

Evaluating the Link Between Perceived Income Adequacy and Financial Satisfaction: A Resource Deficit Hypothesis Approach

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Abstract Data from an economically and racially diverse sample ($N = 258$) was used to determine (a) if an association between objectively measured income and perceived income adequacy exists, (b) how well individuals assess the adequacy of their income, and (c) if a bias exists, can these estimates be used to describe a person's overall level of financial satisfaction? Duesenberry's (Income, saving, and the theory of consumer behavior. Harvard University Press, Cambridge, 1949) relative income hypothesis and Kyrk's (The family in the American economy. University of Chicago Press, Chicago, 1953) resource deficit hypothesis were adopted for use as the conceptual framework for this study. A positive but modest association between objective and perceived income adequacy was noted. It was also found that individuals do not do a particularly good job of accurately assessing their income adequacy. Finally, perceived income adequacy estimation bias was found to be associated with financial satisfaction. Those who perceived their income to be deficient were less satisfied financially. Policy and practitioner implications from the study are discussed as a means for improving financial satisfaction at the individual and household level.

Keywords Perceived income adequacy · Financial satisfaction · Well-being

1 Introduction

Researchers interested in household finance issues have, for nearly a century, speculated about the “mystery of perceptions of income adequacy that are seemingly out of line with levels of actual income” (Stoller and Stoller 2003, p. 230). The term perceived income adequacy (PIA) refers to the manner in which a person subjectively evaluates the sufficiency of their income to meet household expenses. Litwin and Sapir (2009) referred to PIA as a person's subjective income. Much of the PIA literature shows that people tend to report subjective feelings of income inadequacy even when their objective financial

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situation might not support the attitude (Streib and Schneider 1971). Consider findings from a study by Litwin and Sapir. They noted that individuals often report income satisfaction that unreasonably exceeds what financial counselors and planners would consider to be baseline income standards. It is not uncommon for those with the lowest gross annual incomes to express as much satisfaction with their income as high income earners, or on occasion, for those with the highest objective measures of wealth and income to actually report the lowest income satisfaction, even in situations when income or wealth has increased over time (Burchardt 2005; Easterlin 2001; Layard 2005).

The following story illustrates how PIA and subjective income is sometimes conceptualized when making financial decisions in a day-to-day setting. In 2005, NBA star Latrell Sprewell stated, "I have a family to feed. He [the general manager] better pay me more or my kids will end up in one of those commercials about starving children" (Sansevere 2004, D1). Sprewell made this statement when speaking with the media regarding his rejection of a 3 year contract extension reportedly worth up to \$30 million. By all accounts, the contract offered to Sprewell was sufficient to meet, by most objective standards, the needs and wants of the Sprewell family, but Sprewell perceived the offer to be subjectively too low. In retrospect, he should have signed the contract because at the end of the season his contract expired and he was soon unemployed. Within a few years, he could no longer make the mortgage payments on his two homes. It was just a short period of time before his homes and yacht were seized for payment delinquency. The story is all too often repeated, even if not at the immoderate income levels of Sprewell. Although extreme, this example serves to illustrate how easily people conceptualize the adequacy of their income on a purely subjective basis.

As will be discussed later in this paper, the PIA literature hints that it is not necessarily income alone that instills perceived security and accompanying financial satisfaction. Rather, it is a person's perception of their income adequacy (i.e., subjective income) that leads to contentment or dissatisfaction. While this paper addresses this issue, the primary purpose is to provide evidence that some people engage in systematic estimation bias when evaluating their income adequacy. Specifically, this paper addresses three questions related to the objective and subjective evaluation of income adequacy as these concepts relate to financial satisfaction. First, what is the association between objectively measured income and PIA? It is hypothesized that a positive, yet modest, association exists. Second, how well do individuals assess the adequacy of their income? That is, are people able to evaluate the adequacy of their income without bias? In order to be unbiased, a person whose income should produce high (low) income adequacy ought to perceive their income as actually being acceptable (unacceptable). Third, if a bias exists, can these estimates be used to describe a person's overall level of financial satisfaction? While an answer to the first question simply serves as a starting point in the analysis, answers to the second and third questions help those interested in happiness, satisfaction, and well-being studies better understand the link between PIA and financial satisfaction.

This paper adds to the existing literature in one important way, namely, by introducing the concept of PIA optimism/pessimism bias as a possible predictor of financial satisfaction. Previous research, as reviewed below, shows that people are not particularly good at matching their objective income status with subjective perceptions of adequacy. Research also indicates that people's objective income is not a powerful predictor of overall life satisfaction or well-being. Few studies, however, have assessed the link between PIA and financial satisfaction specifically. Further, a limited number of papers have been written that examine the possibility that a cognitive bias exists among some people that leads to predictable patterns of financial satisfaction. These issues have important implications for

social and financial literacy policy. As Litwin and Sapir (2009) noted, information about PIA is needed to help develop reliable measures of economic status. This information can be used by practitioners who are engaged in helping clients reach financial readiness, as well as by policy makers who are tasked with shifting through the debate regarding the appropriate level of income needed by constituencies to meet late life household expense needs.

2 Literature Review

2.1 Objective and Subjective Measures Compared

Veenhoven (2002) noted that there has been a longstanding and ongoing debate among economists, sociologists, and others (e.g., financial counselors and therapists) regarding the use of objective and subjective measures of financial well-being. Economists and policy makers, for example, often look to researchers to provide factual data—i.e., factors that can be objectively measured—as a tool when crafting policy and educational directives. This information is generally used to fashion policies to increase national incomes (Borooah 2006). Gerontologists, financial therapists, financial counselors, psychologists, educators, and social workers, on the other hand, often focus on subjective measures of well-being in order to evaluate perceptions. The ability to measure well-being objectively is an important policy outcome because it is difficult to create resource transfers, legislative and tax laws, and educational initiatives based solely on subjective indicators. A policy maker might rightfully ask how much income should be increased, for instance, in order to raise aggregate satisfaction levels. The answer to this question cannot easily be discerned using only a subjective measurement approach.

Subjective measures of income should not be dismissed for having little value. If the ultimate goal of policy and education is to improve the well-being of stakeholders (Burns 2008), it is essential to assess and track self-reports of implicit criteria. Whereas objective measures are designed to assess objects that are representative of reality, subjective measurement involves assessing perceptions. In some ways, perceptions may be more important than objective evaluations (Litwin and Sapir 2009). Consider the person who has an objectively low level of household income. When viewed holistically and compared against peer groups, this person may be classified as poor. However, when asked, the person may report a favorable level of financial satisfaction. Because of the subjective measure of financial satisfaction, actions taken by policy makers to modestly increase the household income of the person, or a group of similar people, may not actually result in a substantive increase in subjective well-being.

2.2 Association Between Income and Satisfaction

A weak (but positive) association between income and satisfaction, as measured through subjective appraisals, has been widely reported in the literature (see Diener et al. 1993). Veenhoven and Saris (1996) and others (e.g., Chan et al. 2002; Michalos 1985) have noted that the level of income objectively reported by individuals and families has traditionally had little relationship to subjective measures of income, happiness, or satisfaction. Frank (1999) reported that the low level of association between income and well-being may be due to the possibility that many Americans already have their basic daily needs satisfied. What are sometimes expressed as “needs” (e.g., cable television, air conditioning, multiple

family cars, etc.) are, in fact, little more than expressed “wants.” So, even though more money might help someone satisfy additional wants, this alone may be insufficient to increase satisfaction.

Brickman and Campbell (1971) called this phenomenon the *hedonic treadmill*. Using the hedonic treadmill hypothesis, a person is thought to adjust their expectations regarding economic well-being based on their personal, family, and economic circumstances. As a person’s income increases, their subjective assessment of well-being does not increase at the same rate. As income declines, subjective measures of well-being also do not decrease at the same rate (Chan et al. 2002). The hedonic treadmill hypothesis leads to the conclusion that while objective measures of income should be positively associated with subjective income evaluations, the relationship between the measures is likely a weak one and that people tend to adapt to their objective economic circumstances (Burchardt 2005).

2.3 Factors Associated with PIA

Nearly all studies that have examined the association between income and measures of satisfaction have included control variables as a way to determine the extent to which income is associated with measures of satisfaction. Malroux and Xiao (1995) included gender and race, among other factors, as predictors of perceived retirement income adequacy. They noted that females report perceiving income as more or less inadequate. Whites were shown to be in the weakest retirement income situation but most likely to perceive retirement income as being adequate. An age-satisfaction relationship similar to that used in the study by Malroux and Xiao was reported by Hansen et al. (2008). The Hansen et al. study found older adults report greater income satisfaction levels compared to young adults. Chan et al. (2002) noted that factors related to socioeconomic status (SES) (e.g., education) tend to be positively associated with PIA. Financial knowledge and household size were also included as control variables in the Chan et al. study. It was thought that those who held stronger household finance knowledge might differ in their perceptions of income adequacy, and that respondents from larger households would report lower PIA (Joo and Grable 2004).

3 Conceptual Framework

The relationship between objective and subjective income adequacy, and ultimately, a person’s level of financial satisfaction, can be conceptualized in a number of ways, although two approaches ideally lend themselves to this type of study. Duesenberry’s (1949) relative income hypothesis can be used to understand income perceptions and consumer choice. Alternatively, Kyrk’s (1953) resource deficit hypothesis provides another way to view income perceptions as these relate to standard of living indicators. Each approach is described below.

The relative income hypothesis (RIH) (Duesenberry 1949) is premised on the notion that consumer choice, at the individual level, is a result of interrelated assessments of prices, income, and community consumption standards (Sanders 2010). It is assumed, within the theory that consumers obtain status from the goods and services they purchase. This status is determined, in part, within the context of the community in which the consumer lives and operates. As an example, consider two employees who work together and have generally the same qualifications. On a particular day both receive a salary increase. In effect, this is new income that can be used to increase consumption. However, assume that one employee receives a salary increase larger than the other. Even though

both have more income than they did prior to their raise, the employee who receives less is likely to perceive the new income as inadequate. Had there not been a reference point within the 'community'—the other person—the employee's perception of income might have been positive. This is what Clark and Oswald (1996) found when examining the income perceptions of British workers. Workers in their study reported satisfaction levels that moved inversely to the wage rates of peers. That is, if a worker perceived his or her income to be in-line or above that of peers, his or her level of satisfaction was higher than if the perception was one of inadequacy. Generally, this pattern of satisfaction holds true even when, in objective terms, the level of income, regardless of perceptions, is more than sufficient to meet consumption needs.

Kyrk's (1953) hypothesis, known as the resource deficit hypothesis (RDH), views perceptions of income differently than the approach employed by Duesenberry (1949). Kyrk argued that consumers consciously form standard of living expectations based on personal experience and goal orientation (MacDonald and Douthitt 1992). Experiences and goal orientation are based on comparisons between current and desired income levels. According to Kyrk, once a standard of living has been established, the consumer's goal is to maintain or exceed this standard. Falling below the standard would be deemed by most as unacceptable (p. 374). The key difference between the Kyrk and Duesenberry hypotheses, in relation to defining perceptions, is the reference point. In the Duesenberry model, consumers constantly compare themselves to a community norm. Within Kyrk's system, consumers set a subjective standard somewhat independently of social comparisons. Kyrk did not dismiss the possibility that consumers use outside reference points when establishing a standard. Instead, she argued that standards were unique to each individual or household, with family habits and customs playing a more important role in shaping standards. PIA is then based on how closely the person feels their income matches their predetermined standard.

A unique feature associated with the RIH (Duesenberry 1949) is the notion that reference values matter when people evaluate their PIA. Distress occurs when the distance between objective income and reference point income is maximized (Caporale et al. 2009). When testing the hypothesis it is important to have access to measures of both current income and income levels of peers or social norms. In some cases, expenditure data can be used when testing the hypothesis. Matched data needed for a test of the RIH are typically available on a national scale, but rarely in smaller cross-sectional studies. This helps explain why the RIH is sometimes used as a conceptual framework for national studies of income adequacy. An advantage associated with the RDH (Kyrk 1953) is the proposition that PIA is truly a subjective evaluation. As such, the requirement of needing reference values is reduced. Instead, asking people to consider their income situation in relation to their standard of living provides a proxy of PIA. When testing both the RIH and RDH, MacDonald and Douthitt (1992) noted that the theoretical approach used is not as critical as specifying the variables to be measured. They concluded that the RDH is not only conceptually easier to derive but it provides a model that performs as well as other complex life-cycle models.

Although Kyrk's (1953) hypothesis was somewhat novel when published, the concept that perceptions of income and satisfaction can be measured subjectively is now considered a commonly accepted practice within the social sciences (Borooah 2006). Since 1973, both the Eurobarometer Survey and the U.S. General Social Survey have relied on subjective measures of well-being. These surveys also assess objective measures of well-being, such as income and wealth, but over time the validity and reliability of the subjective measures has held up well. In the present study, research participants were asked to indicate the extent to

which they thought their income was enough to live on? Five options were provided, ranging from “not at all adequate” to “can afford about everything I want and still have enough money left over.” As asked, the question fits well with Kyrk’s framework.

4 Methodology

This research was conducted using a sample of households from a Midwestern U.S. state. The sample frame was purposely selected to include a broad socioeconomic representation. A central city within the state was selected as the primary sampling site with all households within a 500 square-mile area being eligible for the survey. Addresses for potential respondents were obtained from public utility records. During a six-week period, 1,000 surveys were distributed using the U.S. Postal Service. No follow-up procedure was used; however, participants in the study received a \$20 cash incentive for completing the survey. Because the public records were not always accurate, several hundred surveys were returned as undeliverable. For example, many addresses represented vacant lots, abandoned homes, or commercial buildings. As a result, 700 surveys were actually deliverable. At the end of the survey process, 258 individuals responded to the survey, resulting in a response rate of approximately 37 %. Demographic data for the sample is provided later in the paper.

4.1 Outcome Variable

4.1.1 *Financial Satisfaction*

Similar to questions asked in the U.S. General Social Survey and the Survey of Consumer Finances, respondents were asked to indicate how satisfied they were with their overall financial situation. A 10-point stair-step evaluation system was used, with 1 representing dissatisfied and 10 indicating satisfied. The mean response was 5.47 ($SD = 2.62$). The median response was 6.00. As coded, the typical respondent was more or less satisfied financially.

4.2 Independent Variables

4.2.1 *Subjective Evaluation of Income Adequacy*

Subjective PIA was measured by asking respondents the following question: “To what extent do you think your income is enough for you to live on?” Possible answers were (a) Not at all adequate, (b) Can meet necessities only, (c) Can afford some of the things I want but not all I want, (d) Can afford about everything I want, and (e) Can afford about everything I want and still have enough money left over. Answers were coded 1 (Not at all adequate) to 5 (Can afford about everything I want and still have enough money left over). The mean response for the measure of PIA was 2.93 ($SD = 0.94$). The median response was 3.00.

4.2.2 *Objective Monthly Income*

Monthly household income, as reported by each respondent, was used as the objective measure of income. Respondents were asked “What was your household’s usual monthly income over the past year from all sources, including public assistance, before taxes?” The mean response was \$3,224.50 ($SD = \$2,583.99$).

4.3 Control Variables

The selection and use of control variables—SES, age, gender, household size, race, and financial knowledge—was directed by the need to control for factors generally thought to be associated with the outcome variable. SES was measured using a two-factor social status item derived from Barratt's (2011) Simplified Measure of Social Status measure. Specifically, education was recoded to match the following scoring system: (a) Less than 7th grade = 3; (b) Junior high/Middle school (9th grade) = 6; (c) Partial high school (10th or 11th grade) = 9; (d) High school graduate = 12; (e) Partial college (at least 1 year) = 15; (f) College education = 18; and (g) Graduate degree = 21. These scores were then added to occupational prestige rankings (Table 1) to arrive at a final SES score for each respondent. The mean and standard deviation SES score was 42.61 years and 9.20, respectively, with SES scores ranging from 12 to 66. Age was recorded as each respondent's current age ($M = 40.94$ years, $SD = 17.62$ years). Gender was coded dichotomously; with women coded 2 and men coded 1. The sample was split 64 % women and 36 % men. Because of the relative homogenous nature of the sample, race and ethnic background was coded as Whites 1, otherwise 0. Only 18 % of respondents were Non-White. Household size, used in this study as a proxy for financial burden on income, was measured by asking respondents to report the total number of individuals living in the household. The average household size was 2.24 persons ($SD = 1.29$).

Finally, financial knowledge was measured by asking respondents to indicate their level of personal finance knowledge compared to others. This question was chosen because it matched closely with Duesenberry's (1949) conceptualization that often times people make social comparisons when making subjective knowledge evaluations. While it is possible that some individuals will either over- or under-estimate their true level of financial knowledge, the intent of the question was to assess knowledge perception. Respondents were asked to select an answer based on a 10-point stair step scale, with 1

Table 1 Barratt occupational prestige scores used to derive SES scores for respondents

Occupation	Score
Day laborer, janitor, house cleaner, farm worker, food counter sales, food preparation worker, busboy	5
Garbage collector, short-order cook, cab driver, shoe sales, assembly line workers, masons, baggage porter	10
Painter, skilled construction trade, sales clerk, truck driver, cook, sales counter or general office clerk	15
Automobile mechanic, typist, locksmith, farmer, carpenter, receptionist, construction laborer, hairdresser	20
Machinist, musician, bookkeeper, secretary, insurance sales, cabinet maker, personnel specialist, welder	25
Supervisor, librarian, aircraft mechanic, artist and artisan, electrician, administrator, military enlisted personnel, buyer	30
Nurse, skilled technician, medical technician, counselor, manager, police and fire personnel, financial manager, physical, occupational, speech therapist	35
Mechanical, nuclear, and electrical engineer, educational administrator, veterinarian, military officer, elementary, high school and special education teacher	40
Physician, attorney, professor, chemical and aerospace engineer, judge, CEO, senior manager, public official, psychologist, pharmacist, accountant	45

being the lowest level of knowledge and 10 being the highest level. Mean and standard deviation scores were 5.98 and 2.30, respectively.

4.4 Evaluation Methods

A combination of correlation, general linear model, and regression analyses were used to test the research questions associated with this study. The first question, which asked about the association between objective income and PIA, was evaluated with a correlation test. A general linear model was developed to determine if and how objective income and PIA were associated. Finally, estimates of PIA optimism and pessimism were calculated using a differential prediction model methodology. Essentially, these were bias appraisals. These estimates were then included with the control variables to describe a person's overall level of financial satisfaction in response to the third question.

5 Results

5.1 Correlation Analysis

Table 2 shows Spearman's rho correlation coefficients for the variables of interest in this study. The correlation analysis can be considered a preliminary step in the analysis. The test indicated that the association between objectively measured income and PIA was positive but of moderate effect size ($r = 0.44$, $p < 0.001$). This result confirmed what has generally been published in the literature. In other words, the association between objectively measured income and PIA is positive and significant, but the relationship is not necessarily very strong. PIA was also shown to be positively associated with financial satisfaction ($r = 0.65$). Another moderate size association was noted between financial satisfaction and income ($r = 0.33$). Based on these significant initial findings, further tests were conducted using a general linear model to determine where differences in income existed at each level of PIA.

5.2 General Linear Model Analysis

As discussed above, an association between PIA and household income was observed in the bivariate analysis. An independent analysis of variance (ANOVA) test was used to determine the degree to which the association was truly linear. To be linear, those exhibiting the highest incomes should have also reported the highest income adequacy (and conversely, those with lower incomes should have reported lower income adequacy). The mean income level for each category of PIA is reported in Table 3. The ANOVA test indicated that household income was indeed associated with PIA. The analysis was statistically significant, $F_{4,253} = 9.90$, ($p < 0.001$), although the measure of effect size was of medium strength ($\eta^2 = 0.37$). The most significant findings were found with Bonferroni tests that were used to indicate where mean group differences existed. No significant differences in income were noted between those who indicated not being able to meet necessities and those who reported being able to afford some necessities. At the other extreme, no differences were noted between those who could afford everything they want and those who could afford everything with money left over. These results suggest that while PIA and income appear to be associated, the strength of the association is in the middle response categories, not at the PIA extremes.

Table 2 Spearman's rho correlation coefficient estimates (N = 258)

	Socioeconomic status (SES)	Age	Gender	Fin knowledge	Race (1 = White)	HH Size	PIA	Income	Fin satisfaction
SES	1.00								
Age	-0.03	1.00							
Gender	-0.04	0.04	1.00						
Fin Knowledge	0.18**	0.01	-0.08	1.00					
Race (1 = White)	0.13*	-0.02	-0.05	0.15*	1.00				
HH Size	-0.05	-0.10	-0.01	-0.06	0.08	1.00			
PIA	0.20***	0.21***	-0.19***	0.16*	0.16*	-0.03	1.00		
Income	0.15**	0.10	-0.10	0.17**	0.21***	0.23***	0.44***	1.00	
Fin Satisfaction	0.13*	0.19***	-0.18**	0.15*	0.13*	-0.18**	0.65***	0.33***	1.00

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3 Descriptive distribution of household income associated with the PIA measure

Measures of PIA	N	Monthly household income <i>M</i>
Not at all adequate	18	\$2,425
Can meet necessities only	56	\$1,802
Can afford some of the things I want but not all I want	125	\$3,347
Can afford about everything I want	45	\$4,613
Can afford about everything I want and still have enough money left over	14	\$4,383

5.3 Estimates of PIA Estimation Bias

PIA estimation bias, resulting in either PIA optimism or pessimism, was calculated by regressing PIA self-evaluations on objectively measured household income using an ordered-logit. This type of model is referred to as a differential prediction analysis. The logic underlying this methodology rests on the proposition that monthly household income should be positively associated with financial well-being. As such, those with greater income should exhibit a higher PIA and those with less income should exhibit a lower PIA. Using procedures in SPSS 20.0, predicted PIA categories were saved for each respondent. Predicted scores were then subtracted from actual reported PIA assessments. For example, say someone indicated that their income was not at all adequate. Their response was coded 1. However, assume that after the regression analysis their PIA was predicted to be category 3 (i.e., “can afford some of the things I want but not all I want”). Subtracting 3 from 1 results in a biased score of -2 . In this situation, the negative coefficient indicates a pessimistic income adequacy assessment. That is, using objective income, the multinomial logistic regression model predicted that the person ought to have exhibited a category 3 response. They actually indicated category 1. The resulting difference is indicative of PIA pessimism. Table 3 shows the percent of respondents at each level of optimism and pessimism. Results from the prediction model (Table 4) revealed that slightly less than 50 % of respondents were able to accurately assess their income adequacy. In general, a pessimistic bias was present in the data. Approximately 31 %, compared to 21 %, of respondents exhibited a negative PIA bias.

Table 4 Distribution of PIA optimism and pessimism among respondents ($N = 258$)

PIA—predicted PIA	Measure	Percent of respondents (rounded)
-4	Pessimism	½ of 1 %
-2		7 %
-1		24 %
0	Accurate	47 %
1	Optimism	16 %
2		5 %

5.4 PIA Optimism and Pessimism and Financial Satisfaction

The correlation and ANOVA analyses, which were used as preliminary steps in the analysis, showed that objectively measured income and subjectively assessed PIA were statistically associated but not as strongly as one might expect. Further, the estimate of assessment bias showed that less than 50 % of respondents were able to match their PIA to their level of income. That is, predicted levels of PIA matched actual PIA estimates in less than half of all cases. The final step in the analysis involved the use of PIA optimism and pessimism estimates from Table 4 to determine if these evaluations were associated with a person's overall level of financial satisfaction. Kyrk's (1953) RDH served as the conceptual framework for this test. Specifically, someone who exhibited a pessimistic bias was hypothesized to hold a resource deficit perspective position and less satisfied. Alternatively, those who were optimistic were hypothesized to be satisfied with their financial position.

In addition to PIA bias, six control variables were included in the analysis.¹ Table 5 presents the OLS regression results. The model was statistically significant, with approximately 42 % of variance in financial satisfaction scores explained by the independent variables, $F_{7,246} = 25.44, p < 0.001$. In terms of the covariates, only two variables were statistically significantly associated with financial satisfaction at the $p < 0.05$ level. Age was positively associated with financial satisfaction. Household size, on the other hand, was found to be negatively associated with financial satisfaction. It is possible that demands of larger households on available income led to lower satisfaction levels. Surprisingly, neither SES nor perceived financial knowledge were found to be significantly associated with financial satisfaction. Both findings mirror the general consensus of researchers published in the satisfaction literature (see Joo and Grable 2004).

Of most importance was the result showing that holding an optimistic PIA bias was positively associated with financial satisfaction. As shown in Table 5, PIA bias accounted for the largest portion of the model's explained variance, which is noteworthy considering the level of explained variance offered by the model. Those who felt that their income was more adequate than objectively predicted were consistently more likely to report having higher levels of financial satisfaction. On the other hand, respondents who were pessimistic in their PIA assessments (i.e., their income was used to predict a higher PIA category than they originally chose) were more likely to report lower levels of financial satisfaction. These results support Kyrk's (1953) RDH. That is, respondents who assessed their household income position positively to a self-developed reference point (i.e., standard of living) were more likely to be satisfied.

6 Discussion

This study addressed three research questions. The first research question involved determining the association between objective income as reported by respondents and their

¹ Monthly household income was excluded from the analysis. The choice to omit income from the regression was based on two factors. First, the way in which PIA bias was calculated played a role in the decision. That is, income was used to arrive at PIA bias estimates. Including income in the regression may have inadvertently influenced the final coefficient estimates. Second, the purpose of the analysis was to test the research question that asked if PIA optimism or pessimism is associated with a person's overall level of financial satisfaction. The answer to this question infers the use of PIA bias alone, rather than in conjunction with household income.

Table 5 Regression Results Describing Financial Satisfaction as a Function of PIA Optimism and Pessimism

Variable	b	SD	β
SES	0.01	0.01	0.01
Age	0.02	0.01	0.10*
Gender (1 = male, 2 = female)	-0.49	0.27	-0.09
Financial Knowledge	0.06	0.06	0.05
Race (1 = white, 0 = other)	0.30	0.35	0.04
Household size	-0.28	0.10	-0.14**
PIA estimation bias (+ = optimism, - = pessimism)	1.54	0.14	0.56***
Constant	5.92***	0.97	

$F_{7,247} = 25.44, p < 0.001; R^2 = 0.18$ Adjusted $R^2 = 0.42$

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

subjective PIA. The findings confirmed a positive but modest relationship between these two measures. This result is consistent with research results reported by Diener et al. (1993), which suggest that objective income is a mediocre substitute for how a person perceives their income in meeting needs and wants.

The second question asked how well individuals assess the adequacy of their income. A PIA estimation bias estimate was calculated for each respondent. Findings from the test indicated that people do not generally do a good job of assessing their income adequacy. Less than 50 % of respondents accurately matched their PIA to their income situation. That is, over half of respondents reported PIA estimates that differed from their objective income status. Further, the resulting biases were skewed to the pessimistic side, suggesting that PIA estimates were systematically below what objectively would be considered adequate income. The results of the present study concur with previous research findings that show the association between income and income perceptions do not necessarily move in tandem (Kahneman and Deaton 2010). The results of the present study also suggest that the generally held view that higher levels of income will result in increased levels of satisfaction is a misconception. This confirms work by Chan et al. (2002), Klontz et al. (2011), and Veenhoven and Saris (1996).

The third research question asked if PIA estimation bias does exist, can these bias estimates be used to describe a person's overall level of financial satisfaction. Essentially, the purpose behind addressing this question involved a direct test of Kyrk's (1953) RDH. Within the RDH, people are assumed to strive to maintain or enhance their standard of living. Someone who perceives their income to be in line with or in excess of their living standard should exhibit a higher financial satisfaction level than those who perceive their income level to be below standard. Support for the RDH was obtained.

While the answer to the first research question posited in this paper simply adds to the existing PIA literature, answers to the second and third questions help those interested in happiness, satisfaction, and well-being concepts better understand the link between income and satisfaction. PIA estimation biases were found to be associated with a person's overall level of financial satisfaction. It was determined that PIA bias was useful in explaining financial satisfaction, with those exhibiting optimism showing greater satisfaction. Alternatively, those with a pessimistic bias were found to be less financially satisfied. The inclusion of PIA bias, holding other variables constant, helped explain the greatest level of variance in financial satisfaction scores. Overall, it does appear that Kyrk (1953) was

accurate in proposing that people evaluate their income against pre-defined standards of living. When they believe their financial situation matches or exceeds the standard, they are financially satisfied. In situations where their financial situation does not meet the standard, a deficit emerges.

7 Conclusions

This paper adds to the existing body of literature in several ways. First, and most importantly, the notion of PIA estimation bias, as exhibited by perceptions of optimism and pessimism, was introduced and tested. It does appear that certain individuals (i.e., more than 50 % of the sample) engage in estimation bias. It was further determined these biases can be used to estimate a person's level of financial satisfaction. This does not mean income is an unimportant variable associated with financial satisfaction, but rather PIA estimation bias (i.e., optimism and pessimism) can be another factor used to estimate and explain financial satisfaction. Specifically, those who exhibit an optimism bias tend to be more financially satisfied, and those who exhibit a pessimism bias tend to be less financially satisfied. This insight fits well with Kyrk's (1953) hypothesis of relative deficits.

The introduction to this paper highlighted the story of Latrell Sprewell. When viewed from a neutral position, it may seem absurd to think that someone would turn down a multi-million dollar contract to play a game they love. In simple terms, the monetary contract offer was generous by most measures, so it initially seems as if Sprewell's actions were unreasonable. This is a spurious conclusion however. Sprewell's attitude and decision were really not incongruous when viewed within the context of Kyrk's (1953) RDH. In fact, Sprewell's behavior seems to fit well with both the RDH and Duesenberry's (1949) RIH. When making his decision, Sprewell may have compared the dollar amount of the contract to a pre-derived standard of living benchmark. Both Kyrk and Duesenberry would argue that social norms, community standards, and other reference points helped shape his choice of living standard. However, once established the RDH leads to the conclusion that it was difficult for Sprewell to accept an offer than he perceived would cause a standard of living deficit. In the parlance of this paper, Sprewell was likely exhibiting a pessimistic PIA estimation bias. This led to a feeling of financial dissatisfaction. What remains to be studied is how individuals of different socioeconomic backgrounds derive benchmark standards of living. Duesenberry's hypothesis provides one of the most effective ways to conceptualize this type of study in the future. Additionally, an opportunity exists to track future attitudes and behaviors of those who exhibit a PIA estimation bias.

The results from this study have implications for policy makers and household finance practitioners. On a policy level it is important to remember that the link between objective and subjective income is positive but the association is only of modest strength. This means that the strategy of governmental transfers to increase income in the areas of Social Security reform, tax law changes, revisions of unemployment benefits, and overhauling the national food stamp program may not be maximally effective, unless reference point values are accounted for prior to and at the time of the transfer. If two people, for example, receive additional income, one or both may actually assess the transfer as causing a resource deficit. In this case, financial satisfaction will fall for the person with a resource deficit, which may jeopardize the value of the transfer. On the other hand, if policy can be drafted that accounts for the way in which consumers develop reference points and standard of living benchmarks, income transfers may be more effective. For example, policy makers may consider a comparison of consumer developed reference points with the

pre-determined amount of income to be received by consumer at the time of application for Social Security, unemployment or food stamps and again at the time the approved benefits are disbursed. This can be accomplished by adding additional questions to collect information from the consumer at the time of application for assistance. Any differences between the consumer reference point and the approved benefit can be appropriately communicated to the consumer to reduce the potential for reduced financial satisfaction and minimize the perceived negative value of the income transfer by the consumer. Policy makers can also further reduce the impact of reduced financial satisfaction of the consumer through support of public awareness campaigns, social marketing efforts, and other educational initiatives as tools to help shape the perceptions of those receiving governmental aid. Without appropriate educational programs in place, the overall effect of governmental transfers may, or may not, result in measurable increases in financial satisfaction and wellness. On the other hand, appropriately implemented marketing efforts directed at explaining baseline measures of income and wealth—i.e., establishing social reference points—as previously described might help reduce pessimistic PIA bias from occurring.

There is ample evidence, for instance, that social marketing efforts can be used effectively to shape attitudes regarding the production and consumption of both personal and social goods. Grier and Bryant (2005) defined social marketing as a program-planning process that uses marketing tools and techniques to help individuals make voluntary behavior and attitude changes. If implemented correctly, a social marketing campaign can help a target audience reject previous held opinions while concurrently developing new baseline standards of action. Greir and Bryant reported how the State of Texas used social marketing to increase participation in the statewide Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). Texas policymakers noted that a large percentage of households who might qualify for WIC benefits choose not to participate. It was determined that many households viewed the receipt of WIC benefits as an explicit recognition of a family financial resource deficit. Using social marketing techniques, the State of Texas was able to redefine the standard of acceptance to one where WIC was seen as a way for families to help themselves. In the context of the present study, similar marketing efforts could be put into place that help redefine standard reference points for families receiving direct financial assistance so that new resources are seen as an addition to satisfaction rather than a relative deficit.

Those working with consumers directly may be able to use this information as well. Take, for example, a client who has high objectively measured income yet presents a problem of financial stress. Assuming that the income, expense, asset, and liability situation of the client can be resolved, a practitioner might consider evaluating the client's PIA. This subjective evaluation can then be compared to the client's objective income, current level of living, and what the practitioner believes is an accurate measure of the client's income adequacy. If there is a discrepancy (i.e., a deficit), this likely may indicate a stressor for the client. In this specific case, it may be beneficial to help the client alter their PIA in a way to bring the person's perceptions back into alignment with their income.

Although the research presented in this study is noteworthy, it is important that future studies be conducted to replicate and extend the methodology and findings. For instance, using a larger national and cross-national representative sample will help validate the exploratory nature of this research. Additionally, including additional control variables will be useful in determining the overall effect size of PIA estimation biases as a method for expanding financial satisfaction research. Specifically, it would be useful to include other covariates that might possibly help explain changes in financial satisfaction, such as the education of each respondent's parents, current as well as previous occupational status

(i.e., indicators of job mobility), and other social class measures. Although the level of explained variance using PIA bias estimates was relatively high in this study, including these types of variables may add to the overall explanation of financial satisfaction. Finally, replicating the study with clinical populations will lead to better approaches that can be used by counselors and therapists when working with clientele.

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