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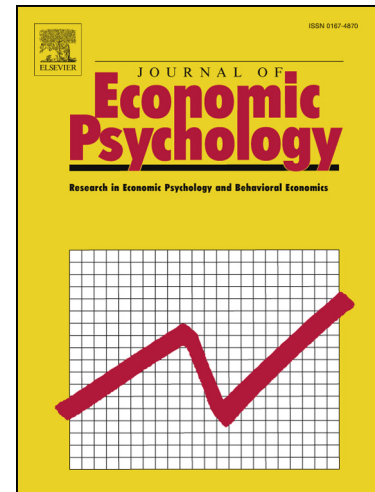
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The Relationship Between Objective and Subjective Wealth
is Moderated by Financial Control and Mediated by Money Anxiety

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1 Introduction

The majority of research on the topic of subjective wealth has focused on the causal relationship between wealth's objective indicators (e.g., income, assets, level of debt) and subjective indicators (e.g., ultimate financial satisfaction or perceived ability to make ends meet) (see Wilhelm, Varcoe, & Huebner Fridrich, 1993). These studies point to a positive association between actual wealth and its perception. This relationship, however, is often weak, possibly due to psychological factors that influence people's perception of their wealth. As noted by Tang and his colleagues (2004), "Rich or poor is a state of mind. People may be financially poor but psychologically rich and vice versa" (p. 119). In other words, two people with the same wealth are likely to have different perceptions about their financial situation. This may be due to their different consumption values and habits, different needs and wants, different aspiration levels, and different social comparison processes (Clark & Oswald, 1996; Pravitz et al., 2006). The main purpose of this paper is to examine another psychological factor that may shape the subjective perception of objective wealth—namely, the attitudes people hold toward money. To explain the relationship between objective and subjective wealth, a model will be proposed that includes two dimensions of money attitudes: money anxiety and financial control. It is argued that considering these psychological variables will enhance our understanding of why the relationship between objective and subjective wealth is imperfect.

The model proposed here goes beyond the existing theories and recently published studies (Tang, Luna-Arocas, Sutarso, 2005; Tang, Luna-Arocas, Sutarso, & Tang, 2004; Tang, Tang, & Homaifar, 2006; Wilhelm et al., 1993) in providing insight into the objective–subjective wealth relationship. It provides a more nuanced treatment of the effects of money attitudes, by specifically focusing on the financial control and money anxiety dimensions. The model, furthermore, is confirmed in a heterogeneous, representative sample using

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4 correlational methodology and Structural Equation Modeling. For these reasons, the present
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6 paper sheds new light on the relationship between money attitudes and perception of one's
7
8 finances, offering an original theoretical and empirical contribution to the literature.
9

10 11 **2 Theory and hypotheses**

12 13 14 **2.1 Subjective wealth**

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16 It is well-documented that the satisfaction individuals derive from their wealth has an
17
18 impact on their economic and consumer choices, job productivity, physical and mental health,
19
20 and even marital happiness (e.g., Furnham & Argyle, 1998; O'Neill, Sorhaindo, Xiao, &
21
22 Garman, 2005). The general consensus among researchers is that subjective wealth or
23
24 financial satisfaction is a component or at least a predictor of general well-being (Joo &
25
26 Grable, 2004; Mills, Grasmick, Morgan, & Wenk, 1992). The construct of subjective wealth
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28 has been studied under various labels, conceptualized in both positive and negative terms. It
29
30 has been termed perceived economic or financial well-being, personal financial wellness,
31
32 financial satisfaction, pay satisfaction, perceived ability to make ends meet, and perceived
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34 income adequacy, but also economic strain, financial stress, or financial dissatisfaction
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36 (Dowling, Corney, Hoiles, 2009; Wilhelm et al., 1993; Mills et al., 1992; Tang et al., 2004,
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38 2005, 2006; Pravitz et al., 2006; Von Stumm, O'Creevy, Furnham, 2012).
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44 Previous research has assessed subjective wealth using both single item and multiple item
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46 measures (Joo & Grable, 2004). For generalizability purposes, the current project too
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48 employed more than one measure of subjective wealth: assessment of one's subjective
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50 financial situation, perceived ability to make ends meet, and income adequacy.
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52

53 54 **2.2 Objective and subjective wealth**

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56 According to a large body of research, objective wealth as indicated by one's income
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58 level is consistently related to subjective wealth: people who earn or have more money
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60 evaluate their financial situation as better, report higher ability to make ends meet, higher
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4 financial or pay satisfaction, and lower economic strain (Joo & Grable, 2004; Mills et al.,
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6 1992; Tang et al., 2004, 2005, 2006; Pravitz et al., 2006; Von Stumm et al., 2012; Wilhelm et
7
8 al., 1993). The magnitude of this relationship varies from study to study, with objective
9
10 wealth being only modestly related to its subjective perception. For example, the correlation
11
12 between income level and subjective wealth as assessed by the European Social Survey varies
13
14 between .28 and .52. Similarly, results from the General Social Survey reveal this correlation
15
16 to be no greater than .40 in the USA. The average net income in the European Union
17
18 increased by 14.4% in real terms between 2005 and 2011 (as reported by Eurostat). During
19
20 the same period, however, the ratio of people who reported that they “could make ends meet
21
22 only with difficulty or great difficulty” did not go down, but instead increased from 25.4 to
23
24 25.6%. Still, it makes intuitive sense that the higher the objective wealth (income level), the
25
26 higher the subjective wealth (its perception and evaluation) would be, because both objective
27
28 and subjective variables are dealing with the same domain: one’s wealth.

2.3 Money attitudes as mediator and moderator

2.3.1 Money attitudes

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38 People differ in the meanings they attach to money. Such individual differences in
39
40 perceiving and interpreting the role of money in life, which can be a function of various
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42 factors such as age, wealth, social class, political beliefs, or personality, are reflected in the
43
44 concept of attitudes toward money (Furnham & Argyle, 1998). For instance, some people
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46 regard money as a symbol of power and prestige, while others deem it the root of all evil
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48 (Tang, 1995; Yamauchi & Templer, 1982). For such people, money has a highly charged
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50 symbolic meaning, and their attitude toward money may be described as symbolic or
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52 emotional. In contrast, other people hold an instrumental/pragmatic attitude toward money—
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54 they perceive it more as an economic instrument of exchange and not necessarily as an end in
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4 itself (Gasiorowska & Helka, 2012; Zaleskiewicz, Gasiorowska, Kesebir, Luszczynska,
5
6 Pyszczynski, 2013).

7
8 In recent years, a number of studies have examined people's attitudes or beliefs about
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10 money. This interest is partly due to growing awareness among researchers and managers that
11
12 individual differences in money attitudes may be important in designing motivational systems
13
14 for workers, as well as in understanding debt, saving and consumption behavior (Hayhoe et
15
16 al., 2012; Lim, Teo, & Loo, 2003). Research has also revealed that differences in attitudes
17
18 toward money influence the perception of one's income (Tang, et al., 2004, 2005, 2006;
19
20 Wilhelm et al., 1993), moderate the effects of mortality thoughts on the perception of money
21
22 (Zaleskiewicz et al., 2013), and the effects of money priming on prosocial preferences
23
24 (Gasiorowska & Helka, 2012).

25
26 Among the most popular scales measuring money attitudes are the *Money Attitude*
27
28 *Scale* by Yamauchi and Templer (1982), the *Money Beliefs and Behaviour Scale* by Furnham
29
30 (1984), and the *Money Ethics Scale* by Tang (1995). These scales are multifactorial,
31
32 consisting of three-to-eight factors. Although the specifics vary between scales and studies,
33
34 the common finding is that there are roughly orthogonal factors relating to (a) the affective
35
36 aspects of money, such as distrust, anxiety, power, prestige, esteem or achievement, and
37
38 relating to (b) economic aspects, such as budgeting, planning, spending retention, or debts. As
39
40 Lea and Webley (2006) have also noted, this pattern of results suggests a distinction between
41
42 the symbolic (affective) and instrumental (economic) aspects of money attitudes. In line with
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44 this, the current work separately looks at the two dimensions of money attitudes (first-order
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46 factors), and not just the one second-order factor that incorporates both symbolic and
47
48 instrumental facets of money attitudes.
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56 Recently, Tang and his colleagues (2004) studied the symbolic aspect of money
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58 attitudes, operationalized as love of money. Using multiple regression and structural equation
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4 modeling, they examined love of money as a mediator and moderator of the income–pay
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6 satisfaction relationship. They did not treat these as competing models, however, and did not
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8 test whether the mediation or moderation model fit the data better. Whereas some variables
9
10 are more likely to be moderators than mediators (e.g., gender), some variables may serve
11
12 either function, depending on the conceptual model under investigation. Mediation and
13
14 moderation by the same variable cannot be tested in the same analysis (Hayes, 2013) but they
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16 can be tested in competing models, leading to a conclusion in favor of one or another. In the
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18 case of Tang and colleagues' research, it is likely that some first-order money attitude factors
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20 incorporated within the love of money variable would better be thought of as mediators,
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22 whereas others would better be thought of as moderators of the income–pay satisfaction
23
24 relationship. Examining only the second-order factor, which treats diverse aspects of money
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26 attitudes as one would not allow for a nuanced understanding of these effects, leading to the
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28 impression that love of money is both a mediator and a moderator. To address this issue, in
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30 the current work the two dimensions of money attitudes measured with the Money Attitudes
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32 Questionnaire (MAQ), namely money anxiety and financial control, are treated separately. It
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34 is hypothesized that money anxiety and perceived financial control will affect the objective–
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36 subjective wealth relationship differently, with the former serving as a mediator, and the latter
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38 as a moderator.
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45 **2.3.2 Money Attitudes Questionnaire (MAQ)**

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47 Gasiorowska (2013a, 2013b) has developed a full and a short version of *Money*
48
49 *Attitudes Questionnaire* (MAQ). It was verified in several studies, conducted with both
50
51 convenience and representative samples. MAQ in its short version (MAQ-25) consists of 25
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53 items, to which participants respond on a 5-point Likert scale. The questionnaire assesses six
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55 different dimensions of attitudes toward money: (1) *Financial control*, (2) *Power*, (3) *Money*
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4 *anxiety*, (4) *Debt aversion*, (5) *Occasion-seeking*, and (6) *Root of evil* (Gasiorowska, 2013a,
5
6 2013b, Gasiorowska & Helka, 2012, Zaleskiewicz et al. 2013).

7
8 *Financial control* indicates thriftiness, carefulness and prudence in situations and
9
10 decisions connected with money, a relatively conservative attitude towards money
11
12 management, detailed financial planning and budgeting, and attentive monitoring of one's
13
14 financial accounts. It concerns both present and future financial decisions. People scoring
15
16 high on the *power* factor perceive and use money as a tool for making an impression on or
17
18 influencing others, for power, prestige and respect, and as a measure of life success. They also
19
20 believe that money ensures effective control of reality and social influence. A high score on
21
22 *money anxiety* reveals hesitation, distrust, suspiciousness, and doubt in situations connected
23
24 with money, and a high level of negative emotion associated with lack of money. *Debt*
25
26 *aversion* measures reluctance to borrow money. High scorers do not like assuming financial
27
28 obligations, whether they are to family, friends or financial institutions, and when they are
29
30 forced to do so they want to repay their creditors as soon as possible. People with debt
31
32 aversion perceive this attitude as very reasonable and cautious. The *occasion-seeking*
33
34 dimension indicates inclination to search for and exploit special opportunities connected with
35
36 money, especially with earning money. It is related to effective planning and organization of
37
38 one's economic activity, and concerns monitoring and exploiting lucrative financial
39
40 occasions, both expected and unexpected. High scorers are quite satisfied with their financial
41
42 success (if they have achieved it), and they experience searching for occasions as exciting and
43
44 stimulating. *Root of evil* reflects the negative emotional aspects of money attitudes. People
45
46 scoring high on this dimension perceive money as something useless, needless and coercive,
47
48 as the root of all evil in everyday life, and believe that people focused on money are
49
50 contemptible. This attitude is associated with a closed-minded, dogmatic perception of reality.
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52 High scores on the *control* together with *debt aversion* and *occasion seeking* dimensions
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4 correspond to a “money as a tool” mindset, and represent an instrumental, pragmatic attitude
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6 towards money, while high scores on the *Anxiety* together with *power* and *root of evil*
7
8 dimensions reflect symbolic, psychologically driven, and emotional attitudes, more
9
10 reminiscent of a “money as a drug” approach (Lea & Webley, 2006).

11
12 All MAQ-25 subscales have satisfactory reliability: test-retest correlations with a two-
13
14 weeks interval were between .71 and .85 ($ps < .001$), and Cronbach’s alphas ranged from .63
15
16 to .81 in various samples (Gasiorowska, 2013b). The results of confirmatory factor analyses
17
18 (CFAs) conducted on various samples showed that there was a good fit between measurement
19
20 models and the data: in all cases, RMSEAs were lower than .043, while GFIs and AGIs
21
22 exceeded .90 (Gasiorowska, 2013a, 2013b). External validity of both versions of the
23
24 questionnaire also proved satisfactory. It is beyond the scope of the current paper to fully
25
26 document the correlates and validity of all six money attitude factors. Hence, only
27
28 information on the *control* and *anxiety* dimensions will be provided, which are hypothesized
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30 to affect the objective-subjective wealth relationship.
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36 Financial control correlated significantly with various aspects of financial behaviors,
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38 like number of bank accounts, number of debit and credit cards, number of insurances, value
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40 of savings, diversification of savings, and low arrears in paying bills and liabilities. Among
41
42 personality traits, control correlated significantly with conscientiousness and need for closure.
43
44 Money anxiety, on the other hand, was related to trait anxiety, neuroticism, low decisiveness,
45
46 intolerance of ambiguity, external locus of control, materialism, and low self-esteem. It did
47
48 not correlate with any of the financial behaviors mentioned above in relation to financial
49
50 control (Gasiorowska, 2013a, 2013b). This pattern provides further support for the notion that
51
52 financial control is connected to money management, revealing an instrumental approach to
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54 money, whereas money anxiety reflects a symbolic and psychologically driven attitude.
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2.3.3 Money anxiety as mediator

In the current work, money anxiety is posited as a mediator of the objective-subjective wealth relationship (i.e., objective wealth \rightarrow money anxiety \rightarrow subjective wealth). Higher income decreases negative feelings in general (Kahneman & Deaton, 2010), and especially those connected with money worries (the objective wealth \rightarrow money anxiety link). On the other hand, as people anxious about money tend to be worried that they will experience lack of funds (Lim & Sng, 2006), they may experience chronic dissatisfaction with what they own or earn (the money anxiety \rightarrow subjective wealth link). Below the nature of the links from objective wealth to money anxiety, and from money anxiety to subjective wealth are elaborated on in greater detail.

Objective wealth to money anxiety. Even though additional income does not enhance happiness substantially in economically developed societies (Diener & Biswas-Diener, 2009), it still seems to decrease negative feelings, distrust, sadness and anxiety (Kahneman & Deaton, 2010), especially in relation to one's finances. For example, Hayhoe et al. (2012) found that Americans with a lower net worth (debt level subtracted from asset level) reported a stronger need to get the most for the money they spend and were nervous or worried about not having enough money compared to those with greater assets. Other research has found that students who have experienced financial hardship in the past are more obsessed with money as a source of power than those who have not experienced financial hardship (Lim, Teo, & Loo, 2003). In a study conducted in Singapore, family income was significantly and negatively related to paternal and youths' money anxiety (Lim & Sng, 2006). To conclude, low-income individuals may be anxious about money matters as they try to avoid being caught in a situation in which they are financially trapped. In light of this, level of income is predicted to have a significant and negative impact on money anxiety.

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4 *Money anxiety to subjective wealth.* A study by Solberg et al. (2002) showed that the relation
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6 between income and the subjective evaluation of this income depends on one's material
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8 desires. If these desires are perceived to be fulfilled, people are more satisfied with their
9
10 income. In other words, people's satisfaction with their income and material goods depends
11
12 on the discrepancy between what they possess and what they desire, which in turn depends on
13
14 social comparisons and comparisons with one's past in the financial domain (Solberg et al.,
15
16 2002). Danes and Rettig (1993) also provided evidence that perception of income adequacy
17
18 was related to the degree that participants reported a discrepancy between their current
19
20 financial situation and their ideals and standards. The size of desire discrepancy as well as of
21
22 social comparison discrepancy is related to materialism. High-materialistic people place a
23
24 greater emphasis on financial security than low-materialists do, are more prone to making
25
26 social comparisons concerning their wealth, and believe that they need more income to satisfy
27
28 their needs (Richins, 1994; Richins & Dawson, 1992). As a result, they should be less
29
30 satisfied with the wealth they have. Materialistic people might be unable to fully satisfy their
31
32 desire for possessions, hence have perceptions of inadequate income and higher level of
33
34 financial worry (Gardarsdottir & Dittmar, 2012). There is also evidence that materialism is
35
36 significantly associated with money attitudes. Specifically, materialists relative to non-
37
38 materialists seem to equate money more with success, achievement and status and they love
39
40 money. At the same time, they are also more likely to associate money with anxiety and
41
42 distrust, and worry over money (Christopher, Marek, & Carroll, 2004; Gasiorowska, 2013a,
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44 2013b; Shafer, 2000).

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52 Several other studies point to a robust link between money attitudes and perceived
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54 satisfaction with personal money outcomes. In a study conducted by Wilhelm et al. (1993),
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56 participants who reported putting a lot of effort in earning money believed that they deserved
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58 what they earn and did not associate money with guilt experienced higher levels of financial
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4 satisfaction. In other research, participants who associated money with freedom, power,
5
6 success and influence reported that they struggled more with the money they had (Von
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8 Stumm et al., 2012) and had higher standards in terms of the income they needed to consider
9
10 themselves rich (Furnham et al., 2012). In a sample of young Australian workers, Dowling et
11
12 al. (2009) found that using money as a standard for evaluating success and experiencing
13
14 anxiety when it comes to money issues increased the probability of suffering from financial
15
16 problems, which in turn decreased financial satisfaction. To conclude, individuals who score
17
18 high on money anxiety seem to be less satisfied with their finances. Thus, the following
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20 hypothesis is proposed:
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24 **H1:** Money anxiety will mediate the objective-subjective wealth relationship.

25 26 **2.3.4 Financial control as a moderator**

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28 The money management literature consistently shows that individuals who
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30 successfully manage their money by taking responsibility of their finances report more
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32 financial satisfaction and less financial stress (e.g. Dowling et al., 2009; Joo & Grable, 2004).
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34 Moreover, individuals who focus on saving and planning seem to struggle less with the
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36 money they have (Von Stumm et al., 2012) and have lower standards in terms of the income
37
38 they need to be rich (Furnham et al., 2012). These results suggest that the tendency and ability
39
40 to control personal finances may have a significant impact on subjective wealth. Nonetheless,
41
42 the relation between objective and subjective wealth and this dimension of money attitudes
43
44 seems to be more complicated. There is clear evidence that people who control and budget
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46 their money are more conscientious and scrupulous than those who do not (Shafer, 2000;
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48 Gasiorowska, 2013a, 2013b). They are also financially responsible, good at monitoring their
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50 finances (e.g., at estimating the amount they have in their pockets or in their bank accounts),
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52 and have higher financial literacy (Sohn, Joo, Grable, Lee, Kim, 2012). High-control
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54 individuals may pay more attention to and monitor more carefully their money and
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possessions as well as their expenditures and financial obligations than low-control individuals. As a result, people scoring high on the control dimension of money attitudes should evaluate their financial situation on the basis of real premises (that is, on the basis of their actual income) to a higher degree than people scoring low on this dimension. Thus, the following interaction between objective wealth and financial control is hypothesized:

H2: Financial control will moderate the relationship between objective and subjective indicators of wealth. The objective-subjective wealth relationship will be stronger for high-control individuals than for low-control individuals.

Insert Figure 1 about here

To test these predictions, a survey study on a representative sample of Polish adults was conducted. Objective wealth was operationalized as a latent variable manifested by personal income, household income and income per person in the household. Subjective wealth was captured by three indicators: assessment of participants' subjective financial situation, difficulty/ease in making ends meet, and the conviction that their income was adequate to fulfill their needs and wants. Money attitudes were measured with the short version of the MAQ scale (MAQ25; Gasiorowska, 2013b). The hypothetical model presented on Figure 1 with latent variables representing objective and subjective wealth, including money anxiety as a mediator and financial control as a moderator of objective-subjective wealth relationship, was tested with Structural Equation Modeling. The mediation analysis was based on the examination of direct and indirect effects with bootstrap sampling, and a Multi-Group Analysis was used for the exploration of moderation effect.

3 Method

3.1 Participants

The data were collected from 540 adult participants constituting a representative sample of Polish adult citizens in terms of gender and age. About one-third of the participants ($n = 161$) did not answer questions on either their personal or household income, or their subjective wealth, and were thus excluded from further analyses. The final sample consisted of 379 participants (210 women). The average age was 46.47 years ($SD = 17.24$). One hundred and seventy five of the participants (45.2%) indicated that they were full-time employed, 44 (11.6%) were part-time employed, 56 (14.8%) were not employed, and 104 (27.4%) were retired or on a pension. Average education level was 13.19 years ($SD = 2.65$).

3.2 Procedure

The data were collected via computer-aided telephone interviews (CATI) conducted by a professional market and social research company in Poland. Participants were randomly chosen from a database of all landline telephone numbers in the country. As a vast majority of people aged 20-40 years living in medium-sized and large cities does not have a landline telephone and might therefore be underrepresented in this database, a set of mobile telephone numbers (random combination digits) was added to the sampling frame. Participation in the study was voluntary and was not compensated. To ensure participants' anonymity and increase the response rate for income-related questions, participants were not asked to provide any personal information. All study materials were in the Polish language.

Money attitudes were measured with the short version of the Money Attitudes Questionnaire¹. After completing the MAQ-25, participants were asked a series of questions concerning their household income. Personal net monthly income was captured using six

¹ The results of confirmatory factor analysis suggest very good fit of the six-factor measurement model to the collected data, $\chi^2 = 557.49$, $df = 271$, $p = .001$, $\chi^2/df = 2.06$, RMSEA = .04, GFI = .92, AGFI = .9.

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4 categories, from 0 = *no income* to 5 = *above 4,000 PLN*². Information about average monthly
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6 income of the entire household was collected using nine categories, from 0 = *no income* to 8 =
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8 *above 7,000 PLN*. Participants were also asked about the number of household members, so
9
10 that approximate monthly income per capita could be calculated.

11
12
13 Only three questions were asked about subjective wealth owing to response burden in
14
15 a CATI study. First, participants assessed their subjective financial situation on a scale from
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17 one to five, with 1 = *very bad* and 5 = *very good*. The second question asked about
18
19 participants' ability to make ends meet, assessed on a scale from 1 = *with difficulty* to 5 = *very*
20
21 *easily*. Finally, participants indicated whether they felt their income adequately fulfilled their
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23 needs and wants, on a scale from 1 = 'We have not enough money to buy even the cheapest
24
25 food and clothes' to 7 = 'We can afford to buy everything we want and also save for the
26
27 future'.
28
29

30 31 **3.3 Results**

32
33 The means, standard deviations, Cronbach's α 's, and correlations between measured variables
34
35 are presented in Table 1. The three measures of objective wealth—level of participants'
36
37 monthly income, their households' income and income per capita in the household—were
38
39 significantly correlated (from .57 to .74, $ps < .001$). So were the three items measuring
40
41 subjective wealth (from .52 to .63, $ps < .001$). However, objective and subjective indicators of
42
43 wealth correlated only modestly (ranging from .29 to .38, $ps < .001$). The control dimension
44
45 of money attitudes did not correlate with objective or subjective wealth, while money anxiety
46
47 was the only dimension that correlated significantly with all the indicators of both objective
48
49 and subjective wealth.
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58 ² Average monthly net income in 2012 in Poland—during the time when the data were collected—was around
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60 2,650 PLN (660.2 Euro), and Euro/PLN exchange rate was 1:4. According to the International Monetary Fund,
61
62 GDP per capita in Poland in 2012 was 20,952 USD (compared to 49,922 USD in the United States and to 10,000
63
64 USD as a World average).
65

Insert Table 1 about here

To analyze the data, a structural equation modeling with the IBM SPSS Amos was conducted. All models were estimated using the asymptotically distribution-free method (ADF) and evaluated with criteria proposed by Vandenberg and Lance (2000). The lower bound for a good fit for CFI, TLI, GFI and AGFI is 0.9, and CFI and TFI ≥ 0.95 indicates excellent fit. RMSEA $\leq .06$ indicates excellent fit, and the upper bound for a good fit for RMSEA is .08. To test the difference between models in a Multi-Group-Analysis (MGA), the χ^2 change ($\Delta\chi^2/\Delta df$) and the fit index change (ΔCFI and ΔTLI) were used. A fit index change lower than .01 indicates lack of difference between the models; a change between .01 and .02 indicates possible difference between the models; and a change greater than .02 indicates a definite difference between the models (Vandenberg & Lance, 2000).

The logic behind the analyses is the same as in a hierarchical regression analysis. The path model estimated in the first step consisted of a latent independent variable indicating objective wealth (measured by level of personal income, household income and income per capita), a latent dependent variable representing subjective wealth (measured by evaluation of financial situation, ability to make ends meet and perceived adequacy of income to fulfill one's needs), and the two dimensions of money attitudes: money anxiety and financial control. The model fitted the data well ($\chi^2 = 42.65$, $df = 20$, $p = .002$, $\chi^2/df = 2.13$, RMSEA = .05, TLI = 0.86, CFI = .90, GFI = .97, AGFI = .94). The main effect of control on subjective wealth was not significant, so this path was omitted. The results (unstandardized and standardized path coefficients) are presented in Table 2. Money anxiety together with a latent variable representing objective wealth accounted for 34.5% of subjective wealth.

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4 In the second step, the interaction between control and objective wealth was added to
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6 the model. The approach proposed by Ping (1995) was used, which consists of summing
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8 rating scales to compute scores for interacting latent variables, and then multiplying these
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10 scales to obtain a single indicator of the interaction. Accordingly, first the product of the
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12 latent variable indicating objective wealth was imputed using the regression method, and next
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14 the product of control and objective wealth (both standardized) in the interaction as calculated
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16 and included in the model. The fit indices in the second step were similar to the previous one
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18 ($\chi^2 = 55.01$, $df = 26$, $p = .001$, $\chi^2/df = 2.12$, $RMSEA = .05$, $TLI = 0.85$, $CFI = .89$, $GFI = .96$,
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20 $AGFI = .93$). The main effect of control on subjective wealth was again not significant, but
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22 the interaction between objective wealth and financial control had a significant impact on
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24 subjective wealth (Table 2). Adding the interaction term to the model increased explained
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26 variance of the dependent variable by 2.3%.
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38 Supporting the hypotheses specified above, subjective wealth as measured by
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40 subjective financial situation, perceived ability to make ends meet, and income adequacy was
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42 positively and directly influenced by objective wealth as measured by household income,
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44 participant own income and income in household per capita (positive objective wealth →
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46 subjective wealth path). Moreover, objective wealth also had an indirect impact on subjective
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48 wealth: higher objective wealth led to significantly lower money anxiety (negative objective
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50 wealth → money anxiety path), and lower anxiety significantly increased subjective wealth
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52 (negative money anxiety → subjective wealth path), which suggested a possible mediation
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54 effect and provided preliminary support for hypothesis H1. The significant impact of
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56 interaction between objective wealth and financial control on subjective wealth provided
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preliminary support for the notion that the control dimension of money attitudes moderates the objective-subjective wealth relationship (H2).

Mediation by money anxiety. To test for a possible mediation effect, a bias-corrected bootstrapping procedure with 10,000 samples was used (Hayes, 2013). The significance of total, direct and indirect effects was tested in a model of objective-subjective wealth relationship, with money anxiety as a mediator and controlling for the objective wealth by financial control interaction (step 2 in Table 2). The total effect of objective wealth on subjective wealth was significant (standardized effect = 0.49, bootstrapped $se = 0.07$, $p = .001$, 95% bootstrapped CI [0.31, 0.6]), such that higher objective wealth led to higher assessment of subjective wealth. The direct impact of objective wealth on its subjective evaluation (controlling for the indirect effects through financial anxiety and for objective wealth by financial control interaction) was weaker than the total effect, but significant (standardized effect = 0.4, bootstrapped $se = 0.07$, $p < .001$, 95% bootstrapped CI [0.24, 0.52]), indicating that part of the total effect was indirect. The indirect effect was weaker than the direct effect, but still significant (standardized effect = 0.08; bootstrapped $se = 0.03$; $p = .003$). The 95% bootstrapped confidence interval for the indirect effect of anxiety was 0.03 to 0.15 and did not include 0, indicating that financial anxiety partially mediated the objective-subjective wealth relationship. This pattern of results provided formal support for hypothesis H1.

Moderation by financial control. The path model tested in Step 1 was acceptable, but the fit to the data was not excellent. Moreover, the interaction effect on subjective wealth examined in Step 2 was significant. This led to the conclusion that the relation between objective and subjective wealth may be different depending on the level of financial control. Thus, to confirm hypothesis H2, a multi-group analysis (MGA) was conducted. The main model was estimated separately for participants with high ($n = 197$) and low ($n = 182$) financial control

(groups based on a median split of their average scores). The assumption was that the path structure of the two models would be the same, but the parameters might differ. For this unconstrained model, the fit indexes were very good ($\chi^2 = 29.02$, $df = 24$, $p = 0.22$, $\chi^2/df = 1.21$, RMSEA = .02, TLI = 0.97, CFI = 0.98, GFI = .98, AGFI = .95). The next model was estimated on the assumption that all parameters (measurement weights, structural weights, structural covariances, structural residuals and measurement residuals) were the same for participants high and low in financial control. This constrained model was significantly worse than the previous one ($\chi^2 = 71.35$, $df = 40$, $p = .002$, $\chi^2/df = 1.78$, RMSEA = .05, TLI = .87, CFI = 0.88, GFI = .95, AGFI = .92, $\Delta\chi^2(16) = 42.34$, $p < .001$, $\Delta CFI = 0.1$, $\Delta TLI = 0.1$). This means that the models for low- and high-controls were significantly different, and that financial control moderates the relationship between objective and subjective wealth. Further parameter comparison showed that the only path that was significantly stronger for high- than for low-control participants was the relation between objective and subjective measures of wealth (Table 2). For low-control participants, objective wealth together with financial anxiety explained 25% of subjective wealth, whereas for high-control participants independent variable and mediator accounted for 48.5% of the variance in the dependent variable. The results of the path analysis formally confirm hypothesis H2, which states that financial control moderates the relationship between objective and subjective indicators of wealth.

4 Discussion

The aim of the study presented in this paper was to investigate the impact of money attitudes on the relation between objective and subjective indicators of wealth. Objective wealth was measured as participants' income, family income, and income per person in the household. Subjective level of wealth was evaluated with three items assessing perceived financial situation, ability to make ends meet and adequacy of income to fulfill needs and

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4 wants. In line with previous research (Joo & Grable, 2004; Tang et al., 2004, 2005, 2006;
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6 Wilhelm et al., 1993), objective wealth had a significant but modest impact on its subjective
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8 perceptions. More importantly, the results shed light on the effect of financial control and
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10 money anxiety on the objective-subjective wealth relationship. This work contributes to
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12 money attitudes research, in showing for the first time the mediating effect of money anxiety
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14 and the moderating effect of financial control on the relation between objective and subjective
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16 measures of wealth. Objective wealth affected subjective wealth not only directly, but also
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18 indirectly: lower income was connected with experience of financial worry and thus led to a
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20 lower level of subjective wealth. Moreover, people high in control over their finances
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22 evaluated their financial situation on the basis of objective premises (i.e., their actual income)
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24 to a greater extent than people who did not control their finances as much. For that reason, the
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26 relation between objective and subjective measures of wealth was stronger in the former
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28 group than in the latter.
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34 As predicted, the level of anxiety associated with financial issues partially mediated
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36 the relation between income and subjective wealth. This effect was not strong, but significant.
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38 The higher people's income was, the less they were nervous, worried, and doubtful about
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40 their decisions concerning money, and this in turn led to higher financial satisfaction.
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42 Considering the instrumental uses of money, higher assets allow for better fulfillment of
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44 everyday needs and might also help securing one's future. At the same time, research on the
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46 symbolic meanings of money suggests that higher objective wealth might also reduce anxiety
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48 indirectly, by increasing self-esteem. High income can be seen as a signal of an individual's
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50 competency so that high pay might enhance one's assessment of personal adequacy and
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52 worthiness as an organizational member (Gardner, Van Dyne, & Pierce, 2004). Furthermore,
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54 Goldsmith, Veum and Darity (1997) demonstrated that having a high wage is associated with
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56 a favorable view of self and improved self-esteem. As self-esteem correlates negatively with
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4 trait anxiety (Blascovich & Tomaka, 1991) and money anxiety (Gasiorowska, 2013b), high
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6 income might lead to lower level of financial worries both directly, via the instrumental
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8 meaning of money as a means of exchange, and indirectly, via its symbolic power related to
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10 self-enhancement and self-sufficiency (Vohs, Mead, & Goode, 2006). Having money reduces
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12 dependency on others, reducing anxiety in turn (Furnham et al., 2012; Zaleskiewicz et al.,
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14 2013), whereas experiencing financial strain and poverty increases the odds of general anxiety
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16 disorder (Baer, Kim, & Wilkenfeld, 2012).
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20 Financial satisfaction and a sense of being wealthy by definition involve being
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22 financially “healthy, happy and free from financial worry” (Joo & Grable, 2004, p. 27). It
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24 follows that people who are anxious about their money would perceive their financial
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26 situation as worse. Moreover, anxious individuals complain more frequently in general: they
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28 are less satisfied with their jobs (Zalewska, 2011), their relationships (Mikulincer & Shaver,
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30 2007), and their lives (Guney, Kalfat, & Boysan, 2010). The impact of money anxiety on
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32 financial comfort may also be connected with materialistic traits or values often endorsed by
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34 those who are low in self-esteem, neurotic, and anxious both in general and financially
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36 (Chaplin & Roedder, 2007; Shafer, 2000). Materialistic people experience substantial
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38 discrepancies between what they have and what they would like to have, so they might feel
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40 like they do not have enough money to fulfill their desires, regardless of how much they earn
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42 (Solberg et al., 2002). All these findings help us explain the pattern observed between money
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44 anxiety and subjective wealth.
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50 The current work also revealed that the direct influence of perceived control over
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52 one’s finances on financial satisfaction was less important than its moderation effect. In other
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54 words, being high on financial control does not necessarily imply higher subjective wealth
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56 than being low on this factor. More probably, higher financial control leads to a more accurate
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58 perception of one’s financial reality, resulting in a stronger correlation between one’s
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4 objective and subjective wealth for high- than for low-controls. Individuals with the same
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6 financial resources may have different perceptions of these resources and their financial
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8 needs, depending on their ability to control, plan and budget. People who are good at
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10 budgeting, controlling, planning and monitoring their finances likely assess their resources
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12 more accurately, predicting more effectively if they are able to achieve their financial goals,
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14 adjusting their standard of living to match their resources, and therefore feeling more satisfied
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16 with their financial status. In contrast, those who are unable or unwilling to budget and plan
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18 their finances may fail to evaluate their financial situation on the basis of objective premises,
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20 thus underestimating or overestimating their financial standing. They are generally also more
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22 prone to irrational economic behavior, potentially leading to higher debts, fewer resources left
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24 for necessities, and in turn, to lower subjective wealth.
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29 These results provide useful information for financial advisors and educators who
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31 develop programs to help individuals and families to improve their satisfaction with their
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33 financial situation. Financial counselors and educators should emphasize and clarify the
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35 importance of financial control in the perception of the adequacy of financial resources, and
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37 in the satisfaction with one's financial status. Clients should be encouraged to learn methods
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39 and skills that would increase their ability to control their finances.
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43 While the findings presented in this paper provide further insight as to how individual
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45 differences in money attitudes affect the objective-subjective wealth relationship, there are
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47 some limitations inherent to the reported study. The most important concern in studies on
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49 income and wealth is the reliability of data acquired from participants. Non-response rate for
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51 income- and wealth-related questions is a persistent problem in survey research, as it can run
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53 as high as 25% or higher (29.8% for the current study). Even if participants respond to these
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55 questions, misreporting of income, both deliberate and unintentional, is also a possibility. For
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57 example, Herriott (1977) found that people reported higher income when it was split into
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4 categories than when they responded to an open-ended question. Furthermore, individuals
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6 reporting their subjective wealth may not be aware of the total income coming from all
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8 sources in their household and thus fail to express a sense of economic well-being that reflects
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10 the total family income reality. However, this is unlikely to be the case in the present study.
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12 Even if participants' knowledge of their household income was not perfect, we may assume
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14 with relative certainty that their financial satisfaction was based on the income they knew and
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16 not on the real household income.
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20 To summarize, this paper provides additional knowledge concerning the impact of
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22 money attitudes on the perception of one's wealth. It seems that it is necessary to examine the
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24 separate dimensions of money attitudes, as their impact on the relation between objective and
25
26 subjective indicators of wealth varies. Also, understanding the factors influencing one's
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28 financial satisfaction or perceived economic well-being is very important, as financial
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30 satisfaction seems to be a better predictor of psychological well-being than objective level of
31
32 income (Mills et al., 1992).
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Table 1. Descriptive statistics for variables used in Study 1

Variable	M	SD	Cronbach's α	2	3	4	5	6	7	8	9	10	11	12
1. Personal net income	4.14	2.15	-	.57**	.59**	.30**	.30**	.29**	-.01	-.14**	-.18**	.09	.02	-.05
2. Household income	4.54	1.79	-		.74**	.32**	.34**	.36**	-.08	-.14**	-.16**	-.02	.18**	-.11*
3. Approximate income per capita	0.95	0.52	-			.26**	.27**	.29**	-.07	-.06	-.21**	.00	.01	-.10*
4. Subjective financial situation	3.18	0.84	-				.63**	.52**	.09	-.13*	-.36**	-.10	.13**	-.07
5. Making ends meet	3.46	1.15	-					.53**	-.06	-.25**	-.36**	-.16**	.07	-.10
6. Enough to fulfill needs	5.16	1.56	-						-.02	-.15**	-.28**	.03	.16**	-.09
7. Financial control	22.57	3.63	.81							.21**	.09	.22**	.05	-.10
8. Power	16.38	3.71	.74								.25**	.11**	.06	.17**
9. Money anxiety	15.22	3.60	.67									.06	.10	.33**
10. Debt aversion	15.66	2.11	.65										.02	-.08
11. Occasion seeking	6.96	1.79	.71											-.01
12. Root of the evil	7.00	2.37	.62											

Note: $n = 379$. Personal net income coded in categories: 0 = no income; 1 = less than 1,000 PLN; 2 = 1,001-2,000 PLN; 3 = 2,001-3,000 PLN; 4 = 3,001-4,000 PLN; 5 = above 4,000. Household income and income per capita coded in categories: 0 = no income; 1 = less than 1,000 PLN; 2 = 1,001-2,000 PLN; 3 = 2,001-3,000 PLN; 4 = 3,001-4,000 PLN; 5 = 4,001-5,000 PLN, 6 = 5,001-6,000 PLN, 7 = 6,001-7,000 PLN, 8 = above 7,000 PLN.

* $p < .05$; ** $p < .01$; two-tailed significance for correlations

Table 2. SEM results for the whole sample, low- and high-control participants

Path	Regression step 1 (N = 379)			Regression step 2 (N = 379)			Multi-Group Analysis						
							Low financial control (n = 182)			High financial control (n = 197)			Parameter comparison
	<i>b</i>	<i>se</i>	β	<i>b</i>	<i>se</i>	β	<i>b</i>	<i>se</i>	β	<i>b</i>	<i>se</i>	β	<i>Z</i>
Objective wealth measurement													
Objective wealth → Personal income	1		.70	1		.67	1		.90	1		.77	
Objective wealth → Household income	1.01	0.08	.86***	1.06	0.09	.86***	1.10	0.17	.80***	1.01	0.85	.92***	-0.51
Objective wealth → Income per capita	0.28	0.02	.85***	0.30	0.03	.84***	0.36	0.06	.85***	0.25	0.02	.87***	1.31
Subjective wealth measurement													
Subjective wealth → Subjective financial situation	1		.80	1		.74	1		.74	1		.85	
Subjective wealth → Making ends meet	1.38	0.1	.78***	1.32	0.10	.78***	1.38	0.19	.79***	1.34	0.10	.73***	-0.17
Subjective wealth → Enough to fulfill needs	1.58	0.13	.67***	1.47	0.12	.65***	1.59	0.24	.62***	1.58	0.13	.77***	-0.03
Major path													
Objective wealth → Subjective wealth	0.16	0.03	.37***	0.19	0.03	.40***	0.12	0.05	.25*	0.21	0.30	.052***	1.79*
Indirect effect via money anxiety													
Objective wealth → Money anxiety	-0.61	0.13	-.26***	-0.17	0.04	-.24***	-0.70	0.24	-.23**	-0.42	0.15	-.22**	1.02
Money anxiety → Subjective wealth	-0.07	0.01	-.37***	-0.23	0.04	-.35***	-0.06	0.01	-.38***	-0.08	0.01	-.36***	-0.84
Moderation by financial control													
Financial control x Objective wealth → Subjective wealth				0.12	0.04	.14**							
R^2 (Subjective wealth)	34.5%			36.8%			25%			48.5%			

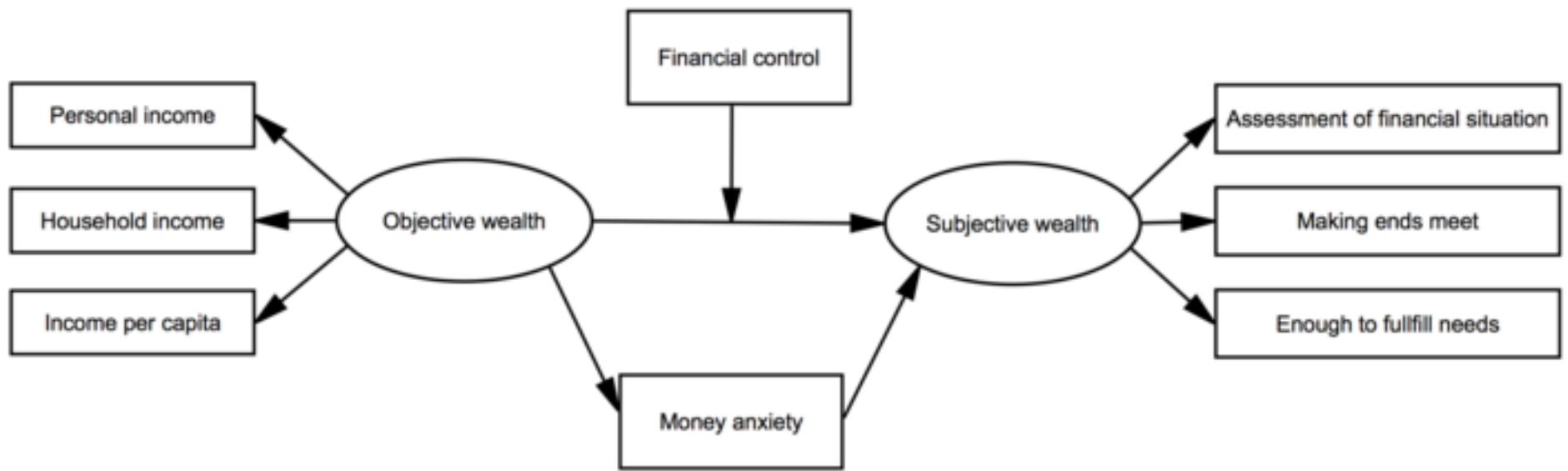
* $p < .05$; ** $p < .01$; *** $p < .001$; two-tailed significance for path parameters and one-tailed significance for parameter comparison

Figure captions

Figure 1. A theoretical model of money anxiety as a mediator and financial control as a moderator of the relationship between objective and subjective wealth

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Figure 1



Highlights

- The relation between objective and subjective wealth is affected by one's attitudes toward money
- The perceived ability to control own finances moderates the examined relationship
- Money anxiety mediates the relationship between objective and subjective wealth

Abstract: Prior research has showed that the subjective perception of objective wealth might be affected by various individual difference variables, such as one's love of money, level of aspirations, and materialistic inclinations. This paper examines a model of subjective wealth that controls attitudes toward money and objective wealth. Subjective wealth has been operationalized as a combination of the assessment of financial situation, the ability to make ends meet and perceived adequacy of income to fulfill needs and wants. Objective wealth has been captured by personal net income as well as household income. Results show that two dimensions of money attitudes affect the subjective perception of objective wealth. Individuals' perceived financial control (the ability to budget, monitor, and control their money) serves as a moderator for the relationship between objective and subjective wealth: The relationship between the two is stronger for individuals high in financial control and planning than for those low. Furthermore, money anxiety (worry and indecisiveness regarding money-related issues) is negatively related to objective measures of wealth and its subjective evaluation, and partially mediates the objective-subjective wealth relationship.

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