise to competitiveness over financial resources as upward mobility becomes a social priority.

There exist a number of studies emphasizing social mobility. McBride (2001) used a subjective measure of financial satisfaction, finding that those reporting their standard of living as “much worse” than their parent’s standard of living were less likely to report higher subjective well-being that those reporting a standard of living higher than their parent’s standard of living.

Another study focused on intergenerational educational change, dividing the sample into three larger categories: those who were immobile (staying in the same category), those who were downwardly mobile (attaining less than their parents), and those who were upwardly mobile (attaining more than their parents) (Van der Waal, Daenekindt, & Koster, 2017).

## Summary

This research has the potential to add significant meaning to the present literature on financial satisfaction. First, the Relative Income Hypothesis has been noted as a conceptual framework receiving very little attention in empirical studies (Clark et al.,2007; Easterlin, 2001). Second, the increasing need for analysis of panel data to better understand subjective well-being is distinguished in the economics of happiness literature (Diener et al., 1999; Wooden & Li, 2014). Third, this framework fits well within research emphasizing financial satisfaction, as financial satisfaction is highly dependent upon our human instinct to compare and relatively relate to others and our own past (Duesenberry, 1949; Easterlin, 2001). Finally, there exists very little research on the impact of childhood variables upon late life satisfaction utilizing longitudinal data (Flèche et al., 2017). This sentiment is the driving force behind this study's research question: what is the relationship between past changes in finances, comparison income, and present financial satisfaction?

Both research about change and research utilizing the Relative Income Hypothesis need more attention in the literature. As personal financial planning continues to develop and grow, there will continue to be more need to assimilate the psychological and sociological characteristics of these concepts into the field (Frey & Stutzer, 2002). Therefore, research focusing on the internalized understanding of one's relative past may provide some meaningful

conclusions to the literature, potentially helping find applications that reach to a comprehensive understanding of the early-life determinants upon present personal financial satisfaction.

# Chapter 3 - Methods

This dissertation builds on previous empirical research within the framework of the Relative Income Hypothesis to explore the determinants of financial satisfaction, as viewed through financial change and peer comparison. This dissertation investigates the association between relative income factors and financial satisfaction. First, a conceptual approach is delineated, then important characteristics of the Wisconsin Longitudinal Survey are noted. The empirical approach next defines the two models to be analyzed. Financial satisfaction, financial change, peer comparison, absolute income and net worth, psychological/perception variables and other independent variables are operationalized. Finally, the process for handling missing data and the process regarding the additional bivariate means analyses are explained.

## Conceptual Approach

This research primarily examined the association between relative income and financial satisfaction. Two models, three analyses, and four tests were utilized. Two models separate relative and absolute income effects. Model 1 focused on relative income effects. Model 1 included two analyses of three ordinal logistic regression tests. The first analysis measured financial change through the Easterlin approach to the Relative Income Hypothesis and involved two tests. The first test measured financial change through mobility categories, the second test measured financial change through percentage income change. The second analysis measured financial comparison through the Duesenberry Approach to the Relative Income Hypothesis. The second analysis involved one test, another ordinal logistic regression, and the third test run in this dissertation. Finally, Model 2 included one analysis and one test of absolute income and net worth. This logistic regression replaced the relative income independent variables with income and net worth.

Financial satisfaction was the dependent variable. Given the ordered categorical nature of financial satisfaction, ordinal logistic regression analysis was applied. Two separate models were run. The first measured relative income effects upon financial satisfaction and applied two tests, one with financial change as a key independent variable and the other with peer comparison as a key independent variable. The second measured absolute income and net worth effects upon financial satisfaction by testing income and net worth as the key independent variables. Additional tests included a bivariate means analyses of childhood parental income and later life stage financial satisfaction against net worth for respondents age 63 to 66 years old.

This dissertation utilized the Relative Income Hypothesis as a framework with financial satisfaction as the dependent variable. The literature on Relative Income Hypothesis suggests that two very important aspects when working with relative factors are reference group selection and the estimation strategy employed (Brown et al., 2015). There exist two reference groupings in this dissertation.

The first reference group measuring the Easterlin Approach to the Relative Income Hypothesis, compared lifetime change in financial situation. The reference group was one's own past experience, measured by studying parent income from the WLS through three years spanning from the respondent's high school senior year and after. Past experience was compared to present financial situation in two tests. The first test compared this past experience to net worth figures from the 2004 survey round of the WLS to create social mobility categories with three categories (low, middle, and high) from each to create nine categories that measured financial change from childhood through late adulthood. The second test looked at the inflation-adjusted income change from parental income around age 18 to current income around age 64.

The second reference grouping measured the Duesenberry Approach to the Relative Income Hypothesis. It compared the relative standing of the respondent against the financial situation of a reciprocal friend.

## Wisconsin Longitudinal Study

The data for this study was taken from a secondary data source, the Wisconsin Longitudinal Study. The WLS is a survey of 10,317 Wisconsin citizens that started in 1957 and continued through 2011. Following the same respondents from their senior year of high school through age 72, the WLS has gathered data in six waves (1957, 1964, 1975, 1992-1993, 2004, and 2011). The WLS contained responses from 7,063 individuals in 2004 and 5,967 individuals in 2011, its most recent round. The WLS particularly emphasizes transitions through different life stages, aging, and mortality. Respondents were high school seniors in 1957, with most being born in 1939. It is estimated that 75% of students in the Wisconsin school system would have reached this point in their education at the time of this survey, thus this survey does underrepresent the lesser-educated members of the Wisconsin population at that time (Hauser & Willis, 2005). This dissertation utilized data from the original survey round when they were around 18 years of age, the 1975 survey when respondents were around 36, the 1992-1993 round when respondents were around 52 to 53, the 2004 round when respondents were around 64, and the 2011 survey when respondents were around 72.

Although the WLS sample considers a broad spectrum of men and women, mostly white, with a high school diploma, it is not representative of the general U.S. population. All respondents resided in Wisconsin during the initial survey round. Most respondents held ancestry from Northern and Western Europe (Hauser & Sweeney, 1997). Thus, survey respondents were predominantly white. At the time of the initial survey round in 1957, only 2% of Wisconsin's

population was black (this question was not asked in the original survey round, due to a Wisconsin law prohibiting race-related surveys in schools) (Hauser, & Sweeney, 1997; Sewell & Hauser, 1980).

Ninety percent of respondents reported being raised through high school graduation in an intact family, higher than in other surveys from that time period (Hauser & Sweeney, 1997; Sewell, Hauser, Spring, & Hauser, 2004). WLS participants also reported notably low poverty rates, possibly a consequence of exclusively surveying high school graduates. The WLS literature utilizing family income figures also notes that poverty rates may be overstated for those who grew up on a family farm (19% of the cohort grew up on a farm and 54% of those were categorized under the poverty level), as like-kind non-cash transactions on farms would understate income on tax records. Of non-farm families in the WLS, only 14% reported an income under poverty levels (Hauser & Sweeney, 1997). This sample was limited geographically to respondents residing in Wisconsin during their senior year of high school. Though these people may have since moved from the state, the entire database originated from Wisconsin.

In summary, the demographic characteristics of this cohort made it less racially diverse, of a higher education level, and more geographically restricted than the U.S. population in 1957. Thus, caution should be taken in making overarching claims about the entire population from this data (Clark & Lee, 2017).

While the WLS was originally designed to measure educational desire and attainment, it developed over later survey rounds to cover a broad swath of topics regarding health, wealth, occupation, values, and psychology (Sewell & Hauser, 1980). As the survey has matured, it expanded to include questions of the main cohort's siblings and spouses. Response rates for the main cohort were exceptionally high for such an extensive longitudinal survey window.

Considering its length, the WLS has a reputation of having superb sample retention throughout its fifty-plus year history (Sewell et al., 2004). Findings in the WLS are consistent to other surveys with similar demographics (Corcoran, Gordon, Laren, & Solon, 1992). The WLS is known for its wealth of longitudinal data on family history and background, being described as the most thorough longitudinal study with over 50 years of data collection that is available in the United States (Hauser & Wills, 2005; Herd, Carr, & Roan, 2014). It has been thoroughly noted in the literature as a rich source for studying the impact of adolescent experience upon life outcomes of older adults (Hauser, 2008). It has a distinct head start over other longitudinal studies (all require a literal lifetime to collect a lifetime of data), and therefore is now a paramount resource for retirement-age research (Hauser & Willis, 2005).

In the current study financial change throughout time must be measured, and the WLS provided measures of a respondent's financial past collected in real-time, not limiting the research to a respondent's memory of their past financial condition. Furthermore, spanning a total of 54 years, the WLS dataset offered a timeframe that encompassed a large period of adulthood and for the financial change variable in this study, a 47-year timespan. These survey characteristics were ideal for research focusing on longitudinal financial change and financial satisfaction. This longer timeframe captured a lifetime of experience and potential life change from adolescence to the later adulthood retirement years. The ability of the WLS to measure social mobility is a documented strength of the data set (Hauser et al., 1992).

## Empirical Approach

The heart of this research rests on the appropriate conceptualization of financial satisfaction. This may be understood as a measure contingent upon not only material factors such as financial success (absolute income and net worth) but also upon relative conditions through

which people compare their position to others in society and to their own past experiences (Duesenberry, 1949). Therefore, this dissertation analyzed the effect of the following variables upon financial satisfaction: relative income, absolute income, net worth, demographic characteristics, and psychological/perception factors. Because the correlation between different measures of socioeconomic status is known to be high, two concurrent models were applied. The methodological solution was to compare the fit of these two models, with both relative income measures in separate analyses. Then another analysis was used with absolute income and net worth as the variables of focus (Gravelle & Sutton, 2009).

It is important to properly differentiate absolute and relative income as well. Note that income has two distinct functions, acting functionally as a means for the fulfillment of physical need and symbolically as a source of social standing, rank, power, and comparison (Tay et al., 2017). This view of income is bifurcated, with the first being absolute and the second relative. Absolute income and net worth were conceptualized in this dissertation by both the respondent's present household net worth and income. Relative income was analyzed separately to consider both outward and inward-looking subjective comparisons (Carroll et al., 1997). Outward-looking relative income sees those around the individual as a source of comparison and was referenced in this dissertation as the Duesenberry approach to relative income. Inward-looking relative income sees an individual's past as a source of comparison and was referenced in this dissertation as the Easterlin approach to relative income.

Model 1 examined the extent to which financial satisfaction can be explained by personal changes in financial past relative to present financial situation, peer comparison, demographic variables, and other psychological factors upon financial satisfaction. Figure 3.1 presents Model 1. Although the figure considered them both, the analyses of the two types of relative income

were conducted separately. Model 2 held these same variables, with absolute income and net worth replacing relative income. Absolute income and net worth served as a benchmark or backdrop to contrast the impact of relative income effects. Demographics such as education level, gender, ethnicity, marital status, and health status served to strengthen the model. Additional eudemonic effects, psychological and social perception variables, offered additional support to the model by augmenting the relative income effect upon financial satisfaction. Figure 3.2 presents Model 2. These models drew inspiration from previous research on income and satisfaction that classify income into two utility categories, the first seeing relative income as connected with status and rank in comparison to others, the second recognizing absolute income and net worth as resource and need fulfillment (Tay et al., 2017; Wolbring et al., 2013). Both were multilevel models with the income type flowing into satisfaction.

If a person sees a change in her financial situation relative to peers and personal history, it can be expected she would further feel high levels of growth and mastery. Therefore, two eudaimonia measures of personal growth and environmental mastery were added to the model as psychological/perception variables. It should be noted that each of these were scale measures, compiling the total score of five Likert-type questions, and they were not specifically money related. Each scale did capture integral subjective outcomes like development, improvement, management, change, and command that may have a strong connection to feelings of progress or decline for life and finances.

**Figure 3.1 Model 1. Relative Income and other Determinants of Financial Satisfaction**

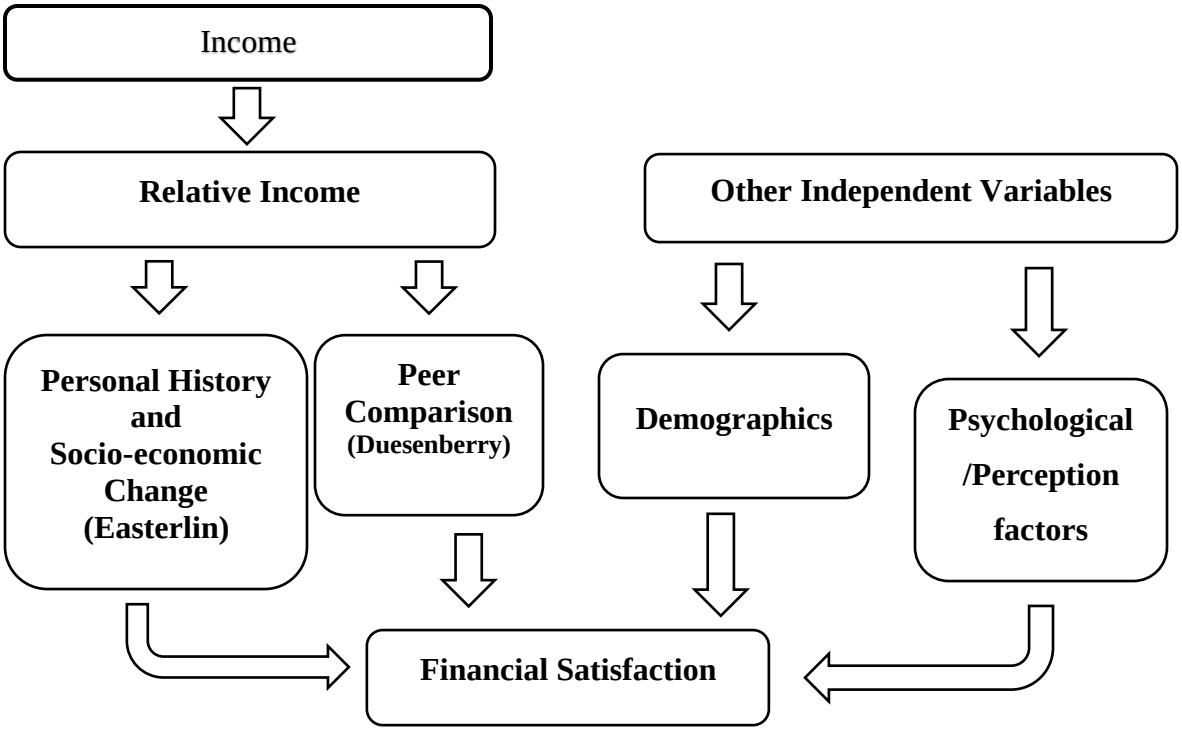
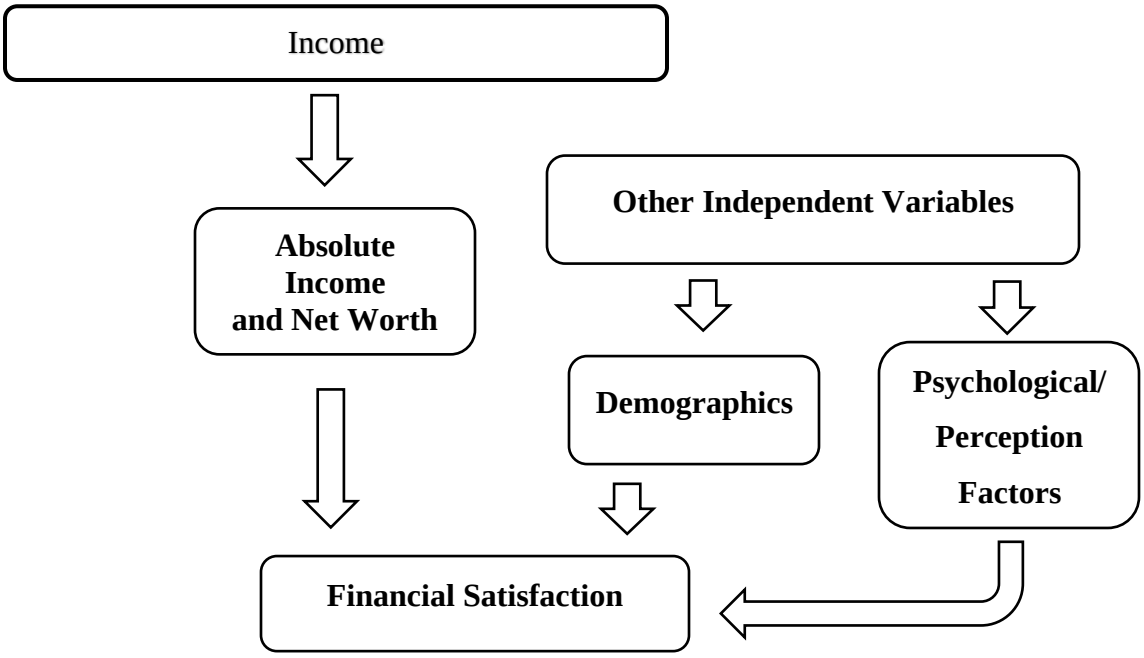



**Figure 3.2 Model 2. Absolute Income, Net Worth, and other Determinants of Financial Satisfaction**



## Operationalization of Variables

The dependent variable of the study, financial satisfaction, was available in a single item question in the 2004 and 2011 survey rounds, and all desired independent variables were included in the WLS database. Change in financial situation was measured through the 1957 survey question asking the respondent's assessment of family's income/wealth and the 2004 survey questions regarding income and net worth questions. Peer comparison was measured in the 2011 survey round. The demographic variables (gender, education level, marital status, and health status) and psychological/perception factor variables (environmental mastery and personal growth) were all contained within the 2004 and 2011 surveys as well.

### *Financial Satisfaction*

The Wisconsin Longitudinal Study (WLS) used a single item measure of financial satisfaction. Respondents were asked to answer the following question, "How satisfied are you with your present financial situation?" (Wisconsin Longitudinal Study, 2011). The response options were: *completely*, *very*, *somewhat*, *not very*, *not at all satisfied*. This same question was asked in both the 2004 and 2011 survey rounds. This one question measure with a five-point Likert-type scale has commonly been applied in previous empirical measurements of financial satisfaction (Morgan, 1992; Porter & Garman, 1993; Joo & Grable, 2007).

### *Model 1 Relative Income and Financial Change (Easterlin Approach)*

The relative income measure was conceptualized as change in financial status over time and peer comparison. Each emphasized the known power of comparison and the desire to match personal financial satisfaction to some type of reference group or event in one's preferential past (Alvarez-Cuadrado & Van Long, 2009). The Easterlin approach to the Relative Income Hypothesis was applied in two tests. The first test utilized nine categorized mobility categories,

taken from parental income (1957-1960) and net worth (2004) to assess financial change. The second test utilized income change from parental income (1957-1960) to income around age 64 (2004). This variable read as income percentage increase or decrease from parental income to respondent income.

The first test utilizing financial mobility was applied as follows. Change in financial status over time combined two items in the WLS, parental income from when the respondent was age 17-21 in high school and immediately after high school (1957-1960) and net worth around age 64 (2004). Parental income was obtained through a 1964 follow-up to the original 1957 survey that involved the addition of Wisconsin state tax records to the dataset. This data collection method for income is known to be highly accurate. Income records were averaged for the years 1957 to 1960 for the respondent's household (MacDonald & Rindfuss, 1981). These income ranges were, for the purpose of this dissertation, placed into three income categories: low, medium, and high. The low category represented parent incomes that fall into the bottom third of incomes, the middle category represented parent incomes that fall into the middle third, and the high category represented parent incomes in the top third. Low was in the range of $0 to $3,300, medium was in the range $3,301 to $6,300, and high was any income above $6,300, in 1970s dollars. In today's dollars those ranges are $0-$22,143, $22,144-$42,273, and above $42,274 (Bureau of Labor Statistics, n.d.).

The second item referenced their present financial situation, looking at the 2004 survey net worth question. This variable was the summed total of a series of questions relating to savings, investments, and debts, including household home equity, business or farm equity, real estate equity, motor vehicle equity, retirement savings, cash, certificate of deposits, treasuries, bonds, stocks, mutual funds, life insurance cash values, and other assets, minus other debts. Net

worth (2004), for the purpose of this dissertation, was ordered into three equally dispersed categories: low, medium, and high. Low was any net worth (2004) below $291,000, medium was in the range of $291,001 to $701,000, and high was any net worth (2004) over $701,000. Note that net worth (2004) was an imputed figure and was arrived at by finding the mean of the five tests that are run through an internal process from the WLS (Sicinski, 2010).

**Table 3.1 Financial Mobility Categories**

| Variable | Parental Income 1957-1960 Dollars | Parental Income Inflation-Adjusted to 2011 | Present Net Worth |
|---|---|---|---|
| Financial Mobility: Low to Low | $0-$3,300 | $0-$22,143 | < $291,000 |
| Financial Mobility: Low to Middle | $0-$3,300 | $0-$22,143 | $291,001-$701,000 |
| Financial Mobility Low to High | $0-$3,300 | $0-$22,143 | > $701,000 |
| Financial Mobility Middle to Low | $3,301-$6,300 | $22,144-$42,273 | < $291,000 |
| Financial Mobility: Middle to Middle | $3,301-$6,300 | $22,144-$42,273 | $291,001-$701,000 |
| Financial Mobility: Middle to High | $3,301-$6,300 | $22,144-$42,273 | > $701,000 |
| Financial Mobility: High to Low | $6,300 + | $42,274 + | < $291,000 |
| Financial Mobility: High to Middle | $6,300 + | $42,274 + | $291,001-$701,000 |
| Financial Mobility: High to High | $6,300 + | $42,274 + | > $701,000 |

*Note*. Variables and measures came from the 1957-1960, 2004, and 2011 Wisconsin Longitudinal Study surveys (Wisconsin Longitudinal Study, 2019)

When combined, there were nine financial mobility categories that represent each parental income category (1957-1960) combined with each older age personal net worth category. These were mobility categories illustrating change from childhood to late adulthood, and they were measured against the dependent variable of financial satisfaction. Those moving from living with low parental income (1957-1960) to the high personal net worth (2004) category and those moving from living with high parental income (1957-1960) to the low personal net worth (2004) category represented the greatest upward and downward financial mobility over time. They represented the greatest financial change. Those moving from living with low parental income (1957-1960) to the middle and high personal net worth (2004) categories, and those moving from middle parental income (1957-1960) to the high personal net

worth (2004) category represented upward financial mobility. Those moving from living with high parental income (1957-1960) to the low and middle personal net worth (2004) categories, and those moving from middle parental income (1957-1960) to low personal net worth (2004) category represented downward financial mobility. Measures of financial change have rarely been implemented in the personal financial planning literature. However, research does indicate that perceived changes in financial state over time suggest significant control over present financial satisfaction (Davis, & Helmick, 1985).

A second test was run that captured financial change through a single item that represents percentage income change. It was arrived at by taking respondent income (2004) minus parental income (1957-1960) divided by parental income (1957-1960). This number is the percentage change between the respondent's parental income and the respondent's adult income. Parental income (1957-1960) was adjusted for inflation, with an inflation factor of 6.71 times 2004 dollars (Bureau of Labor Statistics, 2020). Income (2004) was household income that adds respondent and spouse income from a job, business, social security, pension, government assistance, investments, and other sources. For instance, a respondent with household income of $45,000 who grew up in a household (inflation adjusted) with income of $25,000 would have reported an 80% increase in household income.

### *Model 1 Relative Income and Peer Comparison (Duesenberry Approach)*

The Duesenberry approach to the Relative Income Hypothesis was applied through a reciprocal friend measure in the WLS. The WLS (1975) asked respondents to denote their three closest friends, called reciprocal friends. If the respondent listed a friend who then reciprocally listed the respondent as one of their closest friends, then they were added to the reciprocal friend module. There were 1,654 participants in the original reciprocal friend module. In the 1992-1993

WLS wave, respondents remained in the reciprocal friend module if they responded yes that their friend was alive and they had been in contact with each other in the past five years, with a total of 1,097 responding yes. This process was repeated in the 2011 survey round, with 793 responding yes. These 793 respondents were then asked, "Have you done better or worse than your reciprocal friend financially (Wisconsin Longitudinal Study, 2011)?" The six response options were: *don't know*, *much better*, *better*, *about the same*, *worse*, *much worse* (see Appendix A for the complete list of variables). Those who reported as *better* than their reciprocal friend, being retired, married, male, and holding a bachelor's degree were held constant in this analysis. This subjective assessment of respondent finances compared to a friend was used as the independent variable of focus in relation to financial satisfaction (2011). Financial satisfaction (2011) was asked in the exact same way as the financial satisfaction (2004) variable.

The reciprocal friend questions (1975, 1992-1993, 2011) are a unique feature of the WLS data set, and there is notably very little literature available that assesses the impact of peer reference upon financial satisfaction in the way it can be applied through this measure. The time frame of this question also is helpful for the purpose of this dissertation, as it captures the relative income status of respondents around age 71, having a slightly longer timeframe than the Easterlin measure. Both the Easterlin and Duesenberry approaches provided a basis for this model. The utilization of both approaches does have support in previous research that supports conceptualizing relative income as a combination of the two factors of peer comparison and personal history (Alvarez-Cuadrado, & Van Long 2009; McBride, 2001).

### *Demographics*

Demographic variables were added to the model. Gender (1957), education level (2004, 2011), marital status (2004, 2011), health status (2004, 2011), and work status (2004, 2011) have

all been shown to significantly affect the dependent variable financial satisfaction (Joo & Grable, 2007; Wilhelm & Varcoe, 1991). Gender asked, "what is your gender?" with response options 1 = *male*, 0 = *female*." The education level question read, "summary of ever attended college." If *yes* was the response, then they were prompted to answer *level of highest degree since high school*, with options *associates, bachelors, masters, doctorate or professional degree* and *college certificate not classified elsewhere*. Education level did present some bias worth noting, as the survey was given to high school graduates and did not include any part of the population that did not go to high school or graduate from high school. Marital status was coded 1 = *currently married*, 2 = *separated*, 3 = *divorced*, 4 = *widowed*, and 5 = *never married*. The health status question asked, "in general, would you say your health is excellent, very good, good, fair, or poor?", with 1 = *poor*, 2 = *fair*, 3 = *good*, 2 = *very good*, 1 = *excellent* (Wisconsin Longitudinal Study, 2004). Health status was reverse-coded.

Work status (2004) between the 1992-1993 survey round and the 2004 survey, was coded as working for those who responded as "currently employed and never retired" and "not currently employed and never retired", partially retired for those who responded "currently employed and retired" and retired for those who responded, "not currently employed and retired" (Wisconsin Longitudinal Study, 2004). Work status (2011) dropped the partially retired option, asking about work between the 2004 to 2011 survey round. Options were, "no, not known to have worked" and "yes, known to have worked (Wisconsin Longitudinal Study, 2011)." For further reference, Appendix A presents a complete variable listing.

### *Psychological/Perception Variables*

The empirical model in this dissertation emphasized the important role that contextual factors have upon feelings of financial satisfaction and therefore did include attitudinal and

psychological components to greater capture variance in the dependent variable. Prior research indicates the importance of utilizing a combination of subjective and objective measures when determining satisfaction (Joo & Grable, 2007). Personal growth and environmental mastery were chosen as they best contain, within Ryff's measures of psychological well-being, the elements of control over one's finances (Ryff, 1989). While psychological well-being may be viewed as a predictor of financial satisfaction, personal growth and environmental mastery captured characteristics of conscientiousness that are used in this framework as potential predictors of financial satisfaction.

Personal growth was a five-item response scale that consists of questions about feelings of development, improvement, perseverance, lifetime education, and effort (Wisconsin Longitudinal Study, 2011). Environmental mastery similarly was a five-item response scale that consisted of questions about feelings of management, organization, lifestyle, control, and perseverance (Wisconsin Longitudinal Study, 2011). Each scale had scores ranging from 5 to 30. 30 represented the high level of personal growth and environmental mastery; 5 represented the lowest level. See Appendix A for complete variable lists comprising these scales.

### *Model 2 Absolute Income and Net Worth*

In Model 2, absolute income and net worth replaced relative income. "Absolute income" is a term about current household economic resources, which was operationalized as income stated in current dollars. Net worth was then also considered alongside absolute income, as older respondents may be equally or more concerned with retirement assets as with cash flow. These measures permitted an accurate comparison model by which to assess the relative income effects in Model 1 by providing a process to directly compare the relative income and absolute income

effects upon financial satisfaction. For this study, natural logarithms were utilized for both income (2004) and net worth (2004).

In the WLS, income (2004) was a module series of questions that combined household income from social security, traditional pension plans, 401(k) and other similarly defined contribution retirement withdrawals, annuities, wages, salaries, commissions, and tips, income from business, and disability. The sum of these incomes was total household income. The natural logarithm (log income) was utilized, as income logged better accounts for magnitude of proportionate change and is a greater indicator of perceived effect (Hansen et al., 2008; Hodson, 1985; Kahneman & Deaton, 2010; Layard, Mayraz, & Nickell, 2008). According to Easterlin (2001) regarding the use of log income and change, "[i]f the same proportional rather than absolute increase in income is assumed to yield the same increase in happiness, then income change at upper levels causes the same increase in happiness as at lower."

Log net worth (2004) was used to measure current household economic resources as well (Heady, Muffels, & Wooden, 2008). This was deemed necessary because the sample's income may not provide a holistic picture of their true financial situation, being at or around retirement age in 2004. Other researchers have pointed out that the WLS respondents have reported income and net worth figures that are higher than the U.S. Census Bureau numbers, suggesting the possibility of attrition bias for higher achievers in the later rounds of this longitudinal survey (Noss, 2012; Vornovitsky, Gottschalck, & Smith, 2011).

**Table 3.2 Model 1 Variables, Survey Round Year(s), Respondent Ages, Question Type, and Response Method**

| Variable | Survey Round Year(s) | Ages | Question Type | Response Method |
|---|---|---|---|---|
| **Model 1: Relative Income: Easterlin Approach** | | | | |
| Financial Satisfaction (Dependent Variable) | 2003-2005 | 63-67 | 5 Point Likert-type scale 1=Highest, 5=Lowest | Phone |
| Parental Income | 1957-1960 | 17-20 | Continuous | State Tax Data |
| Personal Net Worth* | 2003-2005 | 63-67 | Continuous | Phone |
| Financial Mobility: Low to Low | 1957-1960 & 2003-2005 | 18-23 & 63-67 | Low parent income, low present net worth | Tax Data, Phone |
| Financial Mobility: Low to Middle | 1957-1960 & 2003-2005 | 18-23 & 63-67 | Low parent income, middle present net worth | Tax Data, Phone |
| Financial Mobility Low to High | 1957-1960 & 2003-2005 | 18-23 & 63-67 | Low parent income, high present net worth | Tax Data, Phone |
| Financial Mobility Middle to Low | 1957-1960 & 2003-2005 | 18-23 & 63-67 | Middle parent income, low present net worth | Tax Data, Phone |
| Financial Mobility: Middle to Middle | 1957-1960 & 2003-2005 | 18-23 & 63-67 | Middle parent income, middle present net worth | Tax Data, Phone |
| Financial Mobility: Middle to High | 1957-1960 & 2003-2005 | 18-23 & 63-67 | Middle parent income, high present net worth | Tax Data, Phone |
| Financial Mobility: High to Low | 1957-1960 & 2003-2005 | 18-23 & 63-67 | High parent income, low present net worth | Tax Data, Phone |
| Financial Mobility: High to Middle | 1957-1960 & 2003-2005 | 18-23 & 63-67 | High parent income, middle present net worth | Tax Data, Phone |
| Financial Mobility: High to High | 1957-1960 & 2003-2005 | 18-23 & 63-67 | High parent income, high present net worth | Tax Data, Phone |
| Income* | 2003-2005 | 63-67 | Continuous | Phone |
| Percentage Income Change | 1957-1960 & 2003-2005 | 18-23 & 63-67 | % change (parent income to present net worth) | Tax Data, Phone |
| Gender | 1957 | 17-19 | Male=1, Female=2 | Self-Administered |
| Health Status (Reverse Coded) | 2003-2005 | 63-67 | 5 Point Likert-type scale 1=Poor, 5=Excellent | Phone |
| Work Status | 2003-2005 | 63-67 | Retired, Working, Partially Retired | Phone |
| Marital Status | 2003-2005 | 63-67 | Married, Separated, Divorced, Widowed, Never Married | Phone |
| Education Level | 2003-2005 | 63-67 | 1=Assoc, 2=Bach, 3=Mast, 4=Doct | Phone |
| Personal Growth* | 2003-2005 | 63-67 | 5 Item Scale, 6 Points Per Item. 30=Highest, 5=Lowest | Mail |
| Environmental Mastery* | 2003-2005 | 63-67 | 5 Item Scale, 6 Points Per Item. 30=Highest, 5=Lowest | Mail |
| **Model 1: Relative Income: Duesenberry Approach** | | | | |
| Financial Satisfaction (Dependent Variable) | 2011 | 70-74 | 5 Point Likert-type scale 1=Highest, 5=Lowest | Phone |
| Peer (reciprocal friend) Financial Comparison | 2011 | 70-74 | 5 Point Likert-type scale 1=Highest, 5=Lowest | In Person |
| Gender | 1957 | 17-20 | Male=1, Female=2 | Self-Administered |

| | | | | |
|---|---|---|---|---|
| Health Status (Reverse Coded) | 2011 | 70-74 | 5 Point Likert-type scale 1=Poor, 5=Excellent | In Person |
| Marital Status | 2011 | 70-74 | Married, Separated, Divorced, Widowed, Never Married | Phone |
| Education Level | 2011 | 70-74 | 1=Assoc, 2=Bach, 3=Mast, 4=Doct, 5=College Cert | In Person |
| Personal Growth* | 2011 | 70-74 | 5 Item Scale, 6 Points Per Item. 30=Highest, 5=Lowest | Mail |
| Environmental Mastery* | 2011 | 70-74 | 5 Item Scale, 6 Points Per Item. 30=Highest, 5=Lowest | Mail |

*Note*. Variables and measures came from the 1957-1960, 2004, and 2011 Wisconsin Longitudinal Study surveys (Wisconsin Longitudinal Study, 2019)
*Imputed data are utilized

**Table 3.3 Model 2 Variables, Survey Round Year(s), Respondent Ages, Question Type(s) and Response Method**

| Variable | Survey Round Year(s) | Ages | Question Type | Response Method |
|---|---|---|---|---|
| **Model 2: Absolute Income and Net Worth** | | | | |
| Financial Satisfaction (Dependent Variable) | 2003-2005 | 63-67 | 5 Point Likert-type scale 1=Highest, 5=Lowest | Phone |
| Log Income* | 2003-2005 | 63-67 | Continuous | Phone |
| Log of Personal Net Worth* | 2003-2005 | 63-67 | Continuous | Phone |
| Gender | 1957 | 17-20 | Male=1, Female=2 | Self-Administered |
| Health Status (Reverse Coded) | 2003-2005 | 63-67 | 5 Point Likert-type scale 1=Poor, 5=Excellent | In Person |
| Work Status | 2003-2005 | 63-67 | Retired, Working, Partially Retired | Phone |
| Marital Status | 2003-2005 | 63-67 | Married, Separated, Divorced, Widowed, Never Married | Phone |
| Education Level | 2003-2005 | 63-67 | 1=Assoc, 2=Bach, 3=Mast, 4=Doct, 5=College Cert | In Person |
| Personal Growth* | 2003-2005 | 63-67 | 5 Item Scale, 6 Points Per Item, 30=Highest, 5=Lowest | Mail |
| Environmental Mastery* | 2003-2005 | 63-67 | 5 Item Scale, 6 Points Per Item, 30=Highest, 5=Lowest | Mail |

*Note*. Variables and measures came from the 1957-1960, 2004, and 2011 Wisconsin Longitudinal Study surveys (Wisconsin Longitudinal Study, 2019)
*Imputed data are utilized

## Missing Data

Missing data were handled in the following ways. Parental income (1957-1960) with "no information available" from Wisconsin tax data were listwise deleted (n = 1346). An internal process for handling missing data in the WLS for personal income (2004) and personal net worth (2004) was utilized according to the following process. A robust statistical imputation process was provided from the WLS (2004) for both personal income (2004) and personal net worth (2004). A sequential multivariate procedure was supplied with five imputation outputs for missing income and net worth as result. These imputations are designed to account for missing and partial data that allows for consistency across studies utilizing income and net worth (Sicinski, 2010). These five imputations were compiled and the mean score applied when personal income (2004) and personal net worth (2004) were used individually, as well as when they were part of a combined measure in the mobility categories and income change variable.

There were 98 responses of "refuse," "don't know," or "partial interview" to the 2004 survey round question regarding financial satisfaction (out of 7,265 respondents). These cases were listwise deleted. Those who "refuse" and "don't know" in response to the health status were listwise deleted (n = 13). Personal growth and environmental mastery applied an imputation to the mean variable already created within the WLS. Those "partial interviews" and "refuse" responses were listwise deleted in each of the models.

The appropriate handling of missing data is of specific consequence when utilizing longitudinal data involving an extensive time horizon of 54 years. Two particularly unique challenges in relation to missing data within longitudinal studies are non-random attrition and panel conditioning (Wooden & Li, 2014). Panel data necessitates a prolonged commitment of

time from respondents, who must be found and responsive through several rounds of data collection.

**Table 3.4 Missing Data**

| Variable | Easterlin Approach Survey Round Year(s) | Missing | Duesenberry Approach Survey Round Year(s) | Missing |
|---|---|---|---|---|
| Gender | 1957 | 0 | 1957 | 0 |
| Reciprocal Friend Module | - | - | 1975 | 8,663 |
| Parent Household Income | 1957-1960 | 1,346 | - | - |
| Survey Round Four | 2004 | 2,581 | - | - |
| Survey Round Five | - | - | 2011 | 861 |
| Friend Financial Comparison | - | - | 2011 | 130 |
| Financial Satisfaction | 2004 | 98 | 2011 | 2 |
| Net Worth | 2004 | 30 | - | - |
| Household Income | 2004 | 0 | - | - |
| Health Status | 2004 | 3 | 2011 | 11 |
| Work Status | 2004 | 551 | 2011 | 0 |
| Marital Status | 2004 | 3 | 2011 | 0 |
| Education Level | 2004 | 0 | 2011 | 0 |
| Personal Growth Scale | 2004 | 747 | 2011 | 87 |
| Environmental Mastery Scale | 2004 | 0 | 2011 | 0 |

*Note*. Variables and measures came from the 1957-1960, 2004, and 2011 Wisconsin Longitudinal Study surveys (Wisconsin Longitudinal Study, 2019)

The WLS does have attrition. In 1957, survey round one, 10,317 respondents were involved in the survey. By survey round four in 2003-2005, 7,732 of these respondents remained, a 75% rate of retention. By survey round five in 2011, 5,968 of these respondents remained, a 57% retention rate. Of those 5,968, 1,459 died before the 2011 survey round (14%). Owing to its strength as a survey following the same cohort over fifty years, it does still have significant attrition rates, however in relation to other longitudinal surveys of such length, it is known as having a lower than normal survey attrition rate (Hauser et al., 1992; Herd et al., 2014). Attrition occurs at higher rates among males, the lesser educated, and those reporting lower levels of health (Hauser & Willis, 2005). Panel conditioning, a consequence of repeat participation in surveys, has been shown to reduce dispersion of survey responses, as more panel respondents

gravitate to the mean through survey rounds (Wooden & Li, 2014). The literature suggests such patterns hold implication for research measuring change over time. If subjective assessment of satisfaction lessens over time, then the effect size for this sample, which looks at respondents who have aged through six survey rounds spanning 53 years, may be lessened (Wooden & Li, 2014).

## Additional Analyses

Means analyses were added to illustrate some noteworthy trends in the data. One involved a bivariate means analysis of parental income and later life stage financial satisfaction against net worth figures at that later life stage. It provides a meaningful illustration to the association between change in financial situation from childhood to adulthood and financial satisfaction ($H_1$). It illustrates the impact of moving up or down the economic ladder, an idea that flows through the multivariate analyses. The goal of this analysis was to see if a certain threshold of net worth, contingent upon childhood socio-economic status, need be crossed (in the aggregate) for the sample to show higher levels of financial satisfaction in later life stages.

Another means analysis attempted to strengthen the understanding of peer comparison impact upon financial satisfaction. This bivariate means analysis of childhood socio-economic status and peer comparison in 2003-2004 against net worth may offer relevant dialogue to the impact of childhood situation upon relative income, relating to both ($H_1$), change in financial situation from childhood to adulthood (in this case early adulthood), as well as ($H_2$), change relative to peers and financial satisfaction. The means analyses may provide insights relating to how personal history and peer comparison relate to financial satisfaction. This means analysis was reported in Appendix B.2.

# Chapter 4 - Results

What is the relationship between change in financial situation across the lifespan and later life stage financial satisfaction? This primary research question was examined through the following processes. Descriptive statistics that illustrate the composition of sample were assessed. Necessary pretests were analyzed, including assessment of normality of the data, as well as tests for homogeneity and multi-collinearity issues between variables. Two means analyses were calculated to illustrate the influence of financial change and comparison upon financial satisfaction. Next, Model 1 was used to test the separate impact of financial change upon financial satisfaction through the Easterlin approach to the Relative Income Hypothesis, and then to test the impact of financial comparison upon financial satisfaction through the Duesenberry approach to the Relative Income Hypothesis. Finally, Model 2 tested the statistical strength of absolute income and net worth, which served as a means of comparison for relative income.

## Model 1

Model 1 focused on the impact of relative income upon financial satisfaction. The Easterlin approach to the Relative Income Hypothesis measured the effect of financial change upon financial satisfaction through mobility tables and a percentage income change variable. The Duesenberry approach to the Relative Income Hypothesis measured peer comparison effects upon financial satisfaction through a question relating financial standing to a reciprocal friend.

### *Descriptive Statistics*

Tables 4.1 and 4.2 illustrate a summary of the descriptive statistics for the samples used in Model 1. The Easterlin approach contained a sample size of 4,958, while the Duesenberry approach contained 574. It should be noted that the reason why the sample size of the

Duesenberry approach was so much smaller was due to the reciprocal friend variable, a subset module with many less respondents in the WLS. As a cohort, those in the Easterlin approach sample reported high financial satisfaction levels with a mean score of 3.81 on a five-point Likert-Type scale where 5 is highest and 1 is lowest (reverse coded). The sample for both approaches in Model 1 was representative of the population in terms of gender, as it consisted of slightly more females than males. The mean parental income from 1957-1960 was, when adjusting for inflation to 2004 dollars, $42,639. The parental income figure was top coded at $100,000. The mean net worth for households in 2004 was $522,938. The net worth figure was top coded at $1,000,000. These two numbers combined to create nine mobility categories that represent social mobility from childhood to late adulthood. The smallest category represented in the mobility categories were those moving from low parental income to high net worth (6.05% of respondents), and the highest percentage category were those with parents in the high-income range and whose household was in the top net worth category (15.95% of respondents). Household income for respondents in 2004 was $82,416, a 90% increase from parental income from 1957-1960 (inflation adjusted).

As reported in Table 4.1, the majority of respondents in the Easterlin approach analysis were married, retired, had no more than a high school diploma, were in good health, had relatively high net worth, and reported high levels of personal growth and environmental mastery. Those in this sample reported high health status, with more than half reporting “very good” or “excellent health.” The mean score of the health status variable was 3.81 on a five-point Likert-type scale (reverse coded). This number was consistent with other reports across different datasets with samples similar in age and demographic (Gilberto, Davenport, & Beier, 2020; Huynh & Jung, 2015). Most respondents were either partially retired (14%) or fully retired

(48%), compared to 36% still at work. Married respondents comprised 78% of the sample, a number higher than reports from other datasets with older adult samples (Brown & Lin, 2012; Wright & Brown, 2017). 67% of respondents held no higher degree than a high school education. Just 3% held an Associate's degree, 16% a Bachelor's, 9% a Master's, and 3% a Doctorate. When compared to other surveys of respondents born before and around mid twentieth-century, this sample included a disproportionately lower number of respondents with a college degree (Ippolito, 2003; Russell, 2012). Mean scores for personal growth and environmental mastery scales were 24.99 and 24.72 respectively (score range 6 to 30).

**Table 4.1 Model 1 Summary Statistics, Easterlin Approach (*N* = 4,958)**

| Variable | n | Proportion/Mean |
|---|---|---|
| **Financial Satisfaction:** | | |
| Completely | 1,211 | 24.43% |
| Very | 1,931 | 38.95% |
| Somewhat | 1,539 | 31.04% |
| Not Very | 194 | 3.91% |
| Not at All | 83 | 1.67% |
| **Mean Financial Satisfaction (Reverse Coded)** | 4,958 | 3.81 |
| **Parent Household Income (1957 dollars)*** | 4,958 | $6,355 |
| **Parent Household Income (2011 dollars)** | 4,958 | $42,639 |
| **Net Worth (2004)*** | 4,958 | $522,938 |
| **Mobility Categories:** | | |
| Financial Mobility: Low to Low | 399 | 8.05% |
| Financial Mobility: Low to Middle | 386 | 7.79% |
| Financial Mobility: Low to High | 300 | 6.05% |
| Financial Mobility: Middle to Low | 698 | 14.08% |
| Financial Mobility: Middle to Middle | 672 | 13.55% |
| Financial Mobility: Middle to High | 559 | 11.27% |
| Financial Mobility: High to Low | 508 | 10.25% |
| Financial Mobility: High to Middle | 645 | 13.01% |
| Financial Mobility: High to High | 791 | 15.95% |
| **Household Income (2004)** | 4,958 | $82,416 |
| **Mean Percentage Income Change** | 4,958 | 90.00% |
| **Gender:** | | |
| Male | 2,409 | 48.59% |
| Female | 2,549 | 51.41% |
| **Health Status:** | | |
| Excellent | 1,284 | 25.90% |
| Very Good | 1,944 | 39.21% |
| Good | 1,324 | 26.70% |
| Fair | 314 | 6.33% |
| Poor | 92 | 1.86% |
| **Mean Health Status** | 4,958 | 3.81 |
| **Work Status:** | | |
| Working | 1,821 | 36.73% |

| | | |
|---|---|---|
| Retired | 2,402 | 48.45% |
| Partially Retired | 735 | 14.82% |
| **Marital Status** | | |
| Married | 3,911 | 78.88% |
| Divorced/Separated | 486 | 9.80% |
| Widowed | 371 | 7.48% |
| Never Married | 190 | 3.83% |
| **Education Level** | | |
| High School Graduate | 3,362 | 67.81% |
| Associates Degree | 147 | 2.96% |
| Bachelor's degree | 836 | 16.86% |
| Master's Degree | 456 | 9.20% |
| Doctorate Degree | 157 | 3.17% |
| **Personal Growth Scale (6 to 30)** | 4,958 | 24.99 |
| **Environmental Mastery Scale (6 to 30)** | 4,958 | 24.72 |

*Note*. Variables and measures came from the 1957-1960, 2004, and 2011 Wisconsin Longitudinal Study surveys (Wisconsin Longitudinal Study, 2019)

*Top Coded at $100,000

**Top Coded at $1,000,000

***Top Coded at $710,000

As reported in Table 4.2, most respondents in the Duesenberry approach analysis were "much better" or "better" than their reciprocal friend. 42% reported being "about the same," and 25% reported being "worse" or "much worse". There was not much observable difference in the descriptive statistics for most variables between the Duesenberry approach sample and the Easterlin approach sample. Those in the Duesenberry approach cohort did show a slightly higher level of "complete satisfaction" with finances (29%). There were significantly more females than males who followed through with the reciprocal friend module; 64% were female. This uneven attrition trend between females and males may have been caused by a tendency for females to maintain contact with a reciprocal friend at a greater rate than males, as well as stay involved in the WLS through later survey rounds. All other descriptive statistics were comparable to those reported in the Easterlin cohort.

**Table 4.2 Model 1 Summary Statistics, Duesenberry Approach (*N* = 574)**

| Variable | n | Proportion/Mean |
|---|---|---|
| **Financial Satisfaction:** | | |
| Completely | 170 | 29.62% |
| Very | 194 | 33.80% |
| Somewhat | 174 | 30.31% |
| Not Very | 26 | 4.53% |

| | | |
|---|---|---|
| Not at All | 10 | 1.74% |
| **Mean Financial Satisfaction (Reverse Coded)** | 574 | 3.85 |
| **Reciprocal Friend 2011** | | |
| Much Better | 62 | 10.80% |
| Better | 122 | 21.25% |
| About the Same | 243 | 42.33% |
| Worse | 133 | 23.17% |
| Much Worse | 14 | 2.44% |
| **Mean Reciprocal Friend 2011** | 574 | 3.15 |
| **Gender:** | | |
| Male | 203 | 35.37% |
| Female | 371 | 64.63% |
| **Health Status:** | | |
| Excellent | 159 | 27.94% |
| Very Good | 238 | 41.83% |
| Good | 140 | 24.60% |
| Fair | 29 | 5.10% |
| Poor | 3 | .53% |
| **Mean Health Status** | 574 | 3.92 |
| **Work Status:** | | |
| Retired | 277 | 48.26% |
| Not Retired | 297 | 51.74%% |
| **Marital Status** | | |
| Married | 446 | 77.70% |
| Divorced/Separated | 52 | 9.06% |
| Widowed | 65 | 11.32% |
| Never Married | 11 | 1.92% |
| **Education Level** | | |
| High School Graduate | 379 | 66.03% |
| Associates Degree | 16 | 2.79% |
| Bachelor's Degree | 111 | 19.34% |
| Master's Degree | 50 | 8.71% |
| Doctorate Degree | 18 | 3.14% |
| **Personal Growth Scale (6 to 30)** | 574 | 24.61 |
| **Environmental Mastery Scale (6 to 30)** | 574 | 24.69 |

*Note*. Variables and measures came from the 1957-1960, 2004, and 2011 Wisconsin Longitudinal Study surveys (Wisconsin Longitudinal Study, 2019)

### *Means Analysis Results*

The first means analysis is reported in Table 4.3. It illustrated some noteworthy trends in the data. Depending upon their parental income category (low, middle, and high), differing levels of net worth may have been required in order to feel financial satisfied. In the first bivariate means analysis, respondents were categorized based on parental income, and reported financial satisfaction levels. Then the mean of net worth in each category was compiled. Those growing

up with lower parental incomes who reported *completely* financially satisfied held an average net worth of $590,832 (n = 267).

**Table 4.3 Means Analysis of Net Worth (2004)* Categorized by Parental Income (1957-1960) and Financial Satisfaction (2004) (*N* = 4,958)**

| Parental Income | Low (n) | Middle (n) | High (n) |
|---|---|---|---|
| **Financial Satisfaction** | | | |
| Completely | $590,832 (267) | $616,681 (445) | $728,060 (499) |
| Very | $527,135 (408) | $545,435 (742) | $615,193 (781) |
| Somewhat | $375,559 (338) | $382,035 (638) | $463,834 (563) |
| Not Very | $243,996 (44) | $288,499 (76) | $303,666 (74) |
| Not at All | $172,476 (28) | $96,825 (28) | $261,867 (27) |

*Note*. Variables and measures came from the 1957-1960, 2004, and 2011 Wisconsin Longitudinal Study surveys (Wisconsin Longitudinal Study, 2019)
*Top Coded at $1,000,000

When viewed across parental income levels, a trend did emerge for 14 of the 15 categories. Those who grew up in a home with lower parental income reported a lower net worth than those who grew up in a home with higher parental income. The one outlier came from respondents who fell into the middle parental income category and reported they were *not at all* financially satisfied. Looking across Table 4.3, the average amount needed to reach *very* financially satisfied for those who grew up in higher income households was $615,193 (n = 781). That amount would be high enough to cross the mean threshold for respondents who responded as *completely* financially satisfied from low- or middle-income households. Absolute income matters, as financial satisfaction and net worth trend together. However, when accounting for change as the variable of focus (looking across Table 4.3), these tables may suggest an Easterlin approach to Relative Income may provide for more precise assessments of financial satisfaction. This trend suggests that it may require more absolute income to maintain high lifetime financial satisfaction if a person was raised in a household with higher incomes. An additional means

analysis looking at the peer comparison impact upon financial satisfaction added further information about trends across parental income levels. That analysis was reported in Appendix Table B.2.

### *Logistic Regression Results: Financial Change (Easterlin Approach)*

The Easterlin approach and Duesenberry approach in Model 1, as well as the absolute income and net worth measure in Model 2, contain financial satisfaction as the dependent variable. Financial satisfaction is an ordered categorical variable arranged on a five-point Likert-type scale, with options ranging from "completely" to "not at all" satisfied (Wisconsin Longitudinal Study, 2011). Because financial satisfaction is an ordered variable, ordinal logistic regression was implemented. With the use of this analysis method, an assumption was made that the response options listed within financial satisfaction were distributed proportionately.

It should be noted that researchers are mixed on the most appropriate statistical method to use with financial satisfaction and other single line measures of satisfaction. Some have applied Ordinary Least Squares Regression (Clark & Oswald, 1996; Hansen et al., 2008; Luttmer, 2005). Others have applied ordinal logistic regression (Ahn et al., 2006; Ferrer-i-Carbonell, 2005; McBride, 2001; Senik, 2004). Methodological comparisons suggest the difference in results between the two are negligible (Ferreri-Carbonell & Fritjers, 2004). OLS tests were run alongside Ordinal Logistic Regressions in this dissertation with very similar results.

### *Results for Easterlin Approach with Mobility Categories*

Appropriate pretesting for ordinal logistic regression required a test of multi-collinearity (Allison, 2012). All variance inflation factors (VIF), as reported in Table 4.4, fell under the 2.0 threshold, indicating there was no issue with independent variables being too highly correlated with each other (Allison, 2012). The model chi-square indicated significance at $p < .0001$. Thus,

the model was retained. The model followed previous social mobility research by holding constant as the reference group those who are 'always advantaged' (Van der Waal et al., 2017). Specifically, those respondents in the high childhood financial situation and high present net worth were held constant. For demographic variables, married males with a bachelor's degree who were retired were held constant.

**Table 4.4 Cumulative Logistic Regression for Financial Satisfaction: Easterlin Approach with Mobility Categories (*N* = 4,958)**

| Independent Variable | Estimate | Odds | VIF |
|---|---|---|---|
| **Intercepts** | | | |
| 1 | -4.71*** | - | - |
| 2 | -2.74*** | - | - |
| 3 | -0.13 | - | - |
| 4 | 1.20*** | - | - |
| **Mobility Categories** | | | |
| Financial Mobility: Low to Low | -1.11*** | 0.33 | 1.51 |
| Financial Mobility: Low to Middle | -0.65*** | 0.52 | 1.45 |
| Financial Mobility: Low to High | 0.14 | 1.15 | 1.32 |
| Financial Mobility: Middle to Low | -1.19*** | 0.31 | 1.82 |
| Financial Mobility: Middle to Middle | -.66*** | 0.51 | 1.68 |
| Financial Mobility: Middle to High | 0.02 | 1.02 | 1.53 |
| Financial Mobility: High to Low | -1.27*** | 0.28 | 1.60 |
| Financial Mobility: High to Middle | -0.69*** | 0.50 | 1.63 |
| **Gender** | | | |
| Female | 0.02 | 1.02 | 1.12 |
| **Health Status** | 0.21*** | 1.23 | 1.16 |
| **Work Status:** | | | |
| Working | -0.59*** | 0.56 | 1.14 |
| Partially Retired | -0.34*** | 0.71 | 1.14 |
| **Marital Status** | | | |
| Divorced or Separated | -0.44*** | 0.64 | 1.10 |
| Widowed | 0.14 | 1.15 | 1.06 |
| Never Married | 0.16 | 1.18 | 1.04 |
| **Education Level** | | | |
| High School Graduate | 0.02 | 1.02 | 1.76 |
| Associates Degree | -0.04 | 0.96 | 1.16 |
| Master's Degree | 0.12 | 1.12 | 1.42 |
| Doctorate Degree | 0.36* | 1.43 | 1.18 |
| **Personal Growth** | -0.02* | 0.98 | 1.73 |
| **Environmental Mastery** | 0.16*** | 1.17 | 1.73 |

*Note*. Variables and measures came from the 1957-1960, 2004, and 2011 Wisconsin Longitudinal Study surveys (Wisconsin Longitudinal Study, 2019)

*p < .05, **p < .01, ***p < .0001, Pseudo $R^2$: 20.34%, Concordance Ratio: 70.3%

The analysis utilizing the Easterlin approach with mobility categories provided a pseudo r-square that suggested a 20.34% increase in predictive power over the null model. It yielded a concordance ratio which indicates that this model accurately predicts financial satisfaction better than the null model 70.3% of the time.

**Mobility Categories.** Mobility categories captured financial change as measured in the timespan from the end of high school (as measured by parental income between 1957 and 1960) to around age 65 (as measured by respondent net worth in 2004). Six of the eight mobility categories (the ninth being held constant) reached appropriate significance thresholds at $p < .0001$, with Low to High and Middle to High falling out of the model. Those in low to low mobility ($\beta = -1.11$, $p < .0001$) suggested a 67% decrease in odds of having higher financial satisfaction compared to the control group. Those in low to middle mobility ($\beta = -.65$, $p < .0001$) suggested a 48% decrease in odds of having higher financial satisfaction over the control group. Those in middle to low mobility ($\beta = -1.19$, $p < .0001$) suggested a 69% decrease in odds of having higher financial satisfaction over the control group. Those in middle to middle mobility ($\beta = -.66$, $p < .0001$) suggested a 49% decrease in odds of having higher financial satisfaction over the control group. Those in high to low mobility ($\beta = -1.27$, $p < .0001$) suggested a 72% decrease, and those in high to middle mobility ($\beta = -.69$, $p < .0001$) suggested a 50% decrease in odds of having higher financial satisfaction over the control group.

These results support a correlation between changes in financial situation from childhood to adulthood and financial satisfaction. Downwardly mobile respondents displayed, according to this model, lower odds of reporting financial satisfaction than those with no mobility and those with upward mobility. There is less evidence to suggest a correlation between no mobility and financial satisfaction, as well as between upward mobility and financial satisfaction.

**Other Independent Variables.** Holding all else constant, a one-unit increase in health status was associated with a 23% increase in predictive odds of having a higher level of financial satisfaction. Regarding work status, those who were not retired (age 63-66) seemed to experience a significant decrease in odds of having higher financial satisfaction. The decrease in odds was greater for those working full time (42% decrease in odds) than for those working part time (29% decrease in odds). Those who were divorced or separated showed a strong decrease in odds of higher financial satisfaction. Those with a doctorate showed a strong increase in odds of higher financial satisfaction. Finally, the psychological/perception variables of personal growth and environmental mastery had mixed influence on financial satisfaction. Personal growth, surprisingly, was a slight predictor of a decrease in odds of having higher financial satisfaction at 2% ($\beta = -.02$ $p < .05$). Environmental mastery predicted a 17% increase in odds of having higher financial satisfaction ($\beta = .16$, $p < .0001$).

### *Results for Easterlin Approach with Percentage Income Change*

Table 4.5 reports the results for an ordinal logistic regression with percentage income change replacing the mobility categories. All appropriate pretests were run, with no issues of multicollinearity surfacing. The model chi-square showed significance at $p < .0001$ and held the same reference grouping as above (married males with a bachelor's degree who are retired). The pseudo r-squared suggested this model holds a 16.27% increase in predictive power over the null model. This model accurately predicted financial satisfaction better than the null model 68% of the time.

**Table 4.5 Cumulative Logistic Regression for Financial Satisfaction: Easterlin Approach with Percentage Change in Income (*N* = 4,958)**

| Independent Variable | Estimate | Odds | VIF |
|---|---|---|---|
| **Intercepts** | | | |
| 1 | -5.57*** | - | - |
| 2 | -3.67*** | - | - |

| | | | |
|---|---|---|---|
| 3 | -1.13*** | - | - |
| 4 | 0.19 | - | - |
| **Percentage Change in Income** | 0.04*** | 1.04 | 1.04 |
| **Gender:** | | | |
| Female | -0.04 | 0.96 | 1.11 |
| **Health Status** | 0.25*** | 1.29 | 1.14 |
| **Work Status:** | | | |
| Working | -0.61*** | 0.54 | 1.14 |
| Partially Retired | -0.40*** | 0.67 | 1.13 |
| **Marital Status:** | | | |
| Divorced or Separated | -0.69*** | 0.50 | 1.04 |
| Widowed | 0.03 | 1.03 | 1.05 |
| Never Married | -0.01 | 1.01 | 1.03 |
| **Education Level:** | | | |
| High School Graduate | -0.17* | 0.84 | 1.68 |
| Associates Degree | -0.20 | 0.82 | 1.15 |
| Masters Degree | 0.06 | 1.06 | 1.41 |
| Doctorate Degree | 0.47* | 1.61 | 1.18 |
| **Personal Growth Scale** | -0.02* | 0.98 | 1.73 |
| **Environmental Mastery Scale** | 0.17*** | 1.18 | 1.72 |

*Note*. Variables and measures came from the 1957-1960, 2004, and 2011 Wisconsin Longitudinal Study surveys (Wisconsin Longitudinal Study, 2019)
*p < .05, **p < .01, ***p < .0001, Pseudo $R^2$: 16.27%, Concordance Ratio: 68%

**Percentage Income Change.** The variable of focus in this test was the percentage change in income, measuring the change in income from the respondent's parent when the respondent was around age 18-20 to the income level for the respondent age 63-67. Percentage change in income had a β of .04 ($p < .01$), with results suggesting that a positive increase in percentage change in income was associated with a 4% increase in odds of having higher financial satisfaction.

**Independent Variables.** The results from the other independent variables suggested that health status, holding a doctorate degree, and reporting high environmental mastery all predict higher financial satisfaction. Working, holding part-time work, being divorced or separated, holding no higher than a high school diploma, and reporting higher personal growth all predicted lower financial satisfaction. Only one independent variable stood much differently between the mobility categories and percentage income analyses; those holding no more than a high school

diploma showed significance in the percentage income change model ($\beta = -.17$, $p < .05$), displaying a 16% decrease in odds of having higher financial satisfaction than the control group.

### *Logistic Regression Results: Peer Comparison (Duesenberry Approach)*

Cumulative logistic regression was again applied in the Duesenberry approach to the Relative Income Hypothesis, with reciprocal friend (2011) as the focus predictor of financial satisfaction (2011). The results of this analysis were reported in Table 4.6.

As noted in the variance inflation factors in Table 4.6, no issues of high multicollinearity arose between these variables. At $p < .0001$, the model chi-square indicated significance, therefore this test was implemented in this dissertation with results suggesting that there is a positive association between peer comparison and financial satisfaction. This cumulative logistic regression utilizing the Duesenberry approach, which emphasized the importance of reciprocal friend comparison, suggested a 19.20% increase in predictive power over the null model only containing the intercepts. The concordance ratio suggested this model predicts financial satisfaction better than the null model 68.4% of the time.

**Table 4.6 Cumulative Logistic Regression for Financial Satisfaction: Duesenberry Approach (*N* = 574)**

| Independent Variable | Estimate | Odds | VIF |
|---|---|---|---|
| **Intercepts** | | | |
| 1 | -4.65*** | - | - |
| 2 | -3.02*** | - | - |
| 3 | -0.51 | - | - |
| 4 | 0.95 | - | - |
| **Reciprocal Friend 2011** | | | |
| Much Better | 0.61* | 1.85 | 1.23 |
| Better | 0.18 | 1.19 | 1.25 |
| Worse | -0.74** | 0.48 | 1.25 |
| Much Worse | -1.72** | 0.18 | 1.06 |
| **Gender:** | | | |
| Female | -0.15 | 0.86 | 1.20 |
| **Health Status** | 0.22* | 1.24 | 1.20 |
| **Work Status:** | | | |
| Not Retired | -0.38* | 0.68 | 1.11 |
| **Marital Status:** | | | |

| | | | |
|---|---|---|---|
| Divorced or Separated | -0.72* | 0.49 | 1.10 |
| Widowed | 0.28 | 1.32 | 1.05 |
| Never Married | 0.16 | 1.17 | 1.04 |
| **Education Level:** | | | |
| High School Graduate | 0.09 | 1.10 | 1.59 |
| Associates Degree | -0.64 | 0.53 | 1.13 |
| Masters Degree | 0.14 | 1.16 | 1.36 |
| Doctorate Degree | 0.53 | 1.70 | 1.18 |
| **Personal Growth Scale** | -0.03 | 0.97 | 1.82 |
| **Environmental Mastery Scale** | 0.16*** | 1.17 | 1.78 |

*Note*. Variables and measures came from the 1957-1960, 2004, and 2011 Wisconsin Longitudinal Study surveys (Wisconsin Longitudinal Study, 2019)
*p < .05, **p < .01, ***p < .0001, Pseudo $R^2$: 19.20%, Concordance Ratio: 68.4%

**Reciprocal Friend Comparison.** Holding all else constant, those who compared themselves to be much better than their reciprocal friend in 2011 ($\beta = .61$, $p < .05$) reported an 85% increase in odds of reporting higher financial satisfaction than the control group. Those who responded as being worse ($\beta = -.74$, $p < .01$) and being much worse ($\beta = -1.72$, $p < .05$) showed, respectively, a 52% and 82% decrease in odds of reporting higher financial satisfaction than the control group. This suggests a connection may exist between one's self-assessed relative financial standing with a peer and one's self-assessed overall feeling of satisfaction with finances.

**Other Independent Variables.** Many more independent variables did not reach significance. This is most likely due to the lower number of observations in this analysis. Health status and environmental mastery suggested significant odds of reporting higher financial satisfaction. Being not retired and being divorced or separated suggested significantly lower odds of reporting financial satisfaction than being retired and being married.

## Model 2

Model 2 focused on the impact of absolute income and net worth upon financial satisfaction. In this analysis, the relative income variables utilized in Model 1 were replaced with

absolute income and net worth to better compare relative and absolute income effects upon financial satisfaction.

### *Descriptive Statistics.*

Table 4.7 reports descriptive statistics for the sample used in Model 2. While these descriptive statistics were used as part of a combined measure in Model 1, they stand alone as independent variables of focus in Model 2. Mean respondent household net worth was $522,938. Net worth was top coded at $1,000,000. Mean respondent household income was $82,416. Income was top coded at $700,000.

**Table 4.7 Model 2 Summary Statistics, Absolute Income and Net Worth Approach**

| Variable | n | Proportion/Mean |
|---|---|---|
| **Net Worth (2004)*** | 4,958 | $522,938 |
| **Household Income (2004)** | 4,958 | $82,416 |
| **Financial Satisfaction:** | | |
| Completely | 1,211 | 24.43% |
| Very | 1,931 | 38.95% |
| Somewhat | 1,539 | 31.04% |
| Not Very | 194 | 3.91% |
| Not at All | 83 | 1.67% |
| **Mean Financial Satisfaction (Reverse Coded)** | 4,958 | 3.80 |
| **Gender** | | |
| Male | 2,409 | 48.59% |
| Female | 2,549 | 51.41% |
| **Health Status:** | | |
| Excellent | 1,284 | 25.90% |
| Very Good | 1,944 | 39.21% |
| Good | 1,324 | 26.70% |
| Fair | 314 | 6.33% |
| Poor | 92 | 1.86% |
| **Mean Health Status** | | 3.81 |
| **Work Status:** | | |
| Working | 1,821 | 36.73% |
| Retired | 2,402 | 48.45% |
| Partially Retired | 735 | 14.82% |
| **Marital Status:** | | |
| Married | 3,911 | 78.88% |
| Divorced/Separated | 486 | 9.80% |
| Widowed | 371 | 7.48% |
| Never Married | 190 | 3.83% |
| **Education Level:** | | |
| High School Graduate | 3,362 | 67.81% |
| Associates Degree | 147 | 2.96% |
| Bachelor's Degree | 836 | 16.86% |
| Master's Degree | 456 | 9.20% |
| Doctorate Degree | 157 | 3.17% |

| | | |
|---|---|---|
| **Personal Growth Scale (6 to 30)** | 4,958 | 24.99 |
| **Environmental Mastery Scale (6 to 30)** | 4,958 | 24.72 |

*Note*. Variables and measures came from the 1957-1960, 2004, and 2011 Wisconsin Longitudinal Study surveys (Wisconsin Longitudinal Study, 2019)
*Top Coded at $1,000,000
**Top Coded at $710,000

### *Logistic Regression Results: Absolute Income and Net Worth*

As a method of comparison, an additional cumulative logistic regression was run in Model 2, replacing the relative income predictors of financial change and peer comparison with household economic resource predictors of income and net worth. Model 2 was utilized to compare the strength of absolute income and net worth in regressions similar to those used in Model 1. Results reported in Table 4.8 suggest income and net worth predict financial satisfaction at a very high level.

All variance inflation factors in this model fell well below the threshold test for multicollinearity set at 2.0. The model chi-square was $p < .0001$, suggesting the model accurately predicted the dependent variable of financial satisfaction. The control variables were the same as in the regressions from Model 1, with those in the 'always advantaged' position being held constant – married males who were retired and held a bachelor's degree (Van der Waal et al., 2017). The pseudo r-squared suggested a 21.76% increase in predictive power over the null model, and the model performed better than the null model 70.9% of the time, as suggested by the concordance ratio. These results suggest Model 2 to be slightly more predictive of financial satisfaction than the regressions run in Model 1.

**Table 4.8 Cumulative Logistic Regression for Financial Satisfaction: Absolute Income and Net Worth (*N* = 4,958)**

| Independent Variable | Estimate | Odds | VIF |
|---|---|---|---|
| **Intercepts** | | | |
| 1 | -15.96*** | - | - |
| 2 | -13.97*** | - | - |
| 3 | -11.24*** | - | - |
| 4 | -9.82*** | - | - |

| | | | |
|---|---|---|---|
| **Absolute Income and Net Worth:** | | | |
| Log Income (2004) | 0.45*** | 1.56 | 1.55 |
| Log Net Worth (2004) | 0.46*** | 1.58 | 1.40 |
| **Gender:** | | | |
| Female | 0.05 | 1.05 | 1.12 |
| **Health Status** | 0.18*** | 1.19 | 1.58 |
| **Work Status:** | | | |
| Working | -0.67*** | 0.51 | 1.66 |
| Partially Retired | -0.36*** | 0.70 | 1.39 |
| **Marital Status:** | | | |
| Divorced or Separated | -0.05 | 0.95 | 1.16 |
| Widowed | 0.48*** | 1.62 | 1.11 |
| Never Married | 0.47** | 1.61 | 1.07 |
| **Education Level:** | | | |
| High School Graduate | 0.13 | 1.13 | 1.76 |
| Associates Degree | -0.02 | 0.98 | 1.16 |
| Masters Degree | 0.07 | 1.08 | 1.41 |
| Doctorate Degree | 0.25 | 1.28 | 1.19 |
| **Personal Growth Scale** | -0.02* | 0.98 | 1.73 |
| **Environmental Mastery Scale** | 0.15*** | 1.17 | 1.74 |

*Note*. Variables and measures came from the 1957-1960, 2004, and 2011 Wisconsin Longitudinal Study surveys (Wisconsin Longitudinal Study, 2019)
*p < .05, **p < .01, ***p < .0001, Pseudo $R^2$: 21.76%, Concordance Ratio: 70.9%

**Absolute Income and Net Worth.** Absolute income and net worth (2004), for the purpose of this dissertation, are defined as income and net worth in real dollars. Results reported in Table 4.6 show that log income ($\beta = .45$, $p < .0001$) suggested a 56% increase in odds of having higher financial satisfaction over the control group. Log net worth ($\beta = .46$, $p < .0001$) suggested a 58% increase in odds of having higher financial satisfaction over the control group. These results suggest that absolute income and net worth substantially predict financial satisfaction.

**Independent Variables.** Gender, being widowed, and all levels of education other than doctoral degree fell out of this model. Health status ($\beta = .18$, $p < .0001$) had an odds ratio of 1.19, suggesting a 19% decrease in odds of reporting higher financial satisfaction per unit increase in health status. Those working ($\beta = -.67$, $p < .0001$) and partially retired ($\beta = -.36$, $p < .0001$) reported a respective 49% and 30% decrease in odds of reporting higher financial

satisfaction. Those divorced ($\beta = -.05$, $p < .0001$) reported a 5% decrease in odds, while those never married ($\beta = -1.14$, $p < .01$) reported a 61% increase in odds of reporting higher financial satisfaction. Similar to the regressions in Model 1, personal growth predicted a decrease in odds, while environmental mastery predicted an increase in odds of higher financial satisfaction. These results confirm the conclusions made from Model 1; the rejection that personal growth and financial satisfaction suggest a positive relationship and the acceptance that environmental mastery and financial satisfaction suggest a positive relationship.

## Conclusion

These results suggest that a positive relationship does exist between change in financial situation from childhood to adulthood and financial satisfaction. A difference does exist between upwardly mobile and downwardly mobile respondents through the Easterlin Approach. Those who displayed downward mobility experienced much lower odds of achieving financial satisfaction when compared to those with no change or upward change. No mobility, as well as upward mobility did not, according to this analysis, have significant relationships with financial satisfaction. When mobility categories were replaced by the percentage change in income variable, findings suggest that an increase in percentage change in income is associated with a 4% increase in odds of having higher financial satisfaction. In the Duesenberry Approach, the financial situation in relation to a reciprocal friend variable was a strong determinant of financial satisfaction. Model 2 found that absolute income and net worth were also strong determinants of financial satisfaction, being stronger determinants than the Easterlin approach but not the Duesenberry approach.

# Chapter 5 - Discussion

This dissertation attempts to capture the influence of relative income factors upon financial satisfaction by measuring the impact of financial change and peer comparison of finances upon financial satisfaction of respondents age 63-67. Two models were utilized. Model 1 utilized the Easterlin approach to the Relative Income Hypothesis by measuring financial change through family's income during childhood and present respondent's household net worth at age 63-66. Model 1 also utilized the Duesenberry approach to the Relative Income Hypothesis that gauged peer comparison factors upon financial satisfaction through a reciprocal friend module in the WLS. This approach to understanding financial satisfaction, framed within the Relative Income Hypothesis, relates to personal background, socioeconomic comparison, feelings regarding longitudinal and lifetime change, psychological/perceptions of self and others, and feelings of mastery and growth. Model 2 replaced the relative income independent variables with absolute income and net worth.

Analyses were conducted using cumulative logistic regression and three waves of WLS data (1957, 2004, 2011). Table 5.1 summarizes the hypothesized results for the models and regressions tested in this dissertation. Results suggest that downward financial change ($H_1$) and peer comparison ($H_2$) impact financial satisfaction. There was very little evidence in support of upward financial change ($H_1$) significantly influencing financial satisfaction. Results suggest that current household income and net worth were much more robust indicators of financial satisfaction in the cross-section ($H_3$). Results suggest that positive feelings of environmental mastery were associated with higher financial satisfaction ($H_4$), while higher feelings of personal growth are a slight determinant of lower financial satisfaction levels ($H_5$).

**Table 5.1 Hypothesis Testing Results**

| Hypothesis | Predictor Variable(s) | Relationship | Results |
|---|---|---|---|
| | **Relative Income** | | |
| $H_1$ | Financial Change (Easterlin Approach) | + | Yes – Downward Mobility<br>No – Upward Mobility |
| $H_2$ | Financial Change (Duesenberry Approach) | + | Yes |
| | **Absolute Income and Net Worth** | | |
| $H_3$ | Household Income, Net Worth | < Relative Income | No |
| | **Psychological/Perception Variables** | | |
| $H_4$ | Personal Growth | + | No |
| $H_5$ | Environmental Mastery | + | Yes |

## Financial Change

The primary goal of this dissertation is to measure the impact of lifetime change in financial status upon financial satisfaction in later-life stages. Financial change is operationalized through the application of mobility categories and percentage income change. The results suggest that financial change is, at least to some measure, a determinant of financial satisfaction. Hypothesis 1 states that there exists a positive association between changes in financial situation from childhood to adulthood (Easterlin approach) and financial satisfaction ($H_1$). Results are mixed but do support the hypothesis for those who experience downward mobility.

The means analysis of net worth by category of parent income and financial satisfaction offers additional support for Hypothesis 1. While these results do not have any tests for significance, they show a trendline that suggests more absolute income and net worth may be required to maintain lifetime financial satisfaction if the respondent was raised in a higher income household.

Mobility categories, created from nine different financial change categories based upon parental income (1957-1960) and net worth (2004), can better be understood if divided between downward movement, upward movement, and no movement (Van der Waal, Daenekindt, & Koster, 2017). When comparing downward mobility and upward mobility to no mobility, some

evidence supports Hypothesis 1 for those who were downwardly mobile and very little evidence supports Hypothesis 1 for those who were upwardly mobile.

Those who experienced the most downward change (high to low) showed the lowest odds of any to report higher financial satisfaction. However, they report only 4% lower odds of reporting higher financial satisfaction than those already in the low category (low to low). While moving from high to middle and middle to low also showed a negative relationship with financial satisfaction, these results are nearly identical to the reports from those showing no financial change, in the middle to middle and low to low categories.

Regarding upward mobility, for those with the most upward change (low to high) there is not a significant relationship with financial satisfaction. This is also the case for those moving from the middle to high mobility category. Those moving from low to middle show a modest increase in odds of reporting high financial satisfaction over those already in the middle grouping. Mobility into the high category is not significant when compared to the control group (those in the high to high mobility category). These results do not support Hypothesis 1. They go alongside evidence in the literature that increases in level of living often do not equate to higher financial satisfaction (Brickman & Coates, 1978; Diener et al., 2006; Van Praag, 2003). Such evidence supports the Easterlin paradox and Relative Income Hypothesis, which claim that increases in financial well-being will not increase satisfaction due to habituation and comparison to others who also see this increase (Easterlin, 2001). Previous studies that found lack of increase in satisfaction for those with financial mobility up to the high net worth category also supports the threshold view of money such that marginal utility goes down once basic needs are fulfilled (Clark et al., 2007; Kahneman & Deaton, 2010). This pattern is further supported in these dissertation results for downward mobility. When comparing upward and downward mobility,

there is stronger evidence that moving downward will decrease the odds of reporting higher financial satisfaction than moving upward will increase these odds.

Percentage change in income is the second measure of financial change, marking the percentage increase or decrease of respondent income around age 64-67 to parental income when the respondent was age 18-20. The results support the conclusions made from mobility categories. It does show significant effects, predicting a 4% increase in odds to report higher financial satisfaction. The percentage increase in income from the end of high school to around retirement age is a weak predictor.

This dissertation finds a weak relationship between financial change and financial satisfaction. Previous research reports mixed results. Some studies observe no relationship (Frey & Stutzer, 2002; Graham & Pettinato, 2002; Kahneman & Krueger, 2006). Other studies detect an impact for a few short years (Brickman, Coates, & Janoff-Bulman, 1978; Wolbring et al., 2013), Still more studies support a longer-term positive relationship (Davis & Helmick, 1985). Some researchers very specifically assert that a positive relationship exists, being significant but weak (Heady et al., 2008; Luhman et al., 2011). The findings from this dissertation support the concept of a weak and positive relationship between financial change and financial satisfaction.

When considering the timeframe of this longitudinal analysis which spans 47 years, an argument can be made that even a weak relationship is meaningful and consequential. Many childhood variables analyzed in previous studies do fail to predict satisfaction in late adulthood (Clark & Lee, 2017). Distal variables that are retained in most lifespan research are usually connected to psychosocial condition, specifically emotional health (Flèche et al., 2017; Clark & Lee, 2017). Here, the influence of parental income has at least a small role to play in respondent financial satisfaction age 63-67. While the magnitude of the effect is small in the cross-section,

the cumulative effect of income change variables that last a lifetime is very large, spanning over half a century of life (Clark & Lee, 2017). In sum, the Easterlin approach to the Relative Income Hypothesis can be supported when considering downward mobility. There is less evidence from the ordinal logistic regression that upward mobility increases the odds of higher financial satisfaction.

## Peer Comparison

Relational social standing is a central concept in the Relative Income Hypothesis. In this dissertation, the Duesenberry approach is meant to measure, as the second aspect of relative income, peer comparison influences upon financial satisfaction. Hypothesis 2 states that Duesenberry factors taken from the reciprocal friend question regarding finances will impact financial satisfaction. The results support this hypothesis.

The strength of the peer comparison findings supports many of the arguments in this dissertation, the most noteworthy being that subjective assessments of satisfaction are dependent upon more than objective standing, but also upon feelings of position and rank in relation to others (Alvarez-Cuadrado & Long, 2011). One weakness of this measure rests in the fact that it only utilizes a single friend of the respondent as the reference group. In the literature, other studies used comparison between neighbors, family members, and co-workers (Brown et al., 2015). Nevertheless, the close relationship between peer comparison and financial satisfaction supports the concept that relative factors are integral in the formation of financial satisfaction. Another concern with peer comparison is that it would be too similar to financial satisfaction. Regression results obtained in this dissertation suggest no issue with multicollinearity. These results do suggest there is a significant difference between peer comparison and financial satisfaction as measures.

The results suggest a stronger negative pull for those who report being in a *worse* or *much worse* financial situation than their reciprocal friend. This result is supported by previous studies on comparative financial situation (Brown et al., 2015; Card, Mas, Moretti, & Saez, 2012; Clark et al., 2009; Luttmer, 2005). One of the insights from the results suggests that individuals who experienced downward mobility and who perceive themselves to be in a worse situation compared to a friend, are more sensitive to relative income differences. This result is very similar to a finding from a study by McBride (2001), where those who reported a "much worse" level of living than their parents also reported much lower levels of subjective satisfaction.

## Absolute Income and Net Worth

A parallel model to the relative income approaches is applied utilizing the current household economic resources of absolute income and net worth. The purpose of this analysis was to compare the strength of relative income to household economic resources (absolute income and net worth). Hypothesis 3 states that relative income effects will be stronger than absolute income effects. The results from the ordinal logistic regression run with absolute income and net worth finds no support for this hypothesis. Absolute income and net worth, stated as log income and log net worth, were each found to be significant predictors of financial satisfaction. Used in the cross-section, this evidence is apparent throughout the literature (Heady et al., 2008; Plagnol, 2010a).

There is strong consensus that higher absolute income and net worth levels predict higher levels of satisfaction (Ahn et al., 2006; Schwartz, 2004; Stephenson & Wolfers, 2008). But do they trigger higher levels of satisfaction? That question, while not directly assessed in this study, is associated with the financial change variable in this study. If respondents who report dramatic

swings up or down in financial situation also report different financial satisfaction levels, then such evidence would stand in support of relative income's influence on financial satisfaction over absolute income and net worth influences on financial satisfaction. While there is less evidence of this in the regression analysis, the means analyses reported in Tables 4.3 and Appendix Table B.2 hint that there is at least some influence of childhood parental income upon present financial satisfaction. Such patterns do not necessarily disprove the predictive power of absolute income and net worth, but they do provide an argument to be made in favor of Hypothesis 1 and Hypothesis 2, that relative income factors have a place in determining financial satisfaction. These patterns also support the Easterlin approach to the Relative Income Hypothesis concept that personal background, history and experience do impact feelings regarding finances.

## Psychological/Perception Variables

The two scales measuring personal growth and environmental mastery provide ancillary support for this dissertation, as these psychological/perception factors connect strongly to the emotion and feeling involved in a domain-specific subjective measure of well-being like financial satisfaction. They potentially drive feelings about financial change and peer comparison. Hypotheses 4 and 5 state that personal growth and environmental mastery are positively correlated with financial satisfaction.

Results from all models and regression analyses firmly reject Hypothesis 4. These results are surprising, as personal growth would typically be associated with positive outcomes like financial satisfaction (Ryff, 1989; Kubicek, Korunka Raymo, & Hoonakker, 2011). However, a reason why this may be the case involves the life stage of this sample. Researchers have found that personal growth does consistently fall from middle age to the end of life (Ryff, & Singer,

2008). Respondents in this dissertation were in their mid-60s, around the milestone age when saving for retirement ends and the act of spending down savings begins. As retirement approaches, many are embarking on a new season of life where they are simply trying to sustain health and finances to the end of life. It should be noted however, that this conclusion does not align with previous literature on personal growth, which has been shown to be a strong indicator of well-being for individuals around retirement age (Kubicek et al., 2011).

Personal growth may be similar to financial knowledge, which also is a negative determinant of financial satisfaction (Joo & Grable, 2007). Those with high financial knowledge are inclined to have higher levels of awareness and ambition (Mugenda, Hira, & Fanslow, 1990). Those with high levels of personal growth may likewise have high levels of awareness and ambition, and thus report lower levels of financial satisfaction.

Results from all models and regression analyses confirm Hypothesis 5. Environmental mastery is a significant indicator of financial satisfaction. This scale measures feelings of responsibility, prioritization, control and achievement, all of which have been shown in previous research to affect financial satisfaction (Ryff, 1989; Wilhelm et al., 1993). This aligns with important themes regarding internal feelings of adequacy and power as they relate to money.

## Contributions and Implications

The effect of childhood financial situation and lifespan change in financial situation upon later-life financial satisfaction, as measured by past habituation and social comparison, may offer a different vantage to understanding fulfillment and subjective well-being in the field of personal financial planning. If the previous literature has established the need for deeper, unique methods for viewing financial satisfaction (Joo & Grable, 2007), if behavioral finance offers a new way to understand the field, weaving together real human behavior and theory (Barberis & Thaler, 2005;

De Bondt et al., 2008), if the Relative Income Hypothesis has been delineated as a framework with less concentration in the literature (Alvarez-Cuadrado & Van Long 2009; Diener, 1992; Easterlin, 2001), and if longitudinal research is required for this type of project (McBride, 2001; Plagnol, 2010b), then research studying the longitudinal effect of relative income upon financial satisfaction fills a needed gap in the literature.

The results from this dissertation support the notion of the impact of childhood financial setting as a backdrop and present peer comparison as a foreground influencer of financial satisfaction. Such results find a meaningful fit within the literature on relative income. This dissertation tests the constructs of relative income against absolute income and net worth, and while it adds just an inch to the mountain of research on the relationship between money and happiness, it does view the debate through perspectives that have not received much consideration, those being peer effects, lifetime influencers, change, and childhood financial background.

Relative income effects upon financial satisfaction, as shown through financial change in the Easterlin approach, are significant and worthy of empirical study. Other relative income effects, as shown through peer comparison in the Duesenberry approach, are also substantial indicators of financial satisfaction.

This dissertation further contributes a noteworthy condition to the claims of relative income. It suggests that the magnitude of relative income effects depend on directionality.

Downward mobility more significantly impacts financial satisfaction than upward mobility. Being worse off than a friend financially more significantly impacts financial satisfaction than being better off than a friend financially. These findings suggest that relative income effects have the power to pull financial satisfaction downward. These findings do not

support relative income effects as leading to higher financial satisfaction. Based on these dissertation findings, relative income comparison should be considered a negative determinant of financial satisfaction.

The argument that relative income comparisons lead to lower reports of financial satisfaction is very suggestive and has implications for the field of personal financial planning. First, comparison is a universal human process (Festinger, 1957). All people make relative income comparisons, judging financial position in relation to their own financial past and to other reference groups. Second, this dissertation suggests that relative income comparisons lead to lower financial satisfaction. Third, these findings align with previous research on the psychological and sociological impact of comparison, which have been shown to create stress, envy, scorn, and divisiveness (Alicke & Zell, 2008; Fiske, 2010). Therefore, financial planners need to recognize the power of comparison to affect client financial satisfaction.

Financial planners can act to intervene on the behalf of clients who show a strong desire to compare to others and past self. People naturally compare themselves to others more often when they do not have "objective, non-social" ways to know and understand how they are doing (Festinger, 1957). If people are uncertain how they are doing, then they will instinctually compare their situation to that of their reference group and past.

Financial planners who work with clients to establish clear and objective goals can therefore help them do less comparing and more knowing. Financial planners should understand the importance of goal setting with clients as a first step in pushing them away from negative comparison effects. Steps with clients toward these goals should coincide with an attentiveness toward recognition of relative income attributes. Financial planners should know their clients closely, learning about their personal financial history as well as the characteristics of their

financial comparison reference group. If a planner identifies a client as having a strong tendency toward financial comparison, then interventions should turn the client's focus toward objective and established goals and away from relative income comparisons.

The findings from this dissertation suggest that financial comparison has the power to negatively affect financial satisfaction. These findings are supported, albeit subtly, in previous literature that claims money affects happiness when it supplies needs, but not when it supplies status and convenience (Wolbring et al., 2013). The behavioral finance findings on the emphasis we give to losses over gains (Kahneman & Tversky, 1979), and the bifurcated view of the difference in utility of money between spending for needs and spending for status (Graham, 2009; Tay et al., 2017; Wolbring et al., 2013) also support these findings.

Results reported in this dissertation are relevant to research on the impact of negative determinants, like lost employment, recession, and other events which lower levels of living or cause socioeconomic strain, upon satisfaction levels. They also provide support to research upon the impact of childhood financial setting. A strong narrative in this research rests on the impact of respondent parental income around age 18-20. The results suggest this variable holds meaning across the lifespan, as respondents anchor expectations in adulthood through the lens of childhood experience. Those who are raised in higher income households have elevated expectations relating to income and net worth which can impact financial satisfaction. Research on financial socialization and money scripts relating to expectations and aspirations in adulthood could find these associations to be germane. The underlying theme is that being raised in a wealthier household becomes an internalized expectancy that plays out over the lifespan.

As our population continues to age, research focusing on the determinants of financial satisfaction around the time of retirement will continue to find a captive audience and weighty

meaning. The results reported here are similar to those reported in other studies on aging and satisfaction, as respondents did report high levels of financial satisfaction (Heady et al., 2008; Plagnol, 2010b; Steptoe, Deaton, & Stone, 2015). However, despite this sample's older age, nearly all of the indicators suggest that lifetime influencers from late adolescence still matter even into the mid-60s. What happens in youth, especially in relation to money habits and expectations, can have a profound impact on a lifetime's worth of feelings and mindsets.

Financial satisfaction has been shown to be a consequential measure for financial planners (Joo & Grable, 2007). However, very little emphasis in the personal financial planning field has been given to understanding how client's past experiences shape current feelings of well-being. Further, the common default goal in personal financial planning of greater income and wealth is not upheld in this or much other research in the economics of happiness as a means to greater satisfaction levels. This dissertation has a microeconomic foundation, but its findings may be of significance to challenge the macroeconomic goal of aggregate increased incomes. This dissertation suggests that downward mobility negatively affects expectancy but does not find longstanding positive effects for upward mobility. Therefore, less confidence should be placed on the power of tax cuts, stimulus, and raised wages to increase levels of satisfaction in the population. Instead, more emphasis should be placed on creating a robust safety net for people who experience loss of employment and income, as loss holds much more power in bringing down levels of satisfaction than financial gains do of increasing satisfaction.

This dissertation implies that, to best understand client sentiment, more attention should be given to relative income factors, including personal background distinctions, lifetime financial change, and peer comparison. Such an approach may better consider the narrative of the individual and provide a holistic understanding of how relative income shapes money

relationships and financial satisfaction. Financial planners should aim to help clients become more knowledgeable about their own financial goals. Such an emphasis on actionable, future-oriented, and identifiable goals could push clients away from relative income comparisons that may lead to lower financial satisfaction. This may have specific application in the subfields of financial counseling and therapy.

## Strengths and Limitations

While the larger philosophical debate on the relationship between happiness and money will continue into the indeterminable future, the practical need for relevant study on the impact of lifetime change in financial condition, and its implication on present feelings of confidence, mastery, growth, and status is the principal theme of this dissertation. This research may serve to move forward the awareness of certain unique determinants of financial satisfaction through its application of the Relative Income Hypothesis, its measurement across the lifespan, its emphasis upon change as an impact variable, its consideration of financial background situation, and its use of peer comparison factors. This research may underscore important determinants of financial satisfaction – financial change and financial comparison – helping researchers, policymakers, planners, and clients better understand the composition of individuals' feelings in relationship to money.

The research model used here does have limitations. While a strength of the WLS is that it surveys a large cohort of high school graduates through their working years and into retirement, it also naturally entangles generational and regional effects with age and other effects. This is because the entire cohort was born in 1939 or 1940 and attended high school in Wisconsin, and thus would be experiencing the same initial economic climate together (MacDonald & Rindfuss, 1981). While this does not negate the variance in experiences from

household to household, it should be considered when interpreting results as it could change a respondent's subjective understanding of her situation relative to others. These WLS issues should be noted as a limitation. However, the WLS is generally representative of certain demographics in the United States. The WLS sample in present-day represents older Americans who are white and hold at least a high school diploma (Herd et al., 2014).

Another weakness includes the age range of 18-23 and 63-67 for the mobility categories. While the choice of age ranges in a longitudinal study will naturally be limited to the survey rounds available, this limitation does diminish the scope of measurement of financial change. A longitudinal survey with many more rounds would provide much richer potential to measure financial change in the short term and long term.

Other consequences of working with panel data like the WLS include the particularities of working with a narrow age-group. For instance, the dependent variable in this study was taken from respondents around 65 years of age. Therefore, strong consideration must be given regarding the impact of life cycle trends upon this data. A general trend in the field suggests that financial satisfaction tends to peak alongside net worth when individuals reach their sixties (Plagnol, 2010a). Thus, the findings from this dissertation should not be interpreted outside of the sample being studied.

This longitudinal survey does account for attrition rates, but findings should be interpreted with the understanding, as mentioned in Chapter 3, that panel conditioning and uneven retention rates for certain demographics will have an impact on results obtained. While attrition is an inherent challenge when using longitudinal datasets, especially those that now span over 50 years, longitudinal data still has been shown to be a very valuable source for research, as

it is better suited to measure change than cross-sectional data (Graham, 2004; Van Praag et al., 2003).

Finally, another limitation regards the literature on financial satisfaction and the potential for an individual to change financial satisfaction levels. There exist many concepts within the field, outlined in the literature review, that suggest a better financial situation does not equate to an increase in financial satisfaction (Diener et al., 2006; Easterlin, 2001). This is based on the idea that a better financial situation is often offset by comparison to neighbors whose situation is also being bettered. Running on this hedonic treadmill, as this phenomenon is called, does question the impact of upward mobility (Frederick & Loewenstein, 1999). This has led some researchers to question if financial satisfaction can even be changed in the long-term (Graham, 2004). This dissertation ultimately supports this challenge to measuring relative income effects, as results suggest very little evidence in support of upward mobility. This lack of support may be very much due to the hedonic treadmill effect. If, however, one does not experience improved financial situations over the course of the lifetime, results reported here suggest a negative impact upon financial satisfaction. Thus, an argument can be made that while the hedonic treadmill may keep people from the feeling of moving forward financially, they are still very much sensitive and cognizant of when they are falling backwards.

## Recommendations for Future Research

While there is a strong research base that studies the impact of childhood poverty upon life outcomes (Graham & Pettinato, 2002; Van der Waal et al., 2017), there is much less research on the impact of spending childhood in wealthier households. If downward mobility is a strong determinant of lower satisfaction levels, as this research suggests, then research on those who experience this may help researchers and practitioners understand financial satisfaction better as

viewed through the lens of consumption expectation. On a similar topic, the concept of financial expectation as shown through the threshold amounts described in the means analysis would provide an excellent starting point for a focused project using regression analysis upon these variables. There is already research that suggests social mobility effects are magnified by income (Graham & Pettinato, 2002; McBride, 2001). These concepts need additional focus to fill the gap in literature on this subject. Further longitudinal analyses with consistent and regular measurement of income, net worth, and financial satisfaction has the potential to advance research on financial mobility.

Expectancy as a focus for research holds implication to go alongside life event research. The transition for young adults out of parent homes and into their own life as adults is notably full of different types of expectancy. Transitions in lifestyle and mentality that come with new employment, windfalls and inheritances, and even retirement all have potential to be impacted by expectancies that were established in the households of our youth.

Research is needed to assess the processes through which personal financial planners integrate relative income into their planning method. While much of this is likely to grow organically through time in the relationship between client and planner, future research may consider effective methods for utilizing the influence of social comparison and economic origin in practice. Future research may also consider financial goals and relative income comparisons. Does the act of setting goals and being reminded of goals lessen the desire to compare to others and self? What role does progress, or lack of progress, toward financial goals play in these comparisons? Such information may be crucial to financial counselors and therapists, who work heavily with the psychological underpinnings of people's present condition.

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# Appendix A - Complete Variable List

Financial Satisfaction (dependent variable) (2004)

Q1: How satisfied are you with your present financial situation?

R1: completely, very, somewhat, not very, not at all

Relative Income – Financial Change (1957-1960 & 2004)

Q2: Average parental income in hundreds of dollars (1957-1960)

R2: Numeric Input.

Combine into three income range categories

Low = $0 to 333

Medium = $33.01-$63

High = above $63

Q3: Imputed respondent and spouse net worth (2004)

*Note on Imputations: There are 5 imputations for respondent and spouse net worth. Analysis was run on each of the 5 imputations. Results from each of these analyses was averaged. All imputations had the same significance thresholds.*

R3: Below answers are totaled to arrive at net worth. All are numeric input.

- Graduate Respondent's home equity
- Graduate Respondent's business or farm equity
- Respondent's real estate equity for property that is not a first home, farm, or business
- Graduate Respondent's vehicle equity

- If you added up all of your and your spouse's retirement plans that accumulate an account balance, about how much would they amount to right now?
- Response summary for: If you added up all your and your spouse's checking accounts, savings accounts, or money market funds, about how much would they amount to right now?
- Response summary for: If you added up all of your and your spouse's CDs, Government Savings Bonds, or Treasury Bills, about how much would they amount to right now?
- If you sold any other assets and paid off any debts on these assets, about how much would you have? Other assets are anything other than: retirement plans, checking accounts, savings accounts, money market accounts, CDs, Government Savings Bonds, Treasury Bills, stocks, bonds, or shares in a mutual fund.
- What is the total cash value of your life insurance policies?
- What is the total cash value of your spouse's life insurance policies?
- How much do you owe for anything other than: mortgages, cars, trucks, campers, boats, other RVs, a business, a farm or real estate?

Combine into three income range categories

Low = $291,000 and lower

Middle = $291,001 to $701,000

High = $701,001 and higher

Integrate every family income possibility with net worth category to arrive at these nine possible outcomes:

Low Parental Income + low net worth

Low Parental Income + middle net worth

Low Parental Income + high net worth

Middle Parental Income + low net worth

Middle Parental Income + middle net worth

Middle Parental Income + high net worth

High Parental Income + low net worth

High Parental Income + middle net worth

High Parental Income + high net worth

Relative Income – Percent Income Change

Q4: Imputed total household income (2004)

*Note on Imputations: There are 5 imputations for total household income. Analysis was run on each of the 5 imputations. Results from each of these analyses was averaged. All imputations had the same significance thresholds.*

R4: Below answers are totaled to arrive at respondent household income. All are numeric input.

- In the last 12 months, about how much did you receive in wages, salaries, commissions, and tips? (imputed)

- In the last 12 months, about how much did you receive in net income from your own business, professional practice, partnership or farm, other than wages or salaries that you have already told us about? (imputed)
- In the last 12 months, how much Social Security income have you received? (imputed)
- How much, in total, are you receiving from all of your pension plans, not including social security? (imputed)
- In the last 12 months, how much did you receive from supplemental security income, public assistance income, or income from other government programs? (imputed)
- In the last 12 months, about how much did the spouse receive in wages, salaries, commissions, and tips? (imputed)
- In the last 12 months, about how much did the spouse receive in net income from their own business, professional practice, partnership or farm, other than wages or salaries that you have already told us about? (imputed)
- In the last 12 months, how much Social Security income has your spouse received? (imputed)
- How much, in total, is your spouse receiving from all of their pension plans, not including social security? (imputed)
- In the last 12 months, how much did your spouse receive from supplemental security income, public assistance income, or income from other government programs? (imputed)

- How much did you and your spouse receive in income from interest, dividends, or other investments in the last 12 months? (imputed)
- How much did you and your spouse receive in first other income in the last 12 months? Other income sources excludes: wages/salaries, your own business, social security, income from government programs, or other pension plans. (imputed)
- How much did you and your spouse receive in second other income in the last 12 months? Other income sources excludes: wages/salaries, your own business, social security, income from government programs, or other pension plans. (imputed)
- How much income, in total, did the household member other than you or your spouse receive?

Combine the Parental Income figure (See Q2), inflation adjusted at 6.71 times to 2004 dollars, and Income (2004) to arrive at percent Income Change.

Percent Income Change = (Respondent Income – Parental Income) / Parental Income

Relative Income – Peer Comparison (2011)

Q5: Have you done better or worse than your reciprocal friend financially? (2011)

R5: don't know, much better, better, about the same, worse, much worse

Absolute Income and Net Worth(2004)

See Q3 for Household Net Worth and Q4 for Household Income

Demographic Variables - Gender:

Q6: What is your gender? (1957)

R6: Male, Female

Demographic Variables – Health Status:

Q7: In general, would you say your health is excellent, very good, good, fair, or poor? (2004)

R7: 5=excellent, 4=very good, 3=good, 2=fair, 1=poor (Reverse Coded)

Q8: Participant's self-rating of their general health. (2011)

R8: 5=excellent, 4=very good, 3=good, 2=fair, 1=poor (Reverse Coded)

Demographic Variables – Work Status:

Q9: Flag for current employment and retirement status (2004).

R9: Currently employed and never retired = Working

Not currently employed and never retired = Working

Currently employed and retired = Partially Retired

Not currently employed and retired = Retired

Q10: Did participant work at any time during the period between their last interview and 2011 interview? (2011)

R10: No, not known to have worked = Retired

Yes, known to have worked = Working

Demographic Variables – Marital Status

Q11: Current marital status (2004)

R11: currently married, separated, divorced, widowed, never married

Q12: Current marital status (2011)

R12: currently married, separated, divorced, widowed, never married

Demographic Variables – Education Level:

Q13: What is the graduate's most recent degree since high school? (2004)

R13: Associate's Degree, Bachelor's Degree, Master's Degree, Doctorate or Professional Degree

Q14: What is the graduate's most recent degree since high school? (2011)

R14: Associate's Degree, Bachelor's Degree, Master's Degree, Doctorate or Professional Degree

Psychological/Perception Variables – Confidence

Q15: to what extent do you agree that in general, you feel confident and positive about yourself?

R15: 1-6 Likert-type scale where 1=agree strongly and 6=disagree strongly

Psychological/Perception Variables – Personal Growth

Q16: To what extent do you agree that you have the sense that you have developed a lot as a person over time?

R16: 6-point Likert-type scale 1=strongly agree, 6=strongly disagree

Q17: To what extent do you agree that when you think about it, you haven't really improve much as a person over the years?

R17: 6-point Likert-type scale 1=strongly agree, 6=strongly disagree

Q18: To what extent do you agree that you think it is important to have new experiences that challenge how you think about yourself and the world?

R18: 6-point Likert-type scale 1=strongly agree, 6=strongly disagree

Q19: To what extent do you agree that life has been a continuous process of learning changing, and growing?

R19: 6-point Likert-type scale 1=strongly agree, 6=strongly disagree

Q20: To what extent do you agree that you gave up trying to make big improvements or changes in your life a long time ago?

R20: 6-point Likert-type scale 1=strongly agree, 6=strongly disagree

Each question response option was a six point Likert-type scale. The scale is then reverse-coded. Thus scores can range from 5-30 with 30 representing the highest personal growth figure.

Psychological/Perception Variables – Environmental Mastery

Q21: To what extent do you agree that you are quite good at managing the many responsibilities of your daily life?

R21: 6-point Likert-type scale 1=strongly agree, 6=strongly disagree

Q22: To what extent do you agree that you have difficulty arranging your life in a way that is satisfying to you?

R22: 6-point Likert-type scale 1=strongly agree, 6=strongly disagree

Q23: To what extent do you agree that you have been able to create a lifestyle for yourself that is much to your liking?

R23: 6-point Likert-type scale 1=strongly agree, 6=strongly disagree

Q24: To what extent do you agree that you are in charge of the situation in which you live?

R24: 6-point Likert-type scale 1=strongly agree, 6=strongly disagree

Q25: To what extent do you agree that the demands of everyday life often get you down?

R25: 6-point Likert-type scale 1=strongly agree, 6=strongly disagree

Each question response option was a six-point Likert-type scale. Then scale is then reverse coded. Thus, scores can range from 5-30 with 30 representing the highest personal growth figure.

Each question response option was a 6 point Likert-type scale. Thus scores can range from 5-30 with 5 representing highest personal growth and 30 representing lowest personal growth.

Q25: Environmental Mastery Scale

1. To what extent do you agree that you are quite good at managing the many responsibilities of your daily life?
2. To what extent do you agree that you have difficulty arranging your life in a way that is satisfying to you? (reverse coded)
3. To what extent do you agree that you have been able to create a lifestyle for yourself that is much to your liking?
4. To what extent do you agree that you are in charge of the situation in which you live?
5. To what extent do you agree that the demands of everyday life often get you down? (reverse coded)

Each question response option was a 6 point Likert-type scale. Thus scores can range from 5-30 with 5 representing highest environmental mastery and 30 representing lowest environmental mastery.

# Appendix B - Supplemental Tables and Figures

**Table B 1 Glossary**

| Term | Definition | Source |
|---|---|---|
| Absolute Income | Real Income | Keynes, 1936 |
| Duesenberry Approach to the Relative Income Hypothesis | For any given relative income distribution, the percentage of income saved by a family will tend to be a unique, invariant, and increasing function of its percentile position in the income distribution | Duesenberry, 1946 |
| Easterlin Approach to the Relative Income Hypothesis | The tendency to reference one's own preferential past when making judgements about present satisfaction | Easterlin, 2001 |
| Financial Satisfaction | Satisfaction with one's present financial situation | Joo & Grable, 2007 |
| Relative Income Hypothesis | The satisfaction (or utility) that an individual derives from a given consumption level depends on its relative magnitude in the society rather than its absolute level | Koçkesen, 2007 |

**Table B 2 Means Analysis of Net Worth (2004)* Categorized by Parental Income (1957-1960) and Peer Comparison (2011) (*N* = 507)**

| Parental Income | Low(n) | Middle(n) | High(n) |
|---|---|---|---|
| **Peer Comparison** | | | |
| Much Better | $805,954 (6) | $710,407 (25) | $760,484 (24) |
| Better | $661,674 (29) | $721,188 (30) | $766,254 (48) |
| The Same | $464,235 (51) | $579,119 (79) | $599,833 (71) |
| Worse | $340,457(26) | $357,035 (46) | $466,800 (50) |
| Much Worse | $308,000 (1) | $311,072 (4) | $360,821 (7) |

*Top Coded at $1,000,000

# Appendix C - SAS Code

## Easterlin and Absolute Income Approaches

```
libname WiLoSt 'C:\Users\Ben\Documents\KSU\Datasets\Wisconsin Longitudinal
Study\Data';
data WiLoSt.June;
set WiLoSt.WLS;

*DEPENDENT VARIABLE - FINANCIAL SATISFACTION (2004) 1=Completely, 5=Not at
all;
if gp226re <1 then delete; finsat04=gp226re;

*HOUSEHOLD IMPUTED NET WORTH (2004);
if gr100rpci1 in (-5) then delete; NW04I1=gr100rpci1/1000;
if NW04I1>1000 then NW04I1=1000;
if NW04I1 <= 291 then NWLOW1=1;
if 291 < NW04I1 <= 701 then NWMID1=1;
if 701 < NW04I1 then NWHIGH1=1;
if gr100rpci2 in (-5) then delete; NW04I2=gr100rpci2/1000;
if NW04I2>1000 then NW04I2=1000;
if -16 < NW04I2 <= 291 then NWLOW2=1; else NWLOW2=0;
if 291 < NW04I2 <= 701 then NWMID2=1; else NWMID2=0;
if 701 < NW04I2 then NWHIGH2=1; else NWHIGH2=0;
if gr100rpci3 in (-5) then delete; NW04I3=gr100rpci3/1000;
if NW04I3>1000 then NW04I3=1000;
if -16 < NW04I3 <= 291 then NWLOW3=1; else NWLOW3=0;
if 291 < NW04I3 <= 701 then NWMID3=1; else NWMID3=0;
if 701 < NW04I3 then NWHIGH3=1; else NWHIGH3=0;
if gr100rpci4 in (-5) then delete; NW04I4=gr100rpci4/1000;
if NW04I4>1000 then NW04I4=1000;
if -16 < NW04I4 <= 291 then NWLOW4=1; else NWLOW4=0;
if 291 < NW04I4 <= 701 then NWMID4=1; else NWMID4=0;
if 701 < NW04I4 then NWHIGH4=1; else NWHIGH4=0;
if gr100rpci5 in (-5) then delete; NW04I5=gr100rpci5/1000;
if NW04I5>1000 then NW04I5=1000;
if -16 < NW04I5 <= 291 then NWLOW5=1; else NWLOW5=0;
if 291 < NW04I5 <= 701 then NWMID5=1; else NWMID5=0;
if 701 < NW04I5 then NWHIGH5=1; else NWHIGH5=0;

*HOUSEHOLD IMPUTED INCOME (2004);
if gp260heci1 in (-5) then delete; INC04I1=gp260heci1;
if 0 <= INC04I1 < 43192 then INCLOW1=1; else INCLOW1=0;
if 43192 <= INC04I1 < 76495 then INCMID1=1; else INCMID1=0;
if 76495 <= INC04I1 then INCHIGH1=1; else INCHIGH1=0;
if gp260heci2 in (-5) then delete; INC04I2=gp260heci2;
if 0 <= INC04I2 < 43192 then INCLOW2=1; else INCLOW2=0;
if 43192 <= INC04I2 < 76495 then INCMID2=1; else INCMID2=0;
if 76495 <= INC04I2 then INCHIGH2=1; else INCHIGH2=0;
if gp260heci3 in (-5) then delete; INC04I3=gp260heci3;
if 0 <= INC04I3 < 43192 then INCLOW3=1; else INCLOW3=0;
if 43192 <= INC04I3 < 76495 then INCMID3=1; else INCMID3=0;
if 76495 <= INC04I3 then INCHIGH3=1; else INCHIGH3=0;
if gp260heci4 in (-5) then delete; INC04I4=gp260heci4;
if 0 <= INC04I4 < 43192 then INCLOW4=1; else INCLOW4=0;
if 43192 <= INC04I4 < 76495 then INCMID4=1; else INCMID4=0;
```

```
if 76495 <= INC04I4 then INCHIGH4=1; else INCHIGH4=0;
if gp260heci5 in (-5) then delete; INC04I5=gp260heci5;
if 0 <= INC04I5 < 43192 then INCLOW5=1; else INCLOW5=0;
if 43192 <= INC04I5 < 76495 then INCMID5=1; else INCMID5=0;
if 76495 <= INC04I5 then INCHIGH5=1; else INCHIGH5=0;

*AVERAGE PARENTAL INCOME FROM 1957-1960 in HUNDREDS;
if pi5760 <0 then delete; CPI=pi5760;
if 1000 < CPI then CPI=1000;

*CATEGORIZING PARENTAL INCOME INTO 3 CATEGORIES;
if CPI < 33 then CPILOW=1;
if 33 <= CPI < 63 then CPIMID=1;
if 63 <= CPI then CPIHIGH=1;

*CURRENT MARITAL STATUS (2004);
if gc001re in (-1, -3, -4) then delete; if gc001re=1 then married=1; else
married=0;
if gc001re in (-1, -3, -4) then delete; if gc001re=2 or gc001re=3 then
divsep=1; else divsep=0;
if gc001re in (-1, -3, -4) then delete; if gc001re=4 then widowed=1; else
widowed=0;
if gc001re in (-1, -3, -4) then delete; if gc001re=5 then nevermarried=1;
else nevermarried=0;

*GENDER;
if sexrsp=1 then male=1; else male=0;
if sexrsp=2 then female=1; else female=0;

*HEALTH STATUS: Participant's Self-Rating of Their General Health (2004);
*1=excellent 2=very good 3=good 4=fair 5=Poor;
if gx201re in (-3, -1) then delete; HEALTH=gx201re;
if HEALTH=1 then HEALTHRC=5;
if HEALTH=2 then HEALTHRC=4;
if HEALTH=3 then HEALTHRC=3;
if HEALTH=4 then HEALTHRC=2;
if HEALTH=5 then HEALTHRC=1;

*ENVIROMENTAL MASTERY with mean imputed for missing (2004);
*Combintation of 5 Likert 1 to 6 questions, scale is 5 (high) to 30 (low);
if 5 > in010rei then delete; environmentalmastery=in010rei;

*PERSONAL GROWTH with mean imputed for missing (2004);
*Combination of 5 Likert 1 to 6 questions, scale is 5 (high) to 30 (low);
if 5 > in019rei then delete; personalgrowth=in019rei;

*EDUCATION LEVEL: Level of Highest Degree Since High School (2004);
*1=Assoc, 2=Bach, 3=Master, 4=Doctoral 5=College Cert.;
if -3>=gb005rec then delete;
if gb005rec=-2 then HS=1; else HS=0;
if gb005rec=1 then ASSOC=1; else ASSOC=0;
if gb005rec=2 then BACH=1; else BACH=0;
if gb005rec=3 then MAST=1; else MAST=0;
if gb005rec=4 then DOCT=1; else DOCT=0;

*RETIREMENT STATUS (2004);
```

```
if 0>gf014jsc then delete; if gf014jsc=1 or gf014jsc=3 then WORKING=1; else
WORKING=0;
if 0>gf014jsc then delete; if gf014jsc=2 then PARTRETIRED=1; else
PARTRETIRED=0;
if 0>gf014jsc then delete; if gf014jsc=4 then RETIRED=1; else RETIRED=0;

*CHANGE IN LIFETIME FAMILY FINANCIAL SITUATION: COMBINED VARIABLE FROM PI AND
2004NW;
*IMPUTATION 1;
if CPILOW=1 and NWLOW1=1 then LtoL1=1; else LtoL1=0;
if CPILOW=1 and NWMID1=1 then LtoM1=1; else LtoM1=0;
if CPILOW=1 and NWHIGH1=1 then LtoH1=1; else LtoH1=0;
if CPIMID=1 and NWLOW1=1 then MtoL1=1; else MtoL1=0;
if CPIMID=1 and NWMID1=1 then MtoM1=1; else MtoM1=0;
if CPIMID=1 and NWHIGH1=1 then MtoH1=1; else MtoH1=0;
if CPIHIGH=1 and NWLOW1=1 then HtoL1=1; else HtoL1=0;
if CPIHIGH=1 and NWMID1=1 then HtoM1=1; else HtoM1=0;
if CPIHIGH=1 and NWHIGH1=1 then HtoH1=1; else HtoH1=0;

*CHANGE IN LIFETIME FAMILY FINANCIAL SITUATION: COMBINED VARIABLE FROM PI AND
2004NW;
*IMPUTATION 2;
if CPILOW=1 and NWLOW2=1 then LtoL2=1; else LtoL2=0;
if CPILOW=1 and NWMID2=1 then LtoM2=1; else LtoM2=0;
if CPILOW=1 and NWHIGH2=1 then LtoH2=1; else LtoH2=0;
if CPIMID=1 and NWLOW2=1 then MtoL2=1; else MtoL2=0;
if CPIMID=1 and NWMID2=1 then MtoM2=1; else MtoM2=0;
if CPIMID=1 and NWHIGH2=1 then MtoH2=1; else MtoH2=0;
if CPIHIGH=1 and NWLOW2=1 then HtoL2=1; else HtoL2=0;
if CPIHIGH=1 and NWMID2=1 then HtoM2=1; else HtoM2=0;
if CPIHIGH=1 and NWHIGH2=1 then HtoH2=1; else HtoH2=0;

*CHANGE IN LIFETIME FAMILY FINANCIAL SITUATION: COMBINED VARIABLE FROM PI AND
2004NW;
*IMPUTATION 3;
if CPILOW=1 and NWLOW3=1 then LtoL3=1; else LtoL3=0;
if CPILOW=1 and NWMID3=1 then LtoM3=1; else LtoM3=0;
if CPILOW=1 and NWHIGH3=1 then LtoH3=1; else LtoH3=0;
if CPIMID=1 and NWLOW3=1 then MtoL3=1; else MtoL3=0;
if CPIMID=1 and NWMID3=1 then MtoM3=1; else MtoM3=0;
if CPIMID=1 and NWHIGH3=1 then MtoH3=1; else MtoH3=0;
if CPIHIGH=1 and NWLOW3=1 then HtoL3=1; else HtoL3=0;
if CPIHIGH=1 and NWMID3=1 then HtoM3=1; else HtoM3=0;
if CPIHIGH=1 and NWHIGH3=1 then HtoH3=1; else HtoH3=0;

*CHANGE IN LIFETIME FAMILY FINANCIAL SITUATION: COMBINED VARIABLE FROM PI AND
2004NW;
*IMPUTATION 4;
if CPILOW=1 and NWLOW4=1 then LtoL4=1; else LtoL4=0;
if CPILOW=1 and NWMID4=1 then LtoM4=1; else LtoM4=0;
if CPILOW=1 and NWHIGH4=1 then LtoH4=1; else LtoH4=0;
if CPIMID=1 and NWLOW4=1 then MtoL4=1; else MtoL4=0;
if CPIMID=1 and NWMID4=1 then MtoM4=1; else MtoM4=0;
if CPIMID=1 and NWHIGH4=1 then MtoH4=1; else MtoH4=0;
if CPIHIGH=1 and NWLOW4=1 then HtoL4=1; else HtoL4=0;
if CPIHIGH=1 and NWMID4=1 then HtoM4=1; else HtoM4=0;
if CPIHIGH=1 and NWHIGH4=1 then HtoH4=1; else HtoH4=0;
```

```
*CHANGE IN LIFETIME FAMILY FINANCIAL SITUATION: COMBINED VARIABLE FROM PI AND
2004NW;
*IMPUTATION 5;
if CPILOW=1 and NWLOW5=1 then LtoL5=1; else LtoL5=0;
if CPILOW=1 and NWMID5=1 then LtoM5=1; else LtoM5=0;
if CPILOW=1 and NWHIGH5=1 then LtoH5=1; else LtoH5=0;
if CPIMID=1 and NWLOW5=1 then MtoL5=1; else MtoL5=0;
if CPIMID=1 and NWMID5=1 then MtoM5=1; else MtoM5=0;
if CPIMID=1 and NWHIGH5=1 then MtoH5=1; else MtoH5=0;
if CPIHIGH=1 and NWLOW5=1 then HtoL5=1; else HtoL5=0;
if CPIHIGH=1 and NWMID5=1 then HtoM5=1; else HtoM5=0;
if CPIHIGH=1 and NWHIGH5=1 then HtoH5=1; else HtoH5=0;

*CHILDHOOD SES & LATTER-LIFE STAGE FINANCIAL SATISFACTION;
if CPILOW=1 and finsat04=5 then LOWtoFS5=1; else LOWtoFS5=0;
if CPILOW=1 and finsat04=4 then LOWtoFS4=1; else LOWtoFS4=0;
if CPILOW=1 and finsat04=3 then LOWtoFS3=1; else LOWtoFS3=0;
if CPILOW=1 and finsat04=2 then LOWtoFS2=1; else LOWtoFS2=0;
if CPILOW=1 and finsat04=1 then LOWtoFS1=1; else LOWtoFS1=0;
if CPIMID=1 and finsat04=5 then MIDtoFS5=1; else MIDtoFS5=0;
if CPIMID=1 and finsat04=4 then MIDtoFS4=1; else MIDtoFS4=0;
if CPIMID=1 and finsat04=3 then MIDtoFS3=1; else MIDtoFS3=0;
if CPIMID=1 and finsat04=2 then MIDtoFS2=1; else MIDtoFS2=0;
if CPIMID=1 and finsat04=1 then MIDtoFS1=1; else MIDtoFS1=0;
if CPIHIGH=1 and finsat04=5 then HIGHtoFS5=1; else HIGHtoFS5=0;
if CPIHIGH=1 and finsat04=4 then HIGHtoFS4=1; else HIGHtoFS4=0;
if CPIHIGH=1 and finsat04=3 then HIGHtoFS3=1; else HIGHtoFS3=0;
if CPIHIGH=1 and finsat04=2 then HIGHtoFS2=1; else HIGHtoFS2=0;
if CPIHIGH=1 and finsat04=1 then HIGHtoFS1=1; else HIGHtoFS1=0;

*ADJUSTING TO 1957 INFLATION FIGURES;
INFLADJCPI=CPI*6.71;

*CHANGE FROM CHILDHOOD PARENTAL INCOME TO 2004 INCOME;
*EXPRESSED AS % CHANGE;
INFLADJCPIACTUAL=INFLADJCPI*100;
if INFLADJCPIACTUAL > 0 then INFLADJCPIACTUALLY=INFLADJCPIACTUAL;
COMBO1=(INC04I1-INFLADJCPIACTUALLY)/(INFLADJCPIACTUALLY);
COMBO2=(INC04I2-INFLADJCPIACTUALLY)/(INFLADJCPIACTUALLY);
COMBO3=(INC04I3-INFLADJCPIACTUALLY)/(INFLADJCPIACTUALLY);
COMBO4=(INC04I4-INFLADJCPIACTUALLY)/(INFLADJCPIACTUALLY);
COMBO5=(INC04I5-INFLADJCPIACTUALLY)/(INFLADJCPIACTUALLY);
COMBO=(COMBO1+COMBO2+COMBO3+COMBO4+COMBO5)/5;

INC04=(INC04I1+INC04I2+INC04I3+INC04I4+INC04I5)/5;
NW04=(NW04I1+NW04I2+NW04I3+NW04I4+NW04I5)/5;

*LOG INCOME;
LOGINC04=log(INC04);
LOGNW04=log(NW04*1000);

*REVERSE CODED FINSAT;
if finsat04=5 then finsat04RC=1;
if finsat04=4 then finsat04RC=2;
if finsat04=3 then finsat04RC=3;
if finsat04=2 then finsat04RC=4;
```

```
if finsat04=1 then finsat04RC=5;

*FREQUENCIES AND MEANS;
proc freq;
table finsat04 LtoL1 LtoM1 LtoH1 MtoL1 MtoM1 MtoH1 HtoL1 HtoM1 HtoH1 male
female working
retired partretired married divsep widowed nevermarried hs assoc bach
mast doct;
run;

proc means;
var finsat04RC CPI INFLADJCPI NW04I1 INC04I1 COMBO HEALTHRC
environmentalmastery personalgrowth;
run;

*Means Analysis of Net Worth (2004) Categorized by Parental Income (1957-
1960) and Financial Satisfaction (2004);
proc means;
var finsat04RC;
run;
proc means;
var healthrc;
run;
proc means;
var nw04i1;
class lowtoFS5;
run;
proc means;
var nw04i1;
class lowtoFS4;
run;
proc means;
var nw04i1;
class lowtoFS2;
run;
proc means;
var nw04i1;
class lowtoFS2;
run;
proc means;
var nw04i1;
class lowtoFS1;
run;
proc means;
var nw04i1;
class midtoFS1;
run;
proc means;
var nw04i1;
class midtoFS2;
run;
proc means;
var nw04i1;
class midtoFS3;
run;
proc means;
var nw04i1;
```

```
class midtoFS4;
run;
proc means;
var nw04i1;
class midtoFS5;
run;
proc means;
var nw04i1;
class hightoFS5;
run;
proc means;
var nw04i1;
class hightoFS4;
run;
proc means;
var nw04i1;
class hightoFS3;
run;
proc means;
var nw04i1;
class hightoFS2;
run;
proc means;
var nw04i1;
class hightoFS1;
run;

*EASTERLIN APPROACH MOBILITY TABLES INCOME TO NET WORTH;
proc logistic;
model finsat04 = LtoL1 LtoM1 LtoH1 MtoL1 MtoM1 MtoH1 HtoL1 HtoM1 female
healthrc working partretired divsep widowed nevermarried
HS assoc mast doct personalgrowth environmentalmastery/rsq;
run;

proc logistic;
model finsat04 = LtoL2 LtoM2 LtoH2 MtoL2 MtoM2 MtoH2 HtoL2 HtoM2 female
healthrc working partretired divsep widowed nevermarried
HS assoc mast doct personalgrowth environmentalmastery/rsq;
run;

proc logistic;
model finsat04 = LtoL3 LtoM3 LtoH3 MtoL3 MtoM3 MtoH3 HtoL3 HtoM3 female
healthrc working partretired divsep widowed nevermarried
HS assoc mast doct environmentalmastery personalgrowth  /rsq;
run;

proc logistic;
model finsat04 = LtoL4 LtoM4 LtoH4 MtoL4 MtoM4 MtoH4 HtoL4 HtoM4 female
healthrc working partretired divsep widowed nevermarried
HS assoc mast doct environmentalmastery personalgrowth/rsq;
run;

proc logistic;
model finsat04 = LtoL5 LtoM5 LtoH5 MtoL5 MtoM5 MtoH5 HtoL5 HtoM5 female
healthrc working partretired divsep widowed nevermarried
HS assoc mast doct personalgrowth environmentalmastery/rsq;
run;
```

```
*EASTERLIN APPROACH INCOME CHANGE;
proc logistic;
model finsat04 = combo female healthrc working partretired divsep widowed
nevermarried HS assoc mast doct personalgrowth environmentalmastery/rsq;
run;

*ABSOLUTE INCOME;
proc logistic;
model finsat04 = logINC04 logNW04 female healthrc working partretired divsep
widowed nevermarried HS assoc mast doct personalgrowth
environmentalmastery/rsq;
run;

*OLS REGRESSION FOR COMPARISON;
proc reg;
model finsat04 = LtoL1 LtoM1 LtoH1 MtoL1 MtoM1 MtoH1 HtoL1 HtoM1 female
healthrc working partretired divsep widowed nevermarried
HS assoc mast doct personalgrowth environmentalmastery/vif;
run;

proc reg;
model finsat04 = combo female healthrc working partretired divsep widowed
nevermarried
HS assoc mast doct personalgrowth environmentalmastery/vif;
run;

proc reg;
model finsat04 = logINC04 logNW04 female healthrc working partretired divsep
widowed nevermarried HS assoc mast doct personalgrowth
environmentalmastery/vif;
run;
```

## Duesenberry Approach

```
libname WiLoSt 'C:\Users\Ben\Documents\KSU\Datasets\Wisconsin Longitudinal
Study\Data';
data WiLoSt.June;
set WiLoSt.WLS;

*DEPENDENT VARIABLE - FINANCIAL SATISFACTION (2011) 1=Completely, 5=Not at
all;
if hp226re < 1 then delete; finsat11=hp226re;

*CURRENT MARITAL STATUS (2011);
if hc001re in (-1, -3, -4) then delete;
if hc001re=1 then married11=1; else married11=0;
if hc001re=2 or hc001re=3 then divsep11=1; else divsep11=0;
if hc001re=4 then widowed11=1; else widowed11=0;
if hc001re=5 then nevermarried11=1; else nevermarried11=0;

*GENDER;
if sexrsp=1 then male=1; else male=0;
if sexrsp=2 then female=1; else female=0;

*HEALTH STATUS: Participant's Self-Rating of Their General Health (2011);
```

```
*1=excellent 2=very good 3=good 4=fair 5=Poor;
HEALTH11=gx201re;
if gx201re in (-3, -1) then delete;
if HEALTH11=5 then HEALTH11RC=1;
if HEALTH11=4 then HEALTH11RC=2;
if HEALTH11=3 then HEALTH11RC=3;
if HEALTH11=2 then HEALTH11RC=4;
if HEALTH11=1 then HEALTH11RC=5;

*ENVIROMENTAL MASTERY with mean imputed for missing (2011);
*Combintation of 5 Likert 1 to 6 questions, scale is 5 (high) to 30 (low);
if 5 > jn010rei then delete;
environmentalmastery11=jn010rei;

*PERSONAL GROWTH with mean imputed for missing (2011);
*Combination of 5 Likert 1 to 6 questions, scale is 5 (high) to 30 (low);
if 5 > jn019rei then delete;
personalgrowth11=jn019rei;

*EDUCATION LEVEL: Level of Highest Degree Since High School (2011);
*1=Assoc, 2=Bach, 3=Master, 4=Doctoral 5=College Cert.;
if -3>=hb005rec then delete;
if hb005rec=-2 then HS11=1; else HS11=0;
if hb005rec=1 or hb005rec=5 then ASSOC11=1; else ASSOC11=0;
if hb005rec=2 then BACH11=1; else BACH11=0;
if hb005rec=3 then MAST11=1; else MAST11=0;
if hb005rec=4 then DOCT11=1; else DOCT11=0;

*RETIREMENT STATUS (2011) OTHER VARIABLE;
if hf15jjsc in (-5, -30) then delete;
if hf15jjsc=0 then RETIREMENT11=1; else RETIREMENT11=0;
if hf15jjsc=1 then WORK11=1; else WORK11=0;

*DICHOTOMIZING FRIEND (2011);
if 0 > hmx11re  then delete;
Friend2011=hmx11re;
if Friend2011=1 then muchbetterfriend2011=1; else muchbetterfriend2011=0;
if Friend2011=2 then betterfriend2011=1; else betterfriend2011=0;
if Friend2011=3 then samefriend2011=1; else samefriend2011=0;
if Friend2011=4 then worsefriend2011=1; else worsefriend2011=0;
if Friend2011=5 then muchworsefriend2011=1; else muchworsefriend2011=0;

*REVERSE CODED FRIEND 2011;
if Friend2011=5 then Friend2011RC=1;
if Friend2011=4 then Friend2011RC=2;
if Friend2011=3 then Friend2011RC=3;
if Friend2011=2 then Friend2011RC=4;
if Friend2011=1 then Friend2011RC=5;

*REVERSE CODED FINSAT;
if finsat11=5 then finsat11RC=1;
if finsat11=4 then finsat11RC=2;
if finsat11=3 then finsat11RC=3;
if finsat11=2 then finsat11RC=4;
if finsat11=1 then finsat11RC=5;

*COMBINED VARIABLE CHILDHOOD PARENT INCOME AND PEER COMPARISON;
```

```
if CPILow=1 and muchworsefriend2011=1 then LandMW=1; else LandMW=0;
if CPILOW=1 and worsefriend2011=1 then LandW=1; else LandW=0;
if CPILOW=1 and samefriend2011=1 then LandS=1; else LandS=0;
if CPILOW=1 and betterfriend2011=1 then LandB=1; else LandB=0;
if CPILOW=1 and muchbetterfriend2011=1 then LandMB=1; else LandMB=0;
if CPIMID=1 and muchworsefriend2011=1 then MandMW=1; else MandMW=0;
if CPIMID=1 and worsefriend2011=1 then MandW=1; else MandW=0;
if CPIMID=1 and samefriend2011=1 then MandS=1; else MandS=0;
if CPIMID=1 and betterfriend2011=1 then MandB=1; else MandB=0;
if CPIMID=1 and muchbetterfriend2011=1 then MandMB=1; else MandMB=0;
if CPIHIGH=1 and muchworsefriend2011=1 then HandMW=1; else HandMW=0;
if CPIHIGH=1 and worsefriend2011=1 then HandW=1; else HandW=0;
if CPIHIGH=1 and samefriend2011=1 then HandS=1; else HandS=0;
if CPIHIGH=1 and betterfriend2011=1 then HandB=1; else HandB=0;
if CPIHIGH=1 and muchbetterfriend2011=1 then HandMB=1; else HandMB=0;

*TESTING FREQUENCIES AND MEANS;
proc freq;
table finsat11 muchbetterfriend2011 betterfriend2011 samefriend2011
worsefriend2011 muchworsefriend2011 male female work11 married11
divsep11 widowed11 nevermarried11 HS11 ASSOC11 BACH11 MAST11 DOCT11;
run;

proc means;
var finsat11rc friend2011rc health11rc environmentalmastery11
personalgrowth11;
run;

*DUESENBERRY APPROACH REGRESSION;
proc logistic;
model finsat11 = muchbetterfriend2011 samefriend2011 worsefriend2011
muchworsefriend2011 female health11rc divsep11 widowed11 nevermarried11 HS11
ASSOC11 MAST11 DOCT11
work11 environmentalmastery11 personalgrowth11/rsq;
run;

*OLS REGRESSION FOR COMPARISON;
proc reg;
model finsat11 = friend2011 female health11 divsep11 widowed11 nevermarried11
HS11 ASSOC11 MAST11 DOCT11
work11 environmentalmastery11 personalgrowth11/vif;
run;

*Means Analysis of Net Worth (2004)* Categorized by Parental Income (1957-
1960) and Peer Comparison (2011);
proc freq;
table LandMW;
run;
proc means;
var NW04I1;
class LandMW;
run;
proc means;
var NW04I1;
class LandW;
run;
proc means;
```

```
var NW04I1;
class LandS;
run;
proc means;
var NW04I1;
class LandB;
run;
proc means;
var NW04I1;
class LandMB;
run;
proc means;
var NW04I1;
class MandMW;
run;
proc means;
var NW04I1;
class MandW;
run;
proc means;
var NW04I1;
class MandS;
run;
proc means;
var NW04I1;
class MandB;
run;
proc means;
var NW04I1;
class MandMB;
run;
proc means;
var NW04I1;
class HandMW;
run;
proc means;
var NW04I1;
class HandW;
run;
proc means;
var NW04I1;
class HandS;
run;
proc means;
var NW04I1;
class HandB;
run;
proc means;
var NW04I1;
class HandMB;
run;
```

# Appendix D - SAS Output

## Easterlin Approach

The SAS System

The FREQ Procedure

| finsat04 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **1** | 1211 | 24.43 | 1211 | 24.43 |
| **2** | 1931 | 38.95 | 3142 | 63.37 |
| **3** | 1539 | 31.04 | 4681 | 94.41 |
| **4** | 194 | 3.91 | 4875 | 98.33 |
| **5** | 83 | 1.67 | 4958 | 100.00 |

| LtoL1 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4559 | 91.95 | 4559 | 91.95 |
| **1** | 399 | 8.05 | 4958 | 100.00 |

| LtoM1 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4572 | 92.21 | 4572 | 92.21 |
| **1** | 386 | 7.79 | 4958 | 100.00 |

| LtoH1 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4658 | 93.95 | 4658 | 93.95 |
| **1** | 300 | 6.05 | 4958 | 100.00 |

| MtoL1 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4260 | 85.92 | 4260 | 85.92 |
| **1** | 698 | 14.08 | 4958 | 100.00 |

| MtoM1 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4286 | 86.45 | 4286 | 86.45 |
| **1** | 672 | 13.55 | 4958 | 100.00 |

| MtoH1 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4399 | 88.73 | 4399 | 88.73 |
| **1** | 559 | 11.27 | 4958 | 100.00 |

| HtoL1 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4450 | 89.75 | 4450 | 89.75 |
| **1** | 508 | 10.25 | 4958 | 100.00 |

| HtoM1 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4313 | 86.99 | 4313 | 86.99 |
| **1** | 645 | 13.01 | 4958 | 100.00 |

| HtoH1 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4167 | 84.05 | 4167 | 84.05 |
| **1** | 791 | 15.95 | 4958 | 100.00 |

| male | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 2549 | 51.41 | 2549 | 51.41 |
| **1** | 2409 | 48.59 | 4958 | 100.00 |

| female | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 2409 | 48.59 | 2409 | 48.59 |
| **1** | 2549 | 51.41 | 4958 | 100.00 |

| WORKING | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 3137 | 63.27 | 3137 | 63.27 |
| **1** | 1821 | 36.73 | 4958 | 100.00 |

| RETIRED | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 2556 | 51.55 | 2556 | 51.55 |
| **1** | 2402 | 48.45 | 4958 | 100.00 |

| PARTRETIRED | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4223 | 85.18 | 4223 | 85.18 |
| **1** | 735 | 14.82 | 4958 | 100.00 |

| married | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 1047 | 21.12 | 1047 | 21.12 |
| **1** | 3911 | 78.88 | 4958 | 100.00 |

| divsep | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4472 | 90.20 | 4472 | 90.20 |
| **1** | 486 | 9.80 | 4958 | 100.00 |

| widowed | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4587 | 92.52 | 4587 | 92.52 |
| **1** | 371 | 7.48 | 4958 | 100.00 |

| nevermarried | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4768 | 96.17 | 4768 | 96.17 |
| **1** | 190 | 3.83 | 4958 | 100.00 |

| HS | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 1596 | 32.19 | 1596 | 32.19 |
| **1** | 3362 | 67.81 | 4958 | 100.00 |

| ASSOC | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4811 | 97.04 | 4811 | 97.04 |
| **1** | 147 | 2.96 | 4958 | 100.00 |

| BACH | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4122 | 83.14 | 4122 | 83.14 |
| **1** | 836 | 16.86 | 4958 | 100.00 |

| MAST | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4502 | 90.80 | 4502 | 90.80 |
| **1** | 456 | 9.20 | 4958 | 100.00 |

| DOCT | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 4801 | 96.83 | 4801 | 96.83 |
| **1** | 157 | 3.17 | 4958 | 100.00 |



The MEANS Procedure

| Variable | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|
| **finsat04RC** | 4958 | 3.8053651 | 0.9078122 | 1.0000000 | 5.0000000 |
| **CPI** | 4958 | 6354.57846 | 60.5549101 | 1.0000000 | 99800.00000 |
| **INFLADJCPI** | 4958 | 42639.22146 | 406.3234467 | 6.7100000 | 669658.00 |
| **NW04I1** | 4958 | 522938.3005 | 337.2107138 | -15.0000000 | 1000000 |

| Variable | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|
| **INC04I1** | 4958 | 82416.81 | 88357.87 | 0 | 710000.00 |
| **COMBO1** | 4958 | 1.9000807 | 4.7814972 | -1.0000000 | 160.6492797 |
| **HEALTHRC** | 4958 | 3.8096006 | 0.9540865 | 1.0000000 | 5.0000000 |
| **environmentalmastery** | 4958 | 24.7234772 | 3.6412085 | 5.0000000 | 30.0000000 |
| **personalgrowth** | 4958 | 24.9933441 | 3.6067758 | 8.0000000 | 30.0000000 |

**Means Analysis of Net Worth (2004) Categorized by Parental Income (1957-1960) and Financial Satisfaction (2004)**

The SAS System

The MEANS Procedure

**Analysis Variable : NW04I1**

| LOWtoFS5 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **4930** | 4930 | 524.9287548 | 336.5599377 | -15.0000000 | 1000.00 |
| **1** | **28** | 28 | 172.4761786 | 264.3336440 | -7.9510000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| LOWtoFS4 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **4914** | 4914 | 525.4359481 | 337.0512941 | -15.0000000 | 1000.00 |
| **1** | **44** | 44 | 243.9964773 | 219.7862422 | 2.5510000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| LOWtoFS2 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **4550** | 4550 | 522.5619960 | 339.3793422 | -15.0000000 | 1000.00 |
| **1** | **408** | 408 | 527.1348333 | 312.3646153 | -15.0000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| LOWtoFS2 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **4550** | 4550 | 522.5619960 | 339.3793422 | -15.0000000 | 1000.00 |

**Analysis Variable : NW04I1**

| LOWtoFS2 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **1** | **408** | 408 | 527.1348333 | 312.3646153 | -15.0000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| LOWtoFS1 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **4691** | 4691 | 519.0739488 | 336.7648327 | -15.0000000 | 1000.00 |
| **1** | **267** | 267 | 590.8322097 | 338.4476372 | -7.4000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| MIDtoFS1 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **4513** | 4513 | 513.6948755 | 335.7905958 | -15.0000000 | 1000.00 |
| **1** | **445** | 445 | 616.6811708 | 337.6441830 | -15.0000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| MIDtoFS2 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **4216** | 4216 | 518.9789530 | 341.1125108 | -15.0000000 | 1000.00 |
| **1** | **742** | 742 | 545.4350782 | 313.3903983 | 3.0000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| MIDtoFS3 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **4320** | 4320 | 543.7475611 | 337.6902282 | -15.0000000 | 1000.00 |
| **1** | **638** | 638 | 382.0354702 | 298.1172037 | -5.6000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| MIDtoFS4 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **4882** | 4882 | 527.5219439 | 336.5279414 | -15.0000000 | 1000.00 |
| **1** | **76** | 76 | 228.4995263 | 236.5310973 | -15.0000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| MIDtoFS5 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **4930** | 4930 | 525.3584164 | 336.5512943 | -15.0000000 | 1000.00 |
| **1** | **28** | 28 | 96.8250357 | 98.3039079 | -15.0000000 | 319.0000000 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| HIGHtoFS5 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **4931** | 4931 | 524.3678094 | 336.8542926 | -15.0000000 | 1000.00 |
| **1** | **27** | 27 | 261.8676296 | 304.0936484 | -15.0000000 | 1000.00 |

**Analysis Variable : NW04I1**

| HIGHtoFS4 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **4884** | 4884 | 526.2606052 | 336.6693348 | -15.0000000 | 1000.00 |
| **1** | **74** | 74 | 303.6661892 | 300.3242382 | -12.0000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| HIGHtoFS3 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **4395** | 4395 | 530.5094530 | 338.9471732 | -15.0000000 | 1000.00 |
| **1** | **563** | 563 | 463.8348988 | 317.4678313 | -15.0000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| HIGHtoFS2 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **4177** | 4177 | 505.6887817 | 336.9883767 | -15.0000000 | 1000.00 |
| **1** | **781** | 781 | 615.1934097 | 323.3327607 | -15.0000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| HIGHtoFS1 | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **4459** | 4459 | 499.9833315 | 331.1484600 | -15.0000000 | 1000.00 |
| **1** | **499** | 499 | 728.0609599 | 321.4532131 | -15.0000000 | 1000.00 |

The SAS System

The LOGISTIC Procedure

**Model Information**

| | |
|---|---|
| **Data Set** | WILOST.JUNE |
| **Response Variable** | finsat04 |
| **Number of Response Levels** | 5 |
| **Model** | cumulative logit |
| **Optimization Technique** | Fisher's scoring |

| | |
|---|---|
| **Number of Observations Read** | 4958 |
| **Number of Observations Used** | 4958 |

**Response Profile**

| Ordered Value | finsat04 | Total Frequency |
|---|---|---|
| **1** | 1 | 1211 |
| **2** | 2 | 1931 |
| **3** | 3 | 1539 |
| **4** | 4 | 194 |
| **5** | 5 | 83 |

**Probabilities modeled are cumulated over the lower Ordered Values.**

**Model Convergence Status**

Convergence criterion (GCONV=1E-8) satisfied.

**Score Test for the Proportional Odds Assumption**

| Chi-Square | DF | Pr > ChiSq |
|---|---|---|
| 196.7777 | 63 | <.0001 |

**Model Fit Statistics**

| Criterion | Intercept Only | Intercept and Covariates |
|---|---|---|
| **AIC** | 12600.927 | 11515.709 |
| **SC** | 12626.962 | 11678.428 |
| **-2 Log L** | 12592.927 | 11465.709 |

**R-Square** 0.2034 **Max-rescaled R-Square** 0.2208

**Testing Global Null Hypothesis: BETA=0**

| Test | Chi-Square | DF | Pr > ChiSq |
|---|---|---|---|
| **Likelihood Ratio** | 1127.2179 | 21 | <.0001 |
| **Score** | 974.4451 | 21 | <.0001 |
| **Wald** | 1044.0206 | 21 | <.0001 |

**Analysis of Maximum Likelihood Estimates**

| Parameter | | DF | Estimate | Standard Error | Wald Chi-Square | Pr > ChiSq |
|---|---|---|---|---|---|---|
| **Intercept** | **1** | 1 | -4.7107 | 0.2547 | 342.1429 | <.0001 |
| **Intercept** | **2** | 1 | -2.7379 | 0.2491 | 120.7773 | <.0001 |
| **Intercept** | **3** | 1 | -0.1300 | 0.2479 | 0.2749 | 0.6000 |
| **Intercept** | **4** | 1 | 1.1985 | 0.2628 | 20.8016 | <.0001 |
| **LtoL1** | | 1 | -1.1125 | 0.1216 | 83.6888 | <.0001 |
| **LtoM1** | | 1 | -0.6526 | 0.1195 | 29.8266 | <.0001 |
| **LtoH1** | | 1 | 0.1388 | 0.1296 | 1.1465 | 0.2843 |
| **MtoL1** | | 1 | -1.1876 | 0.1048 | 128.3925 | <.0001 |
| **MtoM1** | | 1 | -0.6662 | 0.1012 | 43.3104 | <.0001 |
| **MtoH1** | | 1 | 0.0193 | 0.1051 | 0.0338 | 0.8542 |
| **HtoL1** | | 1 | -1.2702 | 0.1126 | 127.2975 | <.0001 |
| **HtoM1** | | 1 | -0.6948 | 0.1015 | 46.8437 | <.0001 |
| **female** | | 1 | 0.0185 | 0.0565 | 0.1067 | 0.7439 |
| **HEALTHRC** | | 1 | 0.2129 | 0.0302 | 49.8012 | <.0001 |

**Analysis of Maximum Likelihood Estimates**

| Parameter | DF | Estimate | Standard Error | Wald Chi-Square | Pr > ChiSq |
|---|---|---|---|---|---|
| **WORKING** | 1 | -0.5883 | 0.0595 | 97.8792 | <.0001 |
| **PARTRETIRED** | 1 | -0.3372 | 0.0800 | 17.7579 | <.0001 |
| **divsep** | 1 | -0.4404 | 0.0943 | 21.8139 | <.0001 |
| **widowed** | 1 | 0.1420 | 0.1046 | 1.8410 | 0.1748 |
| **nevermarried** | 1 | 0.1614 | 0.1421 | 1.2904 | 0.2560 |
| **HS** | 1 | 0.0177 | 0.0759 | 0.0544 | 0.8157 |
| **ASSOC** | 1 | -0.0400 | 0.1691 | 0.0561 | 0.8128 |
| **MAST** | 1 | 0.1165 | 0.1102 | 1.1173 | 0.2905 |
| **DOCT** | 1 | 0.3618 | 0.1678 | 4.6475 | 0.0311 |
| **personalgrowth** | 1 | -0.0235 | 0.00976 | 5.7980 | 0.0160 |
| **environmentalmastery** | 1 | 0.1608 | 0.00990 | 263.8083 | <.0001 |

**Odds Ratio Estimates**

| Effect | Point Estimate | 95% Wald Confidence Limits | |
|---|---|---|---|
| **LtoL1** | 0.329 | 0.259 | 0.417 |
| **LtoM1** | 0.521 | 0.412 | 0.658 |
| **LtoH1** | 1.149 | 0.891 | 1.481 |
| **MtoL1** | 0.305 | 0.248 | 0.374 |
| **MtoM1** | 0.514 | 0.421 | 0.626 |
| **MtoH1** | 1.020 | 0.830 | 1.253 |
| **HtoL1** | 0.281 | 0.225 | 0.350 |
| **HtoM1** | 0.499 | 0.409 | 0.609 |
| **female** | 1.019 | 0.912 | 1.138 |
| **HEALTHRC** | 1.237 | 1.166 | 1.313 |
| **WORKING** | 0.555 | 0.494 | 0.624 |
| **PARTRETIRED** | 0.714 | 0.610 | 0.835 |
| **divsep** | 0.644 | 0.535 | 0.774 |

**Odds Ratio Estimates**

| Effect | Point Estimate | 95% Wald Confidence Limits | |
|---|---|---|---|
| **widowed** | 1.153 | 0.939 | 1.415 |
| **nevermarried** | 1.175 | 0.890 | 1.553 |
| **HS** | 1.018 | 0.877 | 1.181 |
| **ASSOC** | 0.961 | 0.690 | 1.338 |
| **MAST** | 1.124 | 0.905 | 1.394 |
| **DOCT** | 1.436 | 1.033 | 1.995 |
| **personalgrowth** | 0.977 | 0.958 | 0.996 |
| **environmentalmastery** | 1.174 | 1.152 | 1.197 |

**Association of Predicted Probabilities and Observed Responses**

| | | | |
|---|---|---|---|
| **Percent Concordant** | 70.3 | **Somers' D** | 0.412 |
| **Percent Discordant** | 29.2 | **Gamma** | 0.414 |
| **Percent Tied** | 0.5 | **Tau-a** | 0.284 |
| **Pairs** | 8486718 | **c** | 0.706 |

**Easterlin Approach with Percentage Income Change**

The SAS System

The LOGISTIC Procedure

**Model Information**

| | |
|---|---|
| **Data Set** | WILOST.JUNE |
| **Response Variable** | finsat04 |
| **Number of Response Levels** | 5 |
| **Model** | cumulative logit |
| **Optimization Technique** | Fisher's scoring |

| | |
|---|---|
| **Number of Observations Read** | 4958 |
| **Number of Observations Used** | 4958 |

**Response Profile**

| Ordered Value | finsat04 | Total Frequency |
|---|---|---|
| **1** | 1 | 1211 |
| **2** | 2 | 1931 |
| **3** | 3 | 1539 |
| **4** | 4 | 194 |
| **5** | 5 | 83 |

**Probabilities modeled are cumulated over the lower Ordered Values.**

**Model Convergence Status**

Convergence criterion (GCONV=1E-8) satisfied.

**Score Test for the Proportional Odds Assumption**

| Chi-Square | DF | Pr > ChiSq |
|---|---|---|
| 141.4889 | 42 | <.0001 |

**Model Fit Statistics**

| Criterion | Intercept Only | Intercept and Covariates |
|---|---|---|
| **AIC** | 12600.927 | 11748.653 |
| **SC** | 12626.962 | 11865.811 |
| **-2 Log L** | 12592.927 | 11712.653 |

**R-Square** 0.1627 **Max-rescaled R-Square** 0.1766

**Testing Global Null Hypothesis: BETA=0**

| Test | Chi-Square | DF | Pr > ChiSq |
|---|---|---|---|
| **Likelihood Ratio** | 880.2740 | 14 | <.0001 |
| **Score** | 770.5118 | 14 | <.0001 |
| **Wald** | 834.5904 | 14 | <.0001 |

**Analysis of Maximum Likelihood Estimates**

| Parameter | | DF | Estimate | Standard Error | Wald Chi-Square | Pr > ChiSq |
|---|---|---|---|---|---|---|
| **Intercept** | **1** | 1 | -5.5713 | 0.2444 | 519.6772 | <.0001 |
| **Intercept** | **2** | 1 | -3.6718 | 0.2371 | 239.8312 | <.0001 |
| **Intercept** | **3** | 1 | -1.1295 | 0.2348 | 23.1435 | <.0001 |
| **Intercept** | **4** | 1 | 0.1865 | 0.2504 | 0.5549 | 0.4563 |
| **COMBO** | | 1 | 0.0419 | 0.00693 | 36.5110 | <.0001 |
| **female** | | 1 | -0.0363 | 0.0560 | 0.4195 | 0.5172 |
| **HEALTHRC** | | 1 | 0.2546 | 0.0298 | 72.8634 | <.0001 |
| **WORKING** | | 1 | -0.6107 | 0.0593 | 106.2476 | <.0001 |
| **PARTRETIRED** | | 1 | -0.3993 | 0.0794 | 25.2927 | <.0001 |
| **divsep** | | 1 | -0.6898 | 0.0919 | 56.2985 | <.0001 |
| **widowed** | | 1 | 0.0275 | 0.1035 | 0.0707 | 0.7903 |
| **nevermarried** | | 1 | 0.0141 | 0.1403 | 0.0101 | 0.9200 |
| **HS** | | 1 | -0.1691 | 0.0736 | 5.2842 | 0.0215 |
| **ASSOC** | | 1 | -0.1955 | 0.1676 | 1.3607 | 0.2434 |
| **MAST** | | 1 | 0.0580 | 0.1093 | 0.2812 | 0.5959 |
| **DOCT** | | 1 | 0.4667 | 0.1671 | 7.8007 | 0.0052 |
| **personalgrowth** | | 1 | -0.0196 | 0.00970 | 4.0960 | 0.0430 |
| **environmentalmastery** | | 1 | 0.1685 | 0.00984 | 293.3947 | <.0001 |

**Odds Ratio Estimates**

| Effect | Point Estimate | 95% Wald Confidence Limits | |
|---|---|---|---|
| **COMBO** | 1.043 | 1.029 | 1.057 |
| **female** | 0.964 | 0.864 | 1.076 |
| **HEALTHRC** | 1.290 | 1.217 | 1.368 |
| **WORKING** | 0.543 | 0.483 | 0.610 |
| **PARTRETIRED** | 0.671 | 0.574 | 0.784 |
| **divsep** | 0.502 | 0.419 | 0.601 |

**Odds Ratio Estimates**

| Effect | Point Estimate | 95% Wald Confidence Limits | |
|---|---|---|---|
| **widowed** | 1.028 | 0.839 | 1.259 |
| **nevermarried** | 1.014 | 0.770 | 1.335 |
| **HS** | 0.844 | 0.731 | 0.975 |
| **ASSOC** | 0.822 | 0.592 | 1.142 |
| **MAST** | 1.060 | 0.855 | 1.313 |
| **DOCT** | 1.595 | 1.149 | 2.213 |
| **personalgrowth** | 0.981 | 0.962 | 0.999 |
| **environmentalmastery** | 1.183 | 1.161 | 1.207 |

**Association of Predicted Probabilities and Observed Responses**

| | | | |
|---|---|---|---|
| **Percent Concordant** | 68.0 | **Somers' D** | 0.365 |
| **Percent Discordant** | 31.4 | **Gamma** | 0.368 |
| **Percent Tied** | 0.6 | **Tau-a** | 0.252 |
| **Pairs** | 8486718 | **c** | 0.683 |

**Absolute Income and Net Worth Approach**

The SAS System

The LOGISTIC Procedure

**Model Information**

| | |
|---|---|
| **Data Set** | WILOST.JUNE |
| **Response Variable** | finsat04 |
| **Number of Response Levels** | 5 |
| **Model** | cumulative logit |
| **Optimization Technique** | Fisher's scoring |

| | |
|---|---|
| **Number of Observations Read** | 4958 |
| **Number of Observations Used** | 4958 |

**Response Profile**

| Ordered Value | finsat04 | Total Frequency |
|---|---|---|
| **1** | 1 | 1202 |
| **2** | 2 | 1927 |
| **3** | 3 | 1519 |
| **4** | 4 | 186 |
| **5** | 5 | 74 |

**Probabilities modeled are cumulated over the lower Ordered Values.**

**Model Convergence Status**

Convergence criterion (GCONV=1E-8) satisfied.

**Score Test for the Proportional Odds Assumption**

| Chi-Square | DF | Pr > ChiSq |
|---|---|---|
| 128.3887 | 45 | <.0001 |

**Model Fit Statistics**

| Criterion | Intercept Only | Intercept and Covariates |
|---|---|---|
| **AIC** | 12394.565 | 11220.432 |
| **SC** | 12420.560 | 11343.906 |
| **-2 Log L** | 12386.565 | 11182.432 |

**R-Square** 0.2176 **Max-rescaled R-Square** 0.2365

**Testing Global Null Hypothesis: BETA=0**

| Test | Chi-Square | DF | Pr > ChiSq |
|---|---|---|---|
| **Likelihood Ratio** | 1204.1334 | 15 | <.0001 |
| **Score** | 1004.4040 | 15 | <.0001 |
| **Wald** | 1115.7099 | 15 | <.0001 |

**Analysis of Maximum Likelihood Estimates**

| Parameter | | DF | Estimate | Standard Error | Wald Chi-Square | Pr > ChiSq |
|---|---|---|---|---|---|---|
| **Intercept** | **1** | 1 | -15.9648 | 0.5996 | 708.9892 | <.0001 |
| **Intercept** | **2** | 1 | -13.9688 | 0.5900 | 560.6011 | <.0001 |
| **Intercept** | **3** | 1 | -11.2433 | 0.5782 | 378.0776 | <.0001 |
| **Intercept** | **4** | 1 | -9.8230 | 0.5818 | 285.0547 | <.0001 |
| **LOGINC04** | | 1 | 0.4475 | 0.0461 | 94.0252 | <.0001 |
| **LOGNW04** | | 1 | 0.4600 | 0.0326 | 198.8019 | <.0001 |
| **female** | | 1 | 0.0500 | 0.0569 | 0.7725 | 0.3794 |
| **HEALTHRC** | | 1 | 0.1775 | 0.0305 | 33.8161 | <.0001 |
| **WORKING** | | 1 | -0.6740 | 0.0610 | 122.2051 | <.0001 |
| **PARTRETIRED** | | 1 | -0.3571 | 0.0808 | 19.5377 | <.0001 |
| **divsep** | | 1 | -0.0528 | 0.0989 | 0.2855 | 0.5931 |
| **widowed** | | 1 | 0.4811 | 0.1087 | 19.5734 | <.0001 |
| **nevermarried** | | 1 | 0.4729 | 0.1474 | 10.2908 | 0.0013 |
| **HS** | | 1 | 0.1250 | 0.0763 | 2.6847 | 0.1013 |
| **ASSOC** | | 1 | -0.0175 | 0.1692 | 0.0106 | 0.9178 |
| **MAST** | | 1 | 0.0720 | 0.1105 | 0.4249 | 0.5145 |
| **DOCT** | | 1 | 0.2459 | 0.1689 | 2.1201 | 0.1454 |
| **personalgrowth** | | 1 | -0.0237 | 0.00986 | 5.7652 | 0.0163 |
| **environmentalmastery** | | 1 | 0.1526 | 0.0100 | 231.7583 | <.0001 |

**Odds Ratio Estimates**

| Effect | Point Estimate | 95% Wald Confidence Limits | |
|---|---|---|---|
| **LOGINC04** | 1.564 | 1.429 | 1.712 |
| **LOGNW04** | 1.584 | 1.486 | 1.689 |
| **female** | 1.051 | 0.940 | 1.175 |
| **HEALTHRC** | 1.194 | 1.125 | 1.268 |
| **WORKING** | 0.510 | 0.452 | 0.574 |

**Odds Ratio Estimates**

| Effect | Point Estimate | 95% Wald Confidence Limits | |
|---|---|---|---|
| **PARTRETIRED** | 0.700 | 0.597 | 0.820 |
| **divsep** | 0.949 | 0.781 | 1.151 |
| **widowed** | 1.618 | 1.307 | 2.002 |
| **nevermarried** | 1.605 | 1.202 | 2.142 |
| **HS** | 1.133 | 0.976 | 1.316 |
| **ASSOC** | 0.983 | 0.705 | 1.369 |
| **MAST** | 1.075 | 0.865 | 1.334 |
| **DOCT** | 1.279 | 0.918 | 1.780 |
| **personalgrowth** | 0.977 | 0.958 | 0.996 |
| **environmentalmastery** | 1.165 | 1.142 | 1.188 |

**Association of Predicted Probabilities and Observed Responses**

| | | | |
|---|---|---|---|
| **Percent Concordant** | 70.9 | **Somers' D** | 0.424 |
| **Percent Discordant** | 28.5 | **Gamma** | 0.426 |
| **Percent Tied** | 0.5 | **Tau-a** | 0.292 |
| **Pairs** | 8291449 | **c** | 0.712 |

**Duesenberry Approach**

The SAS System

The FREQ Procedure

| finsat11 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **1** | 170 | 29.62 | 170 | 29.62 |
| **2** | 194 | 33.80 | 364 | 63.41 |
| **3** | 174 | 30.31 | 538 | 93.73 |
| **4** | 26 | 4.53 | 564 | 98.26 |
| **5** | 10 | 1.74 | 574 | 100.00 |

| muchbetterfriend2011 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 512 | 89.20 | 512 | 89.20 |
| **1** | 62 | 10.80 | 574 | 100.00 |

| betterfriend2011 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 452 | 78.75 | 452 | 78.75 |
| **1** | 122 | 21.25 | 574 | 100.00 |

| samefriend2011 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 331 | 57.67 | 331 | 57.67 |
| **1** | 243 | 42.33 | 574 | 100.00 |

| worsefriend2011 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 441 | 76.83 | 441 | 76.83 |
| **1** | 133 | 23.17 | 574 | 100.00 |

| muchworsefriend2011 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 560 | 97.56 | 560 | 97.56 |
| **1** | 14 | 2.44 | 574 | 100.00 |

| male | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 371 | 64.63 | 371 | 64.63 |
| **1** | 203 | 35.37 | 574 | 100.00 |

| female | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 203 | 35.37 | 203 | 35.37 |
| **1** | 371 | 64.63 | 574 | 100.00 |

| WORK11 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 277 | 48.26 | 277 | 48.26 |
| **1** | 297 | 51.74 | 574 | 100.00 |

| married11 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 128 | 22.30 | 128 | 22.30 |
| **1** | 446 | 77.70 | 574 | 100.00 |

| divsep11 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 522 | 90.94 | 522 | 90.94 |
| **1** | 52 | 9.06 | 574 | 100.00 |

| widowed11 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 509 | 88.68 | 509 | 88.68 |
| **1** | 65 | 11.32 | 574 | 100.00 |

| nevermarried11 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 563 | 98.08 | 563 | 98.08 |
| **1** | 11 | 1.92 | 574 | 100.00 |

| HS11 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 195 | 33.97 | 195 | 33.97 |
| **1** | 379 | 66.03 | 574 | 100.00 |

| ASSOC11 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 558 | 97.21 | 558 | 97.21 |
| **1** | 16 | 2.79 | 574 | 100.00 |

| BACH11 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 463 | 80.66 | 463 | 80.66 |
| **1** | 111 | 19.34 | 574 | 100.00 |

| MAST11 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 524 | 91.29 | 524 | 91.29 |
| **1** | 50 | 8.71 | 574 | 100.00 |

| DOCT11 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| **0** | 556 | 96.86 | 556 | 96.86 |
| **1** | 18 | 3.14 | 574 | 100.00 |



The MEANS Procedure

| Variable | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|
| **finsat11RC** | 574 | 3.8501742 | 0.9573040 | 1.0000000 | 5.0000000 |
| **Friend2011RC** | 574 | 3.1480836 | 0.9765245 | 1.0000000 | 5.0000000 |
| **HEALTH11RC** | 574 | 3.9156415 | 0.8780889 | 1.0000000 | 5.0000000 |
| **environmentalmastery11** | 574 | 24.6898955 | 3.8161962 | 10.0000000 | 30.0000000 |
| **personalgrowth11** | 574 | 24.6080139 | 3.8033702 | 11.0000000 | 30.0000000 |



The LOGISTIC Procedure

**Model Information**

| | |
|---|---|
| **Data Set** | WILOST.JUNE |
| **Response Variable** | finsat11 |
| **Number of Response Levels** | 5 |
| **Model** | cumulative logit |

**Model Information**

| | |
|---|---|
| **Optimization Technique** | Fisher's scoring |
| **Number of Observations Read** | 574 |
| **Number of Observations Used** | 574 |

**Response Profile**

| Ordered Value | finsat11 | Total Frequency |
|---|---|---|
| **1** | 1 | 169 |
| **2** | 2 | 193 |
| **3** | 3 | 172 |
| **4** | 4 | 25 |
| **5** | 5 | 10 |

**Probabilities modeled are cumulated over the lower Ordered Values.**

**Model Convergence Status**

Convergence criterion (GCONV=1E-8) satisfied.

**Score Test for the Proportional Odds Assumption**

| Chi-Square | DF | Pr > ChiSq |
|---|---|---|
| 72.0196 | 48 | 0.0140 |

**Model Fit Statistics**

| Criterion | Intercept Only | Intercept and Covariates |
|---|---|---|
| **AIC** | 1484.298 | 1395.022 |
| **SC** | 1501.674 | 1481.900 |
| **-2 Log L** | 1476.298 | 1355.022 |

| | | | |
|---|---|---|---|
| **R-Square** | 0.1920 | **Max-rescaled R-Square** | 0.2074 |

**Testing Global Null Hypothesis: BETA=0**

| Test | Chi-Square | DF | Pr > ChiSq |
|---|---|---|---|
| **Likelihood Ratio** | 121.2759 | 16 | <.0001 |
| **Score** | 102.0213 | 16 | <.0001 |
| **Wald** | 113.1307 | 16 | <.0001 |

**Analysis of Maximum Likelihood Estimates**

| Parameter | | DF | Estimate | Standard Error | Wald Chi-Square | Pr > ChiSq |
|---|---|---|---|---|---|---|
| **Intercept** | **1** | 1 | -4.6517 | 0.6965 | 44.6066 | <.0001 |
| **Intercept** | **2** | 1 | -3.0165 | 0.6811 | 19.6136 | <.0001 |
| **Intercept** | **3** | 1 | -0.5071 | 0.6784 | 0.5586 | 0.4548 |
| **Intercept** | **4** | 1 | 0.9525 | 0.7275 | 1.7139 | 0.1905 |
| **muchbetterfriend2011** | | 1 | 0.6140 | 0.2766 | 4.9271 | 0.0264 |
| **betterfriend2011** | | 1 | 0.1776 | 0.2120 | 0.7019 | 0.4022 |
| **worsefriend2011** | | 1 | -0.7405 | 0.2091 | 12.5475 | 0.0004 |
| **muchworsefriend2011** | | 1 | -1.7195 | 0.5286 | 10.5815 | 0.0011 |
| **female** | | 1 | -0.1482 | 0.1786 | 0.6884 | 0.4067 |
| **HEALTH11RC** | | 1 | 0.2152 | 0.0975 | 4.8713 | 0.0273 |
| **divsep11** | | 1 | -0.7241 | 0.2918 | 6.1584 | 0.0131 |
| **widowed11** | | 1 | 0.2797 | 0.2525 | 1.2273 | 0.2679 |
| **nevermarried11** | | 1 | 0.1568 | 0.5787 | 0.0734 | 0.7864 |
| **HS11** | | 1 | 0.0920 | 0.2081 | 0.1953 | 0.6585 |
| **ASSOC11** | | 1 | -0.6441 | 0.5010 | 1.6528 | 0.1986 |
| **MAST11** | | 1 | 0.1446 | 0.3275 | 0.1948 | 0.6590 |
| **DOCT11** | | 1 | 0.5316 | 0.4993 | 1.1337 | 0.2870 |
| **WORK11** | | 1 | -0.3794 | 0.1654 | 5.2620 | 0.0218 |
| **environmentalmastery** | | 1 | 0.1546 | 0.0279 | 30.6175 | <.0001 |
| **personalgrowth11** | | 1 | -0.0282 | 0.0276 | 1.0403 | 0.3078 |

**Odds Ratio Estimates**

| Effect | Point Estimate | 95% Wald Confidence Limits | |
|---|---|---|---|
| **muchbetterfriend2011** | 1.848 | 1.074 | 3.178 |
| **betterfriend2011** | 1.194 | 0.788 | 1.810 |
| **worsefriend2011** | 0.477 | 0.317 | 0.718 |
| **muchworsefriend2011** | 0.179 | 0.064 | 0.505 |
| **female** | 0.862 | 0.608 | 1.224 |
| **HEALTH11RC** | 1.240 | 1.024 | 1.501 |
| **divsep11** | 0.485 | 0.274 | 0.859 |
| **widowed11** | 1.323 | 0.806 | 2.169 |
| **nevermarried11** | 1.170 | 0.376 | 3.637 |
| **HS11** | 1.096 | 0.729 | 1.648 |
| **ASSOC11** | 0.525 | 0.197 | 1.402 |
| **MAST11** | 1.156 | 0.608 | 2.196 |
| **DOCT11** | 1.702 | 0.640 | 4.527 |
| **WORK11** | 0.684 | 0.495 | 0.946 |
| **environmentalmastery** | 1.167 | 1.105 | 1.233 |
| **personalgrowth11** | 0.972 | 0.921 | 1.026 |

**Association of Predicted Probabilities and Observed Responses**

| | | | |
|---|---|---|---|
| **Percent Concordant** | 68.4 | **Somers' D** | 0.373 |
| **Percent Discordant** | 31.1 | **Gamma** | 0.375 |
| **Percent Tied** | 0.5 | **Tau-a** | 0.263 |
| **Pairs** | 113821 | **c** | 0.686 |

**Means Analysis of Net Worth (2004)* Categorized by Parental Income (1957-1960) and Peer Comparison (2011)**

The SAS System

The MEANS Procedure

**Analysis Variable : NW04I1**

| LandMW | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **503** | 495 | 569.9610222 | 337.2055814 | -7.2260000 | 1000.00 |
| **1** | **1** | 1 | 308.0000000 | . | 308.0000000 | 308.0000000 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| LandW | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **478** | 470 | 582.0996064 | 337.0671059 | -7.2260000 | 1000.00 |
| **1** | **26** | 26 | 340.4573462 | 246.2829018 | 8.5000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| LandS | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **452** | 445 | 581.4892427 | 340.3627440 | -7.2260000 | 1000.00 |
| **1** | **52** | 51 | 464.2351569 | 288.9631671 | -2.5070000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| LandB | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **474** | 467 | 563.7047880 | 336.1626916 | -7.2260000 | 1000.00 |
| **1** | **30** | 29 | 661.6748276 | 344.2110361 | 33.0000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| LandMB | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **498** | 490 | 566.5368184 | 336.7559511 | -7.2260000 | 1000.00 |
| **1** | **6** | 6 | 805.9441667 | 298.4866515 | 219.1520000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| MandMW | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **500** | 492 | 571.5333679 | 337.0181108 | -7.2260000 | 1000.00 |
| **1** | **4** | 4 | 311.0722500 | 259.8059776 | 31.0000000 | 609.0000000 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| MandW | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **457** | 450 | 591.1447089 | 336.3232105 | -7.2260000 | 1000.00 |
| **1** | **47** | 46 | 357.0345000 | 265.1974611 | 2.5000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| MandS | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **424** | 417 | 567.5978153 | 344.4116668 | -7.2260000 | 1000.00 |
| **1** | **80** | 79 | 579.1192025 | 297.1133868 | 13.0000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| MandB | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **474** | 467 | 560.0091349 | 336.3404803 | -7.2260000 | 1000.00 |
| **1** | **30** | 29 | 721.1875862 | 317.0455944 | 96.0000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| MandMB | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **479** | 471 | 561.9501656 | 335.9504835 | -7.2260000 | 1000.00 |
| **1** | **25** | 25 | 710.4071200 | 333.6255768 | 117.0000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| HandMW | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **497** | 489 | 572.4191329 | 337.1975419 | -7.2260000 | 1000.00 |
| **1** | **7** | 7 | 360.8214286 | 272.1472678 | 110.1970000 | 921.0390000 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| HandW | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **452** | 446 | 580.9388318 | 336.7665583 | -5.8460000 | 1000.00 |
| **1** | **52** | 50 | 466.7997400 | 325.3289053 | -7.2260000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| HandS | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **432** | 425 | 564.3542800 | 336.6417604 | -7.2260000 | 1000.00 |
| **1** | **72** | 71 | 599.8329155 | 340.4310366 | -5.8460000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| HandB | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **456** | 448 | 548.3449219 | 331.4597865 | -7.2260000 | 1000.00 |
| **1** | **48** | 48 | 766.2537708 | 328.4862181 | 7.5000000 | 1000.00 |

The MEANS Procedure

**Analysis Variable : NW04I1**

| HandMB | N Obs | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|---|
| **0** | **480** | 472 | 559.7184004 | 334.8541282 | -7.2260000 | 1000.00 |
| **1** | **24** | 24 | 760.4842083 | 330.1864832 | 66.0000000 | 1000.00 |