The Preference for Moderation Scale

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CONTRIBUTION STATEMENT

We demonstrate that decision-makers differ reliably from one another in terms of the value they place on moderation as a guide for consumer decision-making. We conceptualize Preference for Moderation (PFM) as a behavioral tendency for resolving choice amongst sets of options by seeking those in the middle ranges of salient attribute spaces (e.g., options with middle price and middle quality vs. options with lowest-price or highest-quality). We differentiate PFM from related chronic individual differences in decision-making thinking styles (e.g., satisficing vs. maximizing) and habits (e.g., indecisiveness). We first validate the psychometric properties of the PFM scale and then show that it predicts a wide range of key decision outcomes.

ABSTRACT

We propose that individual differences in the value placed on the principle of moderation exist and influence many aspects of consumer decision-making. The idea that moderation is an important guiding norm of human behavior is prevalent throughout history and an explicit theme in many philosophies, religions, and cultures. Yet, moderation has not been studied as an individual-level determinant of consumer behavior. We develop a scale that measures the degree to which individuals have a *Preference for Moderation* (PFM). The PFM scale predicts consequential behavior in many decision contexts. We first report on scale development, including the generation and selection of items. We then report analyses that show PFM is distinct from several popular individual-difference variables. Related to cultural background, PFM reliably predicts the use of compromise (Study 1) and balancing (vs. highlighting) strategies (Study 2), as well as various decision-making behaviors, including reliance on the representativeness heuristic (Study 3), self-reported financial habits and outcomes (Studies 4-5), real-world online reviewing behavior (Study 6), and split-ticket voting behavior in the 2018 U.S. midterm elections (Study 7).

INTRODUCTION

A defining feature of consumer research is the importance of context, as decades of research reveal that even apparently-extraneous aspects of the marketplace can have profound influences on consumption choices and experiences (Folkes 2002). Consumer decision-makers often actively focus on subsets of potential alternatives, either because they explicitly compare alternatives (e.g., when a consumer considers various possible uses for a financial windfall) and/or because others configure subsets of potential alternatives for them (e.g., when a retailer arrays a number of similar items on a store shelf). As a result, consumer decision-making research frequently focuses on how actions of marketers, retailers, salespeople, family members or other consumption partners create a context for a particular consumption episode, ultimately influencing evaluation, choice, and satisfaction.

While we know that choice context can have many influences on aggregate choice patterns, we know less about the factors that determine whether a particular consumer is likely to succumb to versus resist the influence of context (e.g., Bettman, Luce, and Payne 1998). The goal of this paper is to help classify one important aspect of reactivity to context by individuals or subgroups by creating a unique individual-difference scale that captures a key aspect of consumer responsivity to context. Specifically, we develop and introduce the *Preference for Moderation* (PFM) scale to reflect an individual's general tendency to prefer moderation as an overarching goal for choice-making strategies, resulting for instance in preference for options that hold moderate, or middle, positions within a salient context. The intended scientific contribution of our project is to extract essential decision-making habits from the philosophical principles and cultural themes that are the source of our concept of moderation. We propose that the endorsement of moderation in decision-making is a viable individual-difference characteristic that can be captured reliably with scale items.

A general endorsement of moderate strategies, either within a choice environment or across time, increases consumer responsiveness to context. This responsiveness may have adaptive or maladaptive effects depending on who (or what) influences the consumer's context

and how they do so. The ability to classify responsiveness to context on an individual (and market segment) level will be useful to marketers attempting to determine the amount of resources to devote to shaping a consumer's context. It will be similarly useful to policy makers attempting to predict the relative magnitude of contextual effects that influence the acceptability of government and business policies.

Our PFM scale is conceptualized and developed at a level of analysis we believe will be especially useful to understanding consumption decisions and outcomes. The development and use of individual-difference scales are ubiquitous in consumer research. However, most of these scales leverage general cognitive traits developed in the psychology literature, such as Maximizer-Satisficer (Schwartz et al. 2002), and/or focus on developing scales in substantive domains, such as financial planning (e.g., the *Propensity to Plan for Money* scale by Lynch, Netemeyer, Spiller, and Zammit 2009). Relatively few scales focus on choice-making strategies, in particular the tendency to frame decisions in a certain manner (Stanovich 2011). PFM is focused on choice behavior as the main level of abstraction and reflects decision behaviors in response to a ubiquitous aspect of consumer environments, in particular the presence of tradeoffs among options and option attributes. Because PFM is closely tied to choice, it enables prediction of which individuals or market segments are most susceptible (or vulnerable) to explicit or implicit attempts by managers, policy makers, or others to create decision contexts. For instance, consumers high in PFM should be more susceptible than others to retail displays highlighting one alternative as a middle-of-the road compromise.

The Concept of Moderation

We believe that the PFM scale is a viable individual-difference measure in part because the concept of moderation derives from and reflects wider, important philosophical and cultural values. Throughout recorded history, moderation has often been venerated as a guide for human conduct. Adherents of the Hellenistic philosophical movements Stoicism and Epicureanism argued that a happy life requires lessening one's appetites but not wholly extinguishing them (Brennan 2005; Mitsis 1988). In ancient Greece, the religious shrine at Delphi bore the simple

inscription “Nothing too much” (Murray 1980). Similarly, the three most prominent East-Asian philosophies advocate "The Doctrine of the Mean" or "The Middle Way" (Bond 1993; Lin 1981; Yum 1988). Buddhism is called “The Middle Path” and Buddha’s followers are taught not to live too extravagantly or too simply (Coward 1995). Taoism labels moderation as one of the three basic “treasures” of society (the other two are compassion and humility; Welch 1966). And Confucianism, which incorporates elements from both Buddhism and Taoism, prescribes avoiding extremes of excess or deprivation as the standard for virtuous conduct. Confucianism further presumes that moderation involves the tendency to integrate apparently contradictory assertions (i.e., so-called “naïve dialecticism”) as well as the tendency to compromise in one’s actions, beliefs, and preferences (for empirical support see, e.g., Peng and Nisbett 1999).

Moderation also represents an important modern Western cultural value. Exhortations to behave in moderation are prominent in rhetoric promoting environmentalism, personal health and mental well-being, political centrism, financial strategies, and behavior in many domains, especially consumption. Much advice and policy suggests that we should choose moderate amounts of almost any material or activity. Of course, we can find opposing advice in the vast and diverse context of cultural truisms: “Go big or go home,” “Nothing succeeds like excess,” “No dream is too extreme,” and so forth (see Web Appendix A for more examples). In modern Western culture, moderation offers one (but not the only) generally-acceptable method for resolving conflicts between different goals or choice attributes. Accordingly, we believe that consumers may generate stable tendencies over time that reflect their general level of acceptance of the cultural value of moderation as a guide for navigating choice contexts.

Moderation has long been viewed as a moral virtue. For Aristotle, a good (virtuous) life requires moderation in tastes and conduct, in particular living at the mean between the extremes of excess and privation (Aristotle, *Nicomachaen Ethics*). In his view, in order to find the correct mean in all of one’s actions and achieve moderation, one must develop ‘prudence’. Likewise, the practice of moderation is closely-tied to the concept of prudence and prudential behavior in utilitarian value systems (Griffin 1982). Specifically, moderation is viewed as a decision strategy

with high prudential value, insofar as solutions to difficult moral dilemmas often require that decision-makers balance divergent outcomes or considerations through tradeoff-making, for example having to accept some negative outcomes (e.g., one death) in order to prevent even more negative outcomes (multiple deaths). Thus, a consequentialist (vs. deontological) individual code of ethics might not only reflect but cause this tendency toward moderation (balance) in everyday decision-making.

A primary *implication* of the moderation principle for decision-making behavior is that whenever there is a salient perceptual or conceptual continuum that applies to a set of choice options, some choosers will prefer options that are nearer the middle versus the extremes of the various attributes represented in a consideration set. Particularly when multi-attribute options exhibit conflict across attributes, high-PFM individuals will tend to choose options with average attributes (e.g., moderate-cost and moderate quality products) or with a balanced selection of extreme attribute values (e.g., a dinner combining an expensive entrée with a cheap wine). Endorsement of moderation implies a tendency to monitor contexts, make tradeoffs among various considerations, and combine sources of information about alternatives. Importantly, moderation itself must be defined with respect to a particular context whereby ranges of potential attributes and hence both extreme and moderate attribute levels are determined. Thus, a preference for moderation as a general decision strategy should both generate and reflect responsiveness to the decision context.

THEORETICAL DEVELOPMENT

We conceive of PFM as reflecting an individual decision-maker's general, habitual or trait-like tendency to endorse moderation as an overarching goal for decision-making. This endorsement should influence behavioral strategies for choice as well as outcomes such as whether the individual will endorse or choose options nearer the center of the choice set under consideration at any point in time (i.e., moderate options). Our concept of PFM is not defined directly with respect to the attribute-values of specific options in isolation. Moreover, it is not a

concrete moral absolute (such as “Thou shalt not kill”) but rather is defined with respect to the relationships among the attribute values contained across a specific set of options. This level of conceptualization is more specific than philosophical, religious, or cultural aphorisms. Our conception is also more general than a specific behavioral rule, such as “Never have more than two glasses of wine in an evening” or “Never sign a contract for the lowest bid,” because the definition of moderation will depend on the specific context provided by currently salient alternatives.

In our usage, moderation is defined as a characteristic of individual alternatives included *in the chooser’s current, salient choice set or consideration set*. Following consumer research parlance, we use the term *choice set* to refer to the set of products, courses of action, or experiences that define the options in a chooser’s mental representation of a choice task. For example, if you were choosing an entrée from a 40-dish restaurant menu, you might only be considering vegan dishes, and your choice set would be restricted both by what is being offered and by your personal constraints. In practice, this might mean there are eight dishes in your current, subjective choice set. Likewise, when purchasing a car or choosing a vacation package, your choice set will be defined by the options that: 1) you are aware of and believe are available to you, and 2) fit your non-compensatory attribute restrictions, such as attribute-value cutoffs.

We predict that consumers will differ reliably from one another in terms of the value they place on the principle of moderation as an overarching goal for making specific choices from such contexts. Hence, we categorize PFM as a behavioral tendency or habit that derives from goals that in turn shape preferences for and use of general strategies for deciding and choosing. Furthermore, we believe differences in PFM arise primarily from differences in learning histories across individual lifespans. These differences may be partly cultural, and indeed we find that PFM is positively associated with East Asian cultural background. We do not rule out the possibility that differences in PFM may have a genetic component, but make no specific claims about the genetic (or physiological) substrates of the concept (though recent research suggests that the tendency to compromise is heritable; Simonson and Sela 2017).

Construct Validity

A critical psychometric question for PFM concerns its relationships with other individual differences. We expect that PFM will be conceptually and empirically distinct from previously-specified individual differences in decision-making. For example, one of the earliest individual differences studied as a general decision-making habit is risk attitudes characterizing individuals' preferences for risky options or courses of action. Much of the early research on risk attitudes involved testing individual preferences for low- versus high- variance gambles (e.g., a .50 chance of winning or losing $10 vs. the same chance of winning or losing $100). Early studies used the curvature of individual utility functions, summarized as a risk premium number which reflects individual assessments of risky options vs. expected values (e.g., MacCrimmon and Wehrung 1986). Later studies shifted to self-reports of behavior, finding large variation in preferences for risky options and actions within-individuals across domains of activity, such as financial investments and recreational activities, but some stability within domains (Weber, Blais, and Best 2002; Blais and Weber 2006). Although there may be stable differences in risk preferences among individuals (i.e., risk-seekers vs. risk-avoiders), in many multi-attribute decision situations, risk must be traded off with other costs and/or benefits. Thus, PFM may predict a tendency to balance risk against other costs and benefits.

There are also scales designed to measure individual differences in thinking habits, such as *Need for Cognition* (NFC; Cacioppo and Petty 1982), which has been used frequently in research on decision-making. This motivation to engage in and enjoy deliberative and complicated thinking is not conceptually related to PFM, and indeed we do not find a significant correlation between the two scales. However, we do find significant correlations between the PFM and two conceptually-related scales: *Analysis-Holism* (AHS; Choi, Koo, and Choi 2007) and *Need to Evaluate* (NTE; Jarvis and Petty 1999). PFM and AHS are conceptually related insofar as the PFM is derived from historical cultural thematic expressions of moderation and the AHS measures thinking habits associated with different cultural backgrounds. The PFM and NTE are conceptually related insofar as both scales focus on extremity as a contextual factor.

However, as Study 5 shows, the PFM has unique predictive power over and above AHS and NTE. We hypothesize this is the case partly because PFM is conceptualized and developed with choice as the level of analysis whereas the AHS and NTE scales are designed to reflect more general cognitive and evaluative styles.

Behavioral Manifestations of PFM

We believe that a primary implication of PFM for choice behavior is that whenever there is a prominent perceptual or conceptual set of choice options, high-PFM choosers will tend to prefer options that are away from the extremes and towards the middle of the consideration set in terms of the ultimate mix of salient attributes. Because PFM has general implications for both decision processing and outcomes, we expect and find that the construct has predictive value in a wide range of consumption settings.

Specifically, PFM is related to several classic choice context effects, most obviously the tendency to prefer compromise options (Simonson 1989). Study 1 confirms that preferences for options that have mid-range (vs. extreme) values along salient attributes are stronger among high-PFM individuals. Further, Study 2 shows that PFM is associated with the increased use of balancing (vs. highlighting) decision strategies, which combine different attributes of options to create a composite alternative (see Dhar and Simonson 1999). High-PFM individuals tend to prefer consumption experiences that combine different elements of options versus experiences that highlight one element. For example, having chosen a luxury entertainment option, high-PFM individuals are more likely than low-PFM individuals to choose a frugal drink option.

In Study 3, we extrapolate from our original concept of PFM and infer that PFM might be associated with a more general tolerance for accepting the contradictory components of a unitary entity, as is the case with the representativeness bias in person perception (Kahneman and Tversky 1972). Indeed, high-PFM individuals exhibit more of the conjunction error generated by use of the representativeness heuristic, where conjunctions of components are rated as more probable than single components (e.g., a woman with a stereotypically-progressive characteristic is rated as more likely to be a “feminist bank teller” than simply a “bank teller”).

In Study 4 (and Study 5), we demonstrate that the PFM scale predicts personal habits related to financial well-being. These financial data are a particularly important validation, as they show that PFM correlates with consequential behaviors in a context where our findings, while correlational, are difficult to explain via self-reporting or selection bias. As this criterion variable is self-reported, we investigated the predictive value of PFM on real-world online-reviewing behavior and voting behavior. Study 6 reveals that high-PFM individuals: 1) write and post online reviews that are more balanced and reflective of attribute tradeoff-making; and 2) give less extreme ratings. Study 7 shows that high-PFM individuals were significantly more likely to vote split (vs. straight) ticket in the 2018 U.S. midterm elections.

SCALE CONSTRUCTION

Item Generation and Preliminary Filtering

Our first task in developing an instrument to measure individual differences in PFM was to generate a pool of relevant items for later refinement. Ideally, the final set of items will exhibit psychometric properties such as a simple and reliable factor structure that can then be subjected to empirical validation to assess its relationship to other individual difference factors and its capacity to predict relevant behavioral tendencies. We generated a large pool of potential scale items (N = 102); see Web Appendix A. In addition to items that we generated (e.g., “Moderation leads to mediocrity” and “There are advantages to being good enough”), many items were aphorisms drawn from the philosophical, religious, and health literatures (e.g., “A person of moderation is a person of character and wisdom”; Plato), as well as from fiction and poetry (e.g., “The road of excess leads to palace of wisdom”; William Blake). As an initial check of logical validity, we gave two graduate students the dictionary definition of moderation (i.e. “Moderation is the avoidance of extremes”; *Wictionary* 2014). We then asked them to rate each item as, “clearly representative” (= 3), “somewhat representative” (= 2), or “not representative” (= 1) of moderation. Other than the usual concerns about the redundancy and intelligibility of questionnaire items and scale length, there were no substantive problems uncovered during this

process. Following this preliminary filtering process, 31 of the original 102 items were retained for scale refinement. The 31 items were rated as "clearly representative" (=3) by both judges.

Initial Factor Structure

In order to examine the factor structure of the PFM scale items, and begin the scale purification process by removing items based on recommended guidelines, we obtained a development sample. **Sample 1** consisted of 358 undergraduates from a public West Coast university (71.91% female; M_{age} = 19.57, *SD* = 1.57, *range* 18-25; with missing demographic information for 2 respondents).[1] In terms of ethnicity, 0.56% participants were Native American, 1.69% African-American, 11.80% Hispanic, 58.43% Asian or Asian-American, 17.42% European-American, and 10.11% Pacific Islander and mixed race. Among participants, 35.96% were foreign-born and 43.82% did not speak English as their first language. Self-reported annual household income ranged widely from $1500 to $10,000,000 (*N* for analysis = 330; M_{Income} = $123,149, *SD* = $554,390).

Sample 1 participants were run in large groups and completed a variety of paper-and-pencil studies, some unrelated to the present research. Per normal procedure, participants were screened to exclude individuals who had participated in earlier quarterly surveys. All participants completed a questionnaire with the aforementioned 31 items and the following instructions: "To what extent do you agree with the following statements? Please use the following scale where 1 = 'Strongly disagree' and 7 = 'Strongly agree.' Circle your answer." Individual PFM scores will be derived from the average of numerical responses (scored in a "positive direction") that imply high (vs. low) moderation in decision behaviors. To increase participant reliability, at the start of

[1] Regarding sample sizes, throughout the present research, we have capitalized on the availability of convenience samples, often "piggy-backing" our studies on other projects underway in our own and colleagues' labs. Our policy has been to aim for samples large enough to provide at least a 90% probability of detecting modest correlational relationships ($r > .20$). This policy means that there is considerable variation in the specific numbers of respondents from sample to sample, as our Qualtrics and campus samples were not terminated by round-number cut-off quotas. Furthermore, within samples, there is some variation in *N*'s because of respondents' uneven response rates (e.g., we may have a full sample for the PFM items but one or two missing values on a specific auxiliary scale, resulting in some variation in N across specific models or tests). Of course, we could have trimmed the samples to produce round numbers, but this would be throwing away information. We always finalized data collection before any data analysis. In no case did we use a conditional stopping-rule that might produce "p-hacked" results by sampling up to the point that (artificial) statistical significance levels were exceeded.

the survey session, one of the authors reviewed the survey instructions with the participants, emphasizing the importance of reading each question carefully and answering each question according to their own preferences ("There are no wrong answers"). Participants took approximately one hour to complete the survey booklet which included a consumer decision-making survey, demographic questions, and multiple attention filters. In addition, as discussed below, sub-samples of participants also completed other individual-difference measures. Participants were paid $20 or $25 depending on how long they took to complete the survey ($20 for most, but $25 to a handful of participants to stay after an hour to complete the survey in full).

We divided **Sample 1** into two sub-samples: *Sample 1A* (primary) and *Sample 1B* (hold-out). To prepare for exploratory factor analysis (EFA) on Sample 1A (N = 171), we performed the Kaiser-Meyer-Olkin test of sampling adequacy and the Bartlett's Test of Sphericity on the 31 items. The Kaiser-Meyer-Olkin measure of sampling adequacy was excellent (*Overall MSA* = .79; N = 162 for analysis) and Bartlett's Test of Sphericity was highly significant ($p < .0001$), suggesting that the data were appropriate for factor analysis.

Exploratory Factor Analyses: Factor Structure

To examine factor structure, we conducted an EFA on the 31 items using principal axis factoring for extraction. The data were subjected to an orthogonal pre-rotation ('varimax' in SAS version 9.4) and an oblique rotation that allows for the factors to be correlated with one another ('promax' in SAS version 9.4). Prior Communality Estimates were based on squared mean communalities. Factors were determined by an examination of eigenvalues, scree plot, and variance explained. Based on the proportion (variance) criterion, analysis suggests an eight-factor solution. However, the eigenvalues and scree plot suggest a seven-factor solution. We tested both the seven and eight factor solutions since different criteria could be used to support either. As is commonly the case in scale development, factors in both solutions consisted entirely of reverse-coded items (7, 11, 12, 14, 15, 17, 19, 22, 25, 28, 29, and 31), therefore we excluded these reverse coded items. In addition, discussions with participants suggested that one item ("The choicest pleasures of life lie within the ring of moderation") was confusing; participants

were unable to paraphrase the item (which was a quote from Martin Farquhar Tupper circa 1840) in a consistent manner. So, we dropped this item.

We ran a second EFA on the remaining 18 items (*Overall MSA* = .87; *Bartlett's Test of Sphericity* = $p < .0001$; *N* for analysis = 164). The eigenvalues and scree plot indicate a two-factor structure. Alternatively, the proportion criterion indicates a three-factor structure. Items 1, 16, 18, and 21 failed to load significantly (< .50) on any factor in either solution. Thus, we deleted these items. In both the two-factor solution and three-factor solution, the cross-loadings for item 20 exceed the recommended cut-off of .30. In addition, in the three-factor solution, the cross-loadings of item 26 exceed the .30 cut-off. Accordingly, we deleted items 20 and 26.

We conducted a third principal axis EFA on the remaining 12 items (*Overall MSA* = .87; *Bartlett's Test of Sphericity* = $p < .0001$; $N = 167$ for analysis). The results suggest a two-factor structure based on the proportion criterion, eigenvalues, and scree plot. We cannot reject the hypothesis that a two-factor solution is sufficient ($\chi^2(1, df = 43) = 46.52$, $p < .33$). Eight items accounting for 76.9% of the total variance loaded on factor 1, and the four remaining items accounting for 23.1% of the total variance loaded on factor two. The correlation between the two factors is .28 ($p < .001$). Finally, we conducted a confirmatory factor analysis (CFA) on the holdout sample (Sample 1B, $N = 187$) (Gerbing and Hamilton 1996). First, we conducted an EFA on the 12 items using Sample 1B. The Kaiser-Meyer-Olkin measure of sampling adequacy is again excellent (Overall MSA = .83, $N = 186$ for analysis) and Bartlett's Test of Sphericity was highly significant ($p < .0001$). The results suggested a two-factor structure based on the proportion criteria as well as the eigenvalues and scree plot. See Web Appendix B for additional analysis and discussion.

Given that the 12-item solution suggested two correlated factors, we used model testing to specifically verify that the 12-item EFA solution was best represented by two factors, rather than by one. Following Anderson and Gerbing (1988), we assessed discriminant validity between factors 1 and 2 by performing Chi-square difference tests between an unconstrained model and one where the estimated correlation parameter for the two factors is constrained to 1.0 using

PROC CALIS in SAS. In the unconstrained model, the estimated covariance between PFM factors 1 and 2 is .27 with a 95% confidence interval range of .09 to .45. Hence, the estimated confidence interval does not contain 1.0. Our model comparison was similarly highly statistically significant, showing that the model using one additional degree of freedom to constrain construct correlations to 1.0 fit our data significantly worse ($\chi^2(1, df = 167) = 83.67, p < .0001$). Last, we tested whether the average variance extracted (AVE) for each factor was higher than the squared inter-construct correlation for the pair of factors (Fornell and Larker 1981). The AVE for both factor 1 (0.44) and factor 2 (0.37) was higher than the squared estimated inter-construct correlation (0.07). Again, these tests suggest that these twelve items represent two related but statistically independent subscales. See Web Appendix B for item loadings and cross loadings for these twelve items.

Exploratory Factor Analyses: Factor Culling

The two identified factors seem distinct in a manner that is conceptually understandable but not crucial for our current purposes. Specifically, our initial interpretation is that the first factor relates to the general endorsement of the moderation concept itself; example items from the first factor include “Moderation in all things is ideal” and ‘A person of moderation is a person of character and of wisdom.” By comparison, the second factor seemingly relates to strategies that result in moderate outcomes; example items from the second factor include “It is best to travel the middle road, even if it takes longer to get where you want to go” and “The middle path is the way to wisdom.” Our initial conceptualization of PFM and our theorizing is firmly focused on the first factor as being foundational, and the second as a potential result of the first. That is, in terms of simple face validity, the first factor appears to be a better measure of the concept of preference for moderation as an overarching goal compared to the second factor, which taps (only) one way to achieve moderate outcomes (i.e., consistently choosing the middle option on similar choice occasions) but neglects other ways (e.g., alternating the choice of extreme use of lexicographic strategies across choice occasions).

Further, given our desire to validate the PFM using consumer behavior criterion

variables, we think that the first factor represents a more conservative test, and thus a more appropriate focus for scale validation. Specifically, by articulating aspects of decision behavior more directly, the second factor contains items that come conceptually closer to articulating the strategies participants may use to approach our specific validation tasks (e.g., choosing a compromise alternative).

The second factor, by describing validation of the means to moderation rather than describing preference for the end result of moderate decision outcomes, also appears to lack content validity (Haynes, Richard, and Kubany 1995); it does not appear to represent an essential component of the central moderation concept as endorsement of a general, over-arching goal in decision making.

To assess the content validity of the two factors, we followed Lawshe (1975) and asked five experts to respond to one, three-level item assessing whether each scale factor is ‘essential’, or ‘useful but not essential,' or 'not necessary' to capture the construct. Judges were professors from five other universities who study decision behavior. All five judges indicated that the first factor was ‘essential’ and its content validity ratio (CVR) was high (= 1). This was not the case with the second factor (= 0), which did not meet the minimum CVR value (= .75) needed to exceed chance expectation. In view of the second factor’s lack of both face validity and content validity, we decided to drop the second factor items from the core scale, resulting in the 8-item PFM scale used for the remainder of this paper.[2]

In order to verify acceptable model fit from the more parsimonious eight-item scale, we re-ran our factor analyses using the entire validation sample (N = 358). A principal axis EFA on the remaining 8 items associated with factor one verified findings from our subsample analysis (Kaiser-Meyer-Olkin Sampling Adequacy Overall MSA = .86 Bartlett’s Test of Sphericity = p <

[2] We believed it was possible that the two PFM factors might predict or correlate with differing aspects of consumer behavior. Hence, in the studies reported in this paper, we always collected all 12 items identified the above EFA, with the eight PFM scale items always presented first. We found few substantive differences between scales calculated from the two factors other than a general finding that the eight factor one items predict better; see Web Appendix B for details. We leave the evaluation of the potential usefulness of the four items associated with factor two to future work.

.0001). The coefficient alpha for the eight-item scale is .84.

Finally, we conducted a CFA for the eight-item, single factor scale to assess fit. Following Iacobucci (2010), we assessed Standardized Root Mean Square Residual (SRMR hereafter) to ensure that it was close to .09 or lower; SRMR for the validation sample is .05. We also assesed several indices of fit (i.e., Bentler Comparative Fit Index (CFI hereafter) = .90, Goodness of Fit Index (GFI) = 0.92, Goodness of Fit Index (GFI hereafter) = 0.92, Adjusted Goodness of Fit Index (AGFI) = .86, Bentler-Bonett non-Normed Fit Index (NFI) = .88, Bollen's Non-Normed Fit Index Delta2 (NNFI) = .90).

In summary, we consider 8 items of the first factor, each measured along a 7-point agreement scale, to be the *Preference for Moderation Scale*, or simply the PFM. We refer to the average of a respondent's ratings on these eight items as his/her PFM score. Summary scores are averages of the ratings on the 1-7 numerical scale and so range from 1 to 7. In Table 1, we report the wordings and means (which range from 4.76 to 5.54) for the final 8 scale items (as reflected in the combined analysis of *Samples 1A-1B*).

Scale Reliability

We conducted an EFA on the 8 moderation items using a new and non-student sample, denoted **Sample 2**. Specifically, participants were 543 online (Qualtrics®) panelists (63.3% female; M_{age} = 46.7, *SD* = 19.4, *range* 18 - 84). In terms of ethnicity, 0.2% of participants were Native American, 5.5% African-American, 1.9% Hispanic, 20.2% Asian or Asian-American, 68.4% European-American, 0.4% Pacific Islander, and 3.6% mixed race. Annual household income ranged from $0 to over $200,000 (1 = $0-$24,999, 2 = $25,000-$49,999, 3 = $50,000–$74,999, 4 = $75,000–$99,999, 5 = $100,000–$149,999, 6 = $150,000–$199,999, 7 = $200,000 or more; *M* = 2.95, *SD* = 1.0). In terms of education, .4% did not graduate high school, 15.3% completed high school, 12.4% had some college, 28.4% had an associate's degree, 29.0% had a bachelor's degree, 10.7% had a masters' degree, and 3.8% had a Ph.D. degree. The value of the

Overall MSA was .86 and Bartlett's Test of Sphericity was highly significant ($p < .0001$).[3]

Following Peter (1979), we assessed the reliability of the PFM in two main ways. First, we used the test-retest method. We administered the scale twice to a group of 47 MBA student respondents with a seven-week interval between the two administrations. **Sample 3** respondents (59.6% female; $M_{age} = 27.5$) received course credit for their participation; in terms of ethnicity, 3.5% of respondents were African-American, 10.5% Hispanic, 28.1% Asian or Asian-American, and 57.9% European-American. The test-retest reveals a high between-administration correlation ($r = 0.62$, $p < .0001$), demonstrating high test-retest reliability (Crocker and Algina 1986).

In addition to assessing reliability via a test-retest method, we also assessed reliability using internal consistency approaches. We estimated the Cronbach's alpha of the PFM using the data collected for **Samples 1–3**. Overall, they yielded a Cronbach's alpha of .84 ($N = 948$), suggesting high internal consistency for the complete and final 8-item scale.

Demographic Variables

To test whether the PFM is simply heavily reflective of demographic variables such as gender, age, ethnicity, income, and education, we collected detailed demographic information from **Sample 1-2** respondents ($N = 901$). We examined the relationship between PFM and demographic variables by sequentially regressing the PFM scores of all respondents on gender, age, ethnicity, income, and education. Beyond an expected significant relationship with cultural background, we found no reliable relationships.

As discussed in the introduction, views about moderation are historically and culturally pervasive. One clear historical perspective that seems relevant to, but distinct from moderation, is dialecticalism. For instance, Peng and Nisbett's (1999) review of cultural memes illustrates an East Asian tendency towards dialectical reasoning whereby the individual entertains seemingly contradictory thoughts. More recently, Choi et al (2001) demonstrate that Koreans (vs. Americans) engage in more holistic thinking, including a tendency towards dialecticism, as

[3] We also conducted a CFA for the eight-item, single factor scale to assess fit pooling across **Samples 1-2** ($N = 901$) (SRMR = .05, CFI = .93, GFI = 0.95, AGFI = .91, NNFI = .93).

articulated by Peng and Nisbett (1999). Other ethnographic accounts likewise suggest that the concept of moderation is stronger among Eastern cultures than Western cultures (e.g., Yum 1988). Consistent with Peng and Nisbett (1999), we find that Asian survey respondents score significantly higher on the PFM (N = 140; M = 4.77, SD = 0.92) than their European-American counterparts (N = 489; M = 4.57, SD = .82; $t(629) = 2.44$, $p < .015$). We confirm this relationship between the PFM and cultural background in Study 1.

CONSTRUCT VALIDITY

Samples

While several well-designed scales in the existing literature measure constructs that might be related to moderation, we propose that none of them directly measures individual-differences in the preference for moderation. To test our belief that PFM reflects a unique construct, we administrated several scales that might seem related to the PFM on the surface but for which we expected a clear distinction from PFM. In addition to **Samples 1-3** described above (N = 948), we collected five additional samples of respondents. **Sample 4** consists of 60 MBA students at a public West Coast university who participated for course credit (~50% female; M_{age} = 28). **Sample 5** consists of 239 paid Qualtrics® participants (63.9% female, M_{age} = 46); see Study 5 below. **Sample 6** consists of 63 MBA students at a public West Coast university who participated for course credit (55.2% female; M_{age} = 31.6). **Sample 7** (N = 240) and **Sample 8** (N = 417) consist of participants who were recruited via Amazon Mechanical Turk®. In total, **Samples 1-8** contain 1,967 respondents who vary widely in age, ethnicity, and income.

Initial Validation Tests

Table 2 summarizes the scale correlations with PFM, sample sizes and coefficient alphas for all scales, within the category labeled “Initial Validity Tests.”

Individual-Difference Measures of Decision-Making Habits

We tested the relationship between PFM and several popular individual-difference

measures of decision-making style: 1) *Need for Cognition* (NFC; Cacioppo and Petty 1982) assesses general motivation to engage in mental elaboration regarding issues and problems; 2) *Chronic Indecisiveness* (Frost and Shows 1993) assesses difficulty finalizing choices; 3) *Maximizer-Satisficer* (MAXSAT; Schwartz et al. 2002) assesses tendency to continue searching for a perfect alternative; 4) *Analysis-Holism Scale* (AHS, Choi, Koo, and Choi 2007) assesses cultural thinking styles; 5) *Need to Evaluate* (NTE; Jarvis and Petty 1996) assesses general motivation to form value judgments about items; 6) *Need for Consistency* (NCON; Cialdini, Newsom, and Trost 1995) assesses discomfort with change and variability; and 7) *Need for Uniqueness* (NFU; Snyder and Fromkin 1977) assesses discomfort with conformity. PFM is not significantly correlated with NFC, *Chronic Indecisiveness*, MAXSAT, and NFU at the $p < .05$ level.

PFM is positively correlated with AHS, which captures cultural differences in integrative thinking (i.e., whether individuals view the world as composed of elements that are independent vs. interconnected) ($r = .33$, $p < .0001$, $N = 299$). As one might expect given the connection between cultural background and both scales, high-PFM individuals are more prone to engage in holistic (vs. analytic) thinking.[4] Also, PFM is positively correlated with NCON ($r = .15$, $p < .04$, $N = 358$). High-PFM individuals exhibit a stronger preference for performing "consistent" behaviors (i.e., behaviors that align with attitudes and with other behaviors), perhaps because moderation is one way to ensure consistency (e.g., by avoiding extremes with varying values).[5]

PFM is negatively correlated with NTE, which reflects a tendency to form extreme opinions or evaluative assessments ($r = -.14$, $p < .03$, $N = 239$). Individuals high (vs. low) in PFM are less prone to extreme evaluation, presumably because evaluative extremity results in

[4] In particular, the PFM is positively correlated with three of the four AHS factors: *Attitude toward Contradiction* ($r = .40$, $p < .0001$), *Attributional Causality* ($r = .27$, $p < .0001$), and *Locus of Attention* ($r = .23$, $p < .0001$). High-PFM individuals are more disposed to dialectical thinking, less dispositionist in their causal judgments, and more focused on the relationship between objects and the field in which they belong versus objects only. However, the PFM is negatively correlated with the AHS factor *Perception of Change* ($r = -.12$, $p < .002$); we revisit these particular findings in Study 5.

[5] PFM is negatively marginally correlated with NFU ($r = -.13$, $p < .09$, *N =177)*, a result that fits with the significant positive result for NCON.

the use of non-compensatory choice strategies focused on an attribute or subset of attributes for which one has particularly strong opinions and which are viewed as important or salient.

Measures Related to Prudence in Decision-Making Behavior

We administered scales that might seem relevant because historically the concept of moderation has often been yoked to the concept of prudence, which relates to a decision-maker's ability to make discerning choices reflecting care in decision behavior (Griffin 1982): 1) *Trait Self-Control* (Tangney, Baumeister, and Boone 2004) assesses tendency to control impulses and delay gratification; 2) *Impulsiveness* (Barratt 1965) assesses a relative lack of control over behavior and cognition; 3) *Propensity to Plan for Money* (PPM; Lynch, Netemeyer, Spiller, and Zammit 2009) assesses tendency to think longer term regarding finances; 4) *Frugality* (Lastovicka, Bettencourt, Hughner, and Kuntze 1999) assesses tendency to be a careful steward of one's own resources; 5) *Materialism* (Richins and Dawson 1992) assesses the accumulation of goods as a cultural value ; the *DOSPERT or Domain-Specific Risk Scale* (Blais and Weber 2006) assesses the tendency to accept risk across multiple specific domains (i.e., ethics, finances, health, recreation, and social domains); 6) *Regulatory Focus* (Fellner, Bernhard, Holler, and Schabmann 2007) assesses whether one perceives goals as promoting advancement or preventing falling short of responsibilities; 7) *Trait Narcissism* (Narcissism Personality Index or NPI; Gentile, Miller, Hoffman, Reidy, Zeichner, and Campbell 2013) addresses non-clinical levels of excessive self-regard; and 8) *Psychological Entitlement* (Campbell, Bonacci, Shelton, Exline, and Bushman 2004) assesses one's general belief in deservingness as compared to others. PFM is not significantly correlated with *Trait Self-Control, Impulsiveness, Promotion Regulatory Focus, Trait Narcissism*, or *Psychological Entitlement*.

PFM is positively correlated with *Frugality* ($r = .21$, $p < .0001$, $N = 337$) and PPM ($r = .29$, $p < .0001$, $N = 239$), and negatively correlated with *Materialism* ($r = -.20$, $p < .002$; $N = 94$). Together, these results imply that higher-PFM individuals are generally more prudent in their saving, spending, consumption, and disposition behaviors. The pattern of these results is consistent with our conceptualization of moderation as related to prudence and prudential

decision-making behavior (Griffin 1982), providing evidence of nomological validity. This pattern also accords with the significant relationships we observe between PFM and 1) pro-risk attitudes (DOSPERT; $r = -.30$, $p < .02$; $N = 61$) which extrapolates across tendency to accept risk across ethical, financial, health, recreational and social domains, and 2) *Trait Prevention Focus* ($r = .13$, $p < .04$, $N = 239$), which is associated with vigilance and adherence to standards. Regarding the latter relationship, PFM may share some common antecedents and/or decision strategies with the chronic tendency to assess and respond to uncertain conditions in the environment.

Measures of Well-Being

Both ancient and modern thinking often supposes that moderation is associated with personal well-being. Accordingly, we took measures of *Positive Well-Being* and *Negative Well-Being* (Watson, Clark, and Tellegen 1988) in order to assess whether more moderate individuals feel subjectively better off than their more extremist counterparts. We also measured *Trait Anxiety* (Speilberger 1989) to test whether moderation in decision-making is associated with a general tendency toward calm affect. Last, we administered the *Rosenberg Self-Esteem Scale* (Rosenberg 1965), which could be viewed as a measure of self-perceived well-being. Whereas PFM is not correlated with *Positive Well-Being*, *Anxiety*, or *Self-Esteem*, it is negatively correlated with *Negative Well-Being* ($r = -.16$, $p < .05$; $N = 163$). High-PFM individuals report feeling less sad, discouraged, and hopeless.

Ancillary Measures

Moral Reasoning Style. Because higher levels of PFM require the capacity for complex, integrative, trade-off inferences, we expect high-PFM individuals will also score high on a measure of moral reasoning that reflects a personal morality rooted in integration and tradeoff-making, such as social utilitarianism versus Kantianism. To test this proposition, we extracted an ad hoc moral reasoning scale from Kohlberg's measures of moral development (Kohlberg, Levine, and Hewer 1983; Kohlberg and Lickona 1976); see Web Appendix C. Higher scores on the scale indicated more integrative, consequentialist moral reasoning. PFM is highly positively

correlated with the moral reasoning scale (r = .47, p < .0001; N = 163), providing more evidence of convergent validity.

Big Five. While we do not have a formal hypothesis regarding general personality traits, we were curious whether moderation is related to any of the "Big Five" dimensions of personality (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism). To assess possible relationships, we administered the *Big Five Inventory* (John, Naumann, and Soto 2008). PFM scores are positively correlated with two of the "Big Five" traits: Agreeableness (r = .12, p < .006, N = 531) and Conscientiousness (r = .13, p < .003, N = 531). Individuals higher in PFM score higher in Agreeableness and, as one might expect, Conscientiousness. These significant correlations suggest that PFM is a relatively general and, correspondingly, stable personal characteristic. The finding that PFM correlates with more than one Big Five trait (rather than, for example, overlapping strongly with just one Big Five trait) helps support the idea that the PFM is a unique construct, separable from general personality.

Further Discriminant Validity Tests

For purposes of discriminant analysis, we conducted multiple exploratory factor analyses (EFA) in which PFM scale items were included along with items from scales with which it was significantly correlated (i.e., *Agreeableness*, AHS, *Conscientiousness*, DOSPERT, *Frugality*, *Materialism*, *Moral Reasoning Style*, NCON, Negative Well-Being, NTE, PPM, *Trait Prevention Focus*). In all cases, EFA solutions resulted in the eight PFM items loading on one factor and the comparison scale items loading on distinct factors. We followed these with CFAs allowing model comparisons (i.e., PFM correlated with alternative scales vs. not). For brevity, we report only the later, more stringent tests (see Table 3). We explain our logic and testing methods using NCON (*Need for Consistency*) as an example.

While those high in PFM may tend to be more consistent in general, we believe that the PFM and NCON scales are conceptually separable in that an individual may be consistently extreme (e.g., always buying the cheapest or most expensive item available) or consistently moderate. Still, the significant correlation between the scales suggests that consistency and

moderation may share some similar cultural roots or be fostered by some overlapping cognitive processes (cf. Kim and Drolet 2003). We therefore used CFA to test discriminant validity. Following Anderson and Gerbing (1988), we assessed discriminant validity using PROC CALIS in SAS. We specified two-factor models, constraining the 8-item PFM to load on one factor and the 18-item NCON to load on a different factor. First, we ran a model with no constraints on the correlation between the two factors. We calculated a 95% confidence interval for the estimated factor covariance from this model with unconstrained factor correlations, testing whether the confidence interval contained 1.0 (equivalent to -1.0 for negative correlations), see "Covariance Estimates Unconstrained Model" in Table 3 for lower bound, covariance estimate, and upper bound. We found that the confidence interval for estimated factor covariance did not include 1 for NCON (or for any other test reported in Table 3), confirming discriminant validity for PFM as compared to NCON.

We next ran a PROC CALIS model identical to our baseline model, but with the two factors constrained to a correlation of 1.0. We could then perform a chi-square difference test between the unconstrained model and one where the estimated correlation parameter for the PFM and NCON is constrained to 1.0. For NCON versus PFM (as for all tests), our model comparison was statistically significant, showing that the model using one additional degree of freedom to constrain construct correlations to 1.0 fit our data significantly worse; see Table 3 column labeled "Chi-square model compare".

Finally, we then tested whether the average variance extracted (AVE) for each factor was higher than the squared inter-construct correlation for each pair (Fornell and Larker 1981). The AVE for both PFM and NCON was higher than the squared estimated inter-construct correlation, as is again reported in Table 3.

All discriminant validity CFAs in this paper used the above method, supporting discriminant validity for the significant scale correlates from Table 2, including NCON, *Trait Prevention Focus*, each *DOSPERT* subscale (but not a measure constructed from the overall *DOSPERT* and characterized by low AVE, see Table 3), *Negative Well-Being*, *Materialism*,

AHS, NTE, PPM, *Frugality*, *Moral Reasoning Style*, and both the *Agreeableness* and *Conscientiousness* factors of the Big Five personality inventory.

In summary, these analyses provide further evidence of discriminant validity; see Table 3. In Study 5, we provide even more evidence of the discriminant validity of PFM by demonstrating its predictive power over and above concurrently-assessed AHS and NTE, the two scales in which the wording of specific items appears most similar to the wording of the scale items in the PFM.

Social Desirability Bias

Social desirability bias is one of the most common biases affecting the validity of survey research. To test whether the PFM is both susceptible to and/or a reflection of social desirability bias, we administered Reynolds' (1982) 13-item version of the *Marlowe-Crowne* (MC) scale, which gauges socially-desirable survey responding, to **Sample 7** participants. PFM scores were not correlated with MC scores. We confirmed the lack of a significant relationship between PFM and MC in two other data collection efforts (**Samples 4 & 6**). These null results imply that social desirability bias is not a serious concern. Web Appendix D contains additional analyses that demonstrate the predictive power of PFM above and beyond the MC. For example, PFM but not MC predicts choice of compromise options.

PREDICTIVE VALIDITY

In summary, the PFM appears to have good psychometric qualities related to construct validity. However, for the PFM scale to be useful, it must have predictive validity. We conducted a series of studies that investigate the impact of PFM on consumer decision-making. We believe that consumer choice is an important domain where PFM is likely to have reliable predictive effects. We start with a choice context effect that is very tightly related to PFM, demonstrating that the classic "choose the middle" compromise effect is more prevalent as PFM increases (Study 1). We then extend our analysis to a more remotely related choice context effect,

specifically highlighting-balancing (Study 2).

Study 1: Moderation, Culture, and Choice of Compromise Options

In consumer contexts, choices often reflect a focal tradeoff between highly-valued attributes such as price versus quality or health versus taste. In these situations, most consumers value both attributes at least to some degree, and must decide between viable strategies to pick one attribute to prioritize (a lexicographic strategy) versus to balance the two attributes (a compromise strategy). We believe that PFM has an obvious conceptual relationship to preference for compromise (middle) alternatives. We hypothesize that high-PFM individuals are more likely than low-PFM individuals to choose compromise options.

In view of the above finding that Asian individuals tend to score higher on the PFM compared to Caucasians, we also expect in to see that PFM scores will be higher among East-Asian participants than among European-American participants. We also expect that individuals with a cultural background that is more prone to dialectical thinking, such as self-identified East-Asian participants, would tend to favor compromise options. This expectation is supported by past research by Briley, Morris, and Simonson (2000) that finds that East-Asian individuals prefer compromise options more than European-American individuals generally do. In summary, given that the PFM derives in part from certain historical cultural contexts, we sought to show how the PFM and cultural background both separately and together contribute to the likelihood of compromise choice.

Method

Two hundred sixty-eight East-Asian and European-American undergraduates at a West Coast university participated in Study 1. Nine participants did not complete all study measures. Thus, our *N* for analysis is 259. Participants (*gender:* 71.4% female; age: $M = 19.6$, $SD = 1.54$, *range* 18-25; *ethnicity*: 76.8% East Asian, 23.2% European-American) completed five choice tasks (portable grill, tickets to a baseball game, air purifier, dental insurance, and ice cream) (Drolet et al. 2000; Drolet 2002). In each choice set, products were defined along two attributes (grill: size and weight; tickets: price and row number; air purifier: price and coverage; dental

insurance: annual premium and percent coverage; ice cream: taste rating and fat gram). Each of the two choice sets consisted of one option with the best rating in the set on the first attribute and worst on the second attribute, one option with the best rating in the set on the second attribute and worst on the first attribute, and a third (compromise) option with middle values on both attributes (Simonson 1989). Participants completed the PFM (M = 5.04, SD = .93, α = .84). We ran a CFA run with PROC CALIS (SAS) to assess goodness of fit for the eight-item, one-factor solution for PFM items (SRMR = .06, CFI = 0.89, GFI = 0.91; AGFI =0.83 ; NNFI = 0.89). As expected, we find that East-Asian participants have significantly higher PFM scores (M = 5.11, SD = 0.91) compared to European-American participants (M = 4.81, SD = .95; $t(257) = 2.25$, $p < .03$, β = .14).

Results

The pattern of results is the same for each of the five product sets. To simplify the presentation of results, we pooled choice responses across the five sets (N = 259*5=1295 for all tests) and fit a generalized logistic regression model with Maximum-Likelihood parameter estimates (PROC CATMOD; SAS vs. 9.4) which included product-specific indicator variables to control for potential product set effects, the PFM (continuous), cultural background (East Asian vs. European-American), and their interaction. The dependent variable is whether the participant chose the compromise option or not. We found a significant main effect of PFM ($\chi^2(1) = 5.51$, $p < .02$). High-PFM participants are more likely than low-PFM participants to choose middle options (model estimate = -0.18). We also found a significant effect of cultural background ($\chi^2(1) = 7.58$, $p < .006$). East-Asian participants are significantly more likely than European-American participants to choose middle options (45.9% vs. 40.3%). These two main effects are qualified by a significant interaction between the PFM and cultural background ($\chi^2(1) = 6.37$, $p < .01$ model estimate = -0.19).

Follow-up analysis on samples separated by cultural background finds a significant effect of the PFM among European-American participants ($\chi^2(1) = 7.66$, $p < .006$; N = 300) but not among East-Asian participants ($\chi^2(1) = .03$, $p < .85$; N = 995).

As a descriptive illustration, we explored the PFM effects by quartile. Consistent with our hypotheses and the statistical tests in our model, we find: 1) participants with a higher PFM (top 25%: PFM > 5.625) chose more compromise options (42.2%) compared to consumers with a lower PFM (bottom 25% < 4.375) who chose fewer (36.1%). To further illustrate, note that the *difference* in the share of compromise options between participants high (top 25%) versus low (bottom 25%) in PFM was larger among European-American participants (16.1%) versus East-Asian participants (0.7%).

In summary, Study 1 confirmed our prediction that individuals high (vs. low) in PFM are more likely to choose a compromise option, and that those of East Asian ethnicity are higher in PFM. Study 1 also shows that PFM effects are stronger for European-American individuals in this sample, potentially due to ceiling effects arising within the participants identifying as East Asian.[6]

Study 2: Moderation and Choice of Balancing vs. Highlighting Strategies

Although most decision-making research has focused on individual choices, research by Dhar and Simonson (1999) investigated how individuals make complementary choices (e.g., dinner choices of an appetizer, entrée, and dessert). To do so, they asked consumers whether they would *highlight* (e.g., choose a luxury option after choosing a luxury option or choose a frugal option after choosing a frugal option) versus *balance* (e.g., choose a luxury option after choosing a frugal option or choose a frugal option after choosing a luxury option). In Study 2, we compare the tendency among high- (vs. low-) PFM participants to highlight versus balance.

Method

Five hundred and fifty-seven Qualtrics® participants (*gender*: 63.9% female; age: M = 46.3, SD = 19.5, *range* = 18-84; *ethnicity* = .2% Native American, 5.6% African-American, 67.9% European-American, 20.3% Hispanic, and 6.1% Pacific Islander and mixed race) made

[6] Note that choice shares are not near 1.0. However, across any particular choice set, there are likely to be some individuals who clearly prioritize one of the relevant attributes, rendering the effective cap on choice share lower than 100%).

choices in three highlighting versus balancing sets (Dhar and Simonson 1999), baseball game, airplane trip, Mexican meal. For example, for baseball game, participants read the following:

> Assume that you often go to baseball games, where you sometimes sit in an expensive section with a superior view and at other times you sit in a low-priced section with an average view. […] Each time, you debate between two beers to drink while watching the game: the imported German beer, which costs $6 for a bottle or the domestic house beer, which costs $3 for a bottle. In which of the two days do you think you would be more likely to order the more expensive imported beer -- the day on which you had spent $65 for a seat in a section with the superior view (Option A) or the day on which you had spent $22 for a seat in a section with an average view (Option B)?

For each set, participants made a choice to highlight (Option A) or balance (Option B). They were also allowed to choose "No difference" between the two alternatives (Option C). Participants also completed the PFM (M = 5.18, SD = .96, α = .82; fit indices for one-factor CFA model: SRMR = .05, CFI = 0.93, GFI = 0.95; AGFI =0.91 ; NNFI = 0.94).

Results

The pattern of results was identical and in the expected direction for each of the scenarios. Thus, to simplify the presentation of results, we pooled across the three scenarios and fit a generalized logit regression model (PROC CATMOD; SAS vs. 9.4) with Maximum-Likelihood parameter estimates in which: 1) the independent variable is the (continuous) PFM; 2) the dependent variable is whether the participant chose the compromise option or not; and 3) indicator variables were included to control for potential scenario effects. As expected, there was a highly significant increasing effect of PFM on use of balancing strategies, $\chi^2(1, df = 1671) = 13.18$, $p < .001$; $N = 1671$. To illustrate, high-PFM participants (top 25%: PFM > 5.875) chose to balance set options more often compared to low-PFM participants (bottom 25%: PFM < 4.50) (41.8% vs. 33.6%). In brief, Study 2 confirmed a relationship between the PFM and use of balancing (vs. highlighting) strategies.

Discussion of Studies 1-2

Studies 1-2 demonstrate that PFM has predictive power within the domain of commonly-studied choice context effects. Study 1 shows that the PFM predicts preference for options in the middle of a salient consideration set. Specifically, PFM predicts choices that balance two attributes rather than are extreme on one attribute or the other, resulting in the tendency to choose of relatively low-conflict (compromise) options. However, considering the highlight-balance choice sets (Study 2), PFM predicts choices that contain more conflict, as they combine opposing extremes to achieve a balanced composite experience. Accordingly, we do not conceptualize PFM merely in terms of acceptance of specific compromise (or highlight) choices. Our conceptualization also includes an evaluative component that reflects general values, especially cultural values.

WIDER IMPLICATIONS OF PFM ON JUDGMENT AND CHOICE

Study 3: PFM and the Representativeness Bias

Study 3 extends our investigation of PFM from choice to judgment. We reason that high-PFM individuals' tendency to prefer and seek balance make them relatively more likely to judge that another person possesses a combination of an unlikely trait plus a likely trait rather than possessing a single unlikely trait. More specifically, we reason that the tendency to prefer tradeoffs across attributes (such as when combining more- and less-luxurious items in the highlight-balance tasks in Study 2) causes higher PFM individuals to have greater experience, on average, with relatively contradictory items and experiences. In Study 3, we test whether this tendency generalizes to perception of others. Just as high PFM individuals may combine expensive and cheaper items into a balanced experience, we reasoned that they may expect individuals to generally combine seemingly-contradictory experiences and activities into an overall portfolio of life experience. In the context of classic representativeness heuristic tasks, this tendency leads to non-normative probability judgments, for instance evaluating the probability that a person is a "feminist bank teller" as higher than the probability that the same person is a "bank teller." This demonstration is important because it provides some

disambiguation of PFM from wisdom, insofar as we expect those high (vs. low) in PFM to be more likely to endorse a classic judgment bias that reflects a departure from the rules of probability.

Method

Eighty-one MBA students at a West Coast university earned course credit for their participation.[7] Participants answered three person-perception questions (Alice, Tom, and Howard) modeled on the classic representativeness conjunction error task (Kahneman and Tversky 1972) whereby individuals tend to rate the conjunction of an unlikely and a likely characteristic (e.g. a socially-conscious woman is a Bank Teller and a Feminist) as more probable than the unlikely characteristic in isolation (Bank Teller). The laws of probability stipulate that a conjunction cannot be more likely than one of its components, so this tendency is often cited as a classic bias in human judgment, which is also termed the conjunction fallacy.

The representativeness task items were interspersed with other unrelated tasks. For the first representativeness item, a person named Alice was described in a way that seemed stereotypical of a feminist. Then, participants were asked to rate (on 1-9 scales) the probability that Alice is an Accountant (unlikely characteristic) as well as the probability that Alice is an Accountant who is active in the feminist movement (unlikely + likely conjunction). Tom was described in stereotypical "geek" terms and participants rated his likelihood of being a social worker (unlikely characteristic) and his likelihood of being a social worker who likes Star Trek (unlikely + likely conjunction). Finally, Howard was described with stereotypical conservative traits, and participants rated both his likelihood of being a liberal democrat (unlikely characteristic) and a liberal democrat and father of two (unlikely + likely conjunction). Later, participants completed the PFM scale (M = 4.29, SD = 1.03; α = .80; fit indices for one-factor CFA model: SRMR = .09, CFI = 0.81, GFI = 0.87; AGFI =0.74 ; NNFI = 0.82).[8]

[7] Because data were collected during class, to promote confidentiality between participant and experimenter (first author), we did not ask demographic questions.

[8] This task structure presents a relatively weak test of the basic representativeness effect, as all participants responded to the single item, then the conjunction, rendering the relationship between the two transparent. However,

Results and Discussion

Mean ratings across scenarios reveal an overall trend towards a representativeness bias with the conjunction description rated as .5 points higher in likelihood than the single-item measures (*Ms:* 3.43 for single-item rating vs. 3.90 for conjunction). The representativeness effect was stronger in the Alice scenario ($M_{conjunction\text{-}single}$ = 1.00) compared to the Tom scenario (M = 0.55) and the Howard scenario, which shows no effect (M = -0.17). To assess the effect of PFM on the representativeness bias, we analyzed participants' probability ratings in a model that pooled across scenarios. The dependent variable is the difference between participants' rating of the conjunction likelihood and single likelihood. The independent variables are participants' PFM scores and N-1 scenario-specific indicator variables. As expected, PFM is positively related to the size of the representativeness effect ($t(238) = 2.45$, $p < .01$, standardized $\beta = .15$).

In brief, Study 3 demonstrates that high-PFM participants are more likely to endorse the likelihood of conjunctions of social attributes as compared to the likelihood of one of the attributes. As a result, high-PFM participants are more likely to make logical conjunction errors in social judgments. We believe this effect occurs because high-PFM participants have a stronger preference for balance across attributes and outcomes within an event or an entity. High-PFM participants are more likely to make trade-offs and to integrate characteristics of options when making decisions. Hence, compared to low-PFM participants, high-PFM participants are more likely to resolve the apparent inconsistencies in the representativeness test conjunctions by endorsing even somewhat incongruent composite descriptions of social categories. We reasoned that if high-PFM individuals have a preference for balanced or "diversified" options, they would be more likely to integrate conflicting attributes (e.g., "Alice the feminist accountant") and match them to typical category exemplars. As a result, high-PFM individuals would be likely to exhibit conjunction errors, which are usually interpreted as evidence for reasoning according to the representativeness heuristic, analogous to their preference for compromise or composite choice

our interest is in the influence of PFM on these ratings, rather than on the magnitude of the representativeness effect per se.

options. In many historical discussions, much of our theorizing, and many of our tests, moderation is viewed as a desirable and positive trait. Interestingly, however, Study 3 shows that moderation is related to non-normative, illogical judgments.

In Study 4, we test the predictive validity of the PFM in the real-world contexts of personal financial behavior. Further, as mentioned above, we present evidence of the validity of the PFM in Study 5 by demonstrating its predictive validity regarding financial behavior, over and above the AHS and NTE scale.

Study 4: PFM and Financial Behavior

Exhortations to pursue moderation often come with promises of tangible benefits from exhibiting moderate habits. In this study, we took the analysis one step further, addressing financial behavior by creating an index of self-report items that reflect more fiscally-responsible behavior and improved financial health.

Method

Two hundred twenty-seven student and staff members at a large public West Coast university (*gender*: ~ 50% female; *age*: $M = 21.8$, $SD = 2.8$, *range* 18-30; *ethnicity*: 1.8% African-American, 37.3% European-American, 16.7% Hispanic, 47.6% Asian-American, and 0.9% Pacific Islander, and 4.8% mixed race) took part in an online survey for a small monetary payment. Participants answered thirteen Yes/No questions concerning every day consumer financial behaviors, such as "Can you usually only make the minimum payment on your credit cards?" and "Has a collection agency called recently about an overdue bill?". The questions were taken from a non-profit organization's online "financial-health quiz" (www.clearpoint.org/tools/financial-health-quiz) and are listed in the Table 4. We created a summed index (0-13), reverse-coding where necessary, so that higher summed scores indicate more fiscally-responsible saving and spending habits; Table 4 lists the proportion of yes/no responses by high- (top 25%) versus low- (bottom 25%) PFM participants. Last, and after unrelated filler items, participants completed the PFM Scale ($M = 4.86$, $SD = .98$; $\alpha = .79$; fit indices for one-factor CFA model: SRMR = .06, CFI = 0.90, GFI = 0.94; AGFI =0.88; NNFI = 0.91).

Results and Discussion

Ordinary least squares (OLS) regression analysis revealed a highly significant positive effect of PFM on the financial decision-making index ($t(224) = 3.46$, $p < .001$, standardized $\beta = .226$) in the expected direction; three participants provided incomplete responses. Table 4 lists the percent of "good" responses for each item based on an interquartile split of PFM. High-PFM participants higher were more likely to report enjoying 'good' financial outcomes. Hence, PFM is related to better overall personal and household financial outcomes using a measure that, while self-reported, is straightforward, realistic, and relatively objective.

While we constructed our dependent measure as a straightforward reflection of financial outcomes, one potential concern is that PFM does not influence actual financial outcomes but instead the propensity to engage in self-presentation, for example by minimizing reports of negative financial outcomes. We believe this interpretation is unlikely for at least three reasons. First, as described above, the PFM is uncorrelated (and directionally negatively correlated) with socially-desirable responding as measured by the MC scale, suggesting that high-PFM individuals do not generally engage in more biased survey responding. Second, PFM is uncorrelated with *Need for Cognition* and *Maximizer-Satisficer*, scales that presumably would be correlated with PFM if high-PFM individuals are generally desirous of presenting themselves as smart decision-makers or shoppers. Third, as mentioned above, PFM is negatively correlated with *Negative Well-Being* ($r = -.16$, $p < .05$, $N = 163$), a result that is consistent with our finding that low-PFM individuals experience more undesirable financial outcomes.

Study 5: Evidence of Predictive Validity

The purpose of Study 5 is to provide even further evidence of the validity of PFM by providing a direct test of its predictive power over and above already-established measures. The study involved a mix of choice tasks and established scale measures; Web Appendix E contains all study measures. There were no manipulations. Study 5 focuses on two existing individual-difference scales that are conceptually and empirically related to PFM: *Need to Evaluate* (NTE; Jarvis and Petty 1996) and *Analysis-Holism Scale* (AHS-CON; Choi et al. 2007). We view PFM

as distinct from NTE, as NTE scale items focus more on preferences for holding more extreme (vs. neutral) opinions (e.g., "I prefer to avoid taking extreme positions") as opposed to strategies for navigating through choice sets. We view PFM as distinct from AHS, which is grounded in the impact of culture on basic cognitive functions such as attention and causal attribution. With respect to AHS, we focused specifically on Attitude toward Contradiction (AHS-CON) because this subscale is the most strongly positively correlated with PFM and some of its items appear very similar to items in the PFM (e.g., "We should avoid going to extremes"). We note that the substantive analyses are identical even if the full AHS scale.

Study 5 examines the predictive power of PFM beyond the AHS-CON and NTE in the context of personal financial behavior. Given the results of Study 4, we hypothesize that PFM is associated with financial prudence. The results of our initial validation tests are consistent with this hypothesis. As mentioned above, we find a positive relationship between PFM and *Frugality*, a positive relationship between PFM and PPM, and a negative relationship between PFM and *Materialism*; see Table 2. Therefore, Study 5 focuses on predicting general consumer saving and spending habits.

One pathway by which context can influence consumer choice is in terms of financial planning, as budgeting over time establishes dependencies between consumer choices. Put simply, money used to buy something at time t is not available to be spent at time t+1 to buy something else, drawing possible choices over time into a context determined by one's overall resource limitations. We predict that high-PFM individuals will tend to respond naturally to this aspect of context in consumer choice, recognizing the interconnectedness of financial decisions and striving to have a balance across time. Thus, we expect high-PFM individuals will be more likely to report planning for their monetary expenditures (PPM; Lynch et al. 2009) and to endorse the principle of frugality (*Frugality*; see Lastovicka et al. 1999).

We view the variables PPM and *Frugality* as consequences of the PFM decision-making style insofar as individuals higher (vs. lower) in PFM are more likely to recognize and respond to the fact that consumption decisions are linked across time given that any particular expenditure

influences resources available for later expenditures (due to budget constraints). Indeed, Lynch et al. (2009) conceptualize PPM as partly reflecting the frequency of forming planning goals and the preference to form such goals. Both budgetary planning and frugal consumption require that consumers recognize that their current spending will constrain their later spending options. We believe that high-PFM individuals will tend to recognize the links across purchase decisions due to overall budgetary constraints, encouraging a tendency to form financial planning goals that allow for balance across discrete spending opportunities over time.

Method

Due to total study length, we collected data in two waves, separated by roughly a week (6-9 days) using a Qualtrics® panel of U.S. adults. We engaged in one overall data collection effort yielding 296 viable responses to both study waves that could be unambiguously matched between time 1 and 2.[9] Because this was a relatively demanding online study, we desired to focus on respondents who took the task seriously. Thus, before any substantive data analysis, we removed participants who took either under 5 minutes or over 90 minutes on either of the two study waves. (These times were based on experiences with pretesting and troubleshooting the Qualtrics program.) These deletions reduced our sample to $N = 252$. Finally, 13 respondents were missing data on some items. We removed these, leaving a final N of 239 for all statistical tests. Note that tests using the original sample of 296 responses did not differ substantively from those reported below.

Because our two dependent variables (described in detail below) involve financial planning and behavior, we specified a sample of U.S. consumers with substantial variance in both age and income. Our final sample had a median age of 56 ($M = 52$) with a range from 18 (the minimum required by IRB) to 89, and a standard deviation of 17. Half of our sample ranged in age between 37 and 66. We measured income with a categorical variable, with 16% of our sample reporting a household income of under $24,999, 15% reporting a household income

[9] We had contracted with Qualtrics for a larger sample size. There were problems with the coding key provided by Qualtrics and so approximately half of our responses were lost due to the inability to match responses from study wave 1 and wave 2 with certainty.

between $25,000 and $49,999, 19% between $50,000 and $74,999, 15% between $75,000 and $99,999, 22% between $100,000 and $149,999, 6% between $150,000 and $199,999, 6% at $200,000 or above, and 1 respondent reporting being unsure. Overall, our respondents show a good range in income with at least half enjoying household incomes above the U.S. median. Income is uncorrelated with PFM (r = .-04, p = *NS*) and age is marginally significantly correlated with PFM (r = -0.12, p < .06). We control for both in the tests regarding household financial planning below.

Our final sample was exactly split between male and female respondents. Gender does not predict PFM (t < 1). We had some variability in race/ethnicity, but the large majority of our sample (85%) reported 'white' race/ethnicity. When ethnicity is tested as white vs. non-white (due to sample characteristics), there is no relationship between race/ethnicity and the PFM in this sample.

Measures

Study 5 participants completed a series of individual-difference scales, including the PFM, along with a series of unrelated measures (see Web Appendix E). For PFM, we again had an acceptable coefficient alpha and good fit for a one-factor model (M = 5.02, SD = .99; α = .85; fit for the one-factor CFA model: SRMR = .04, CFI=.97, GFI = 0.96; AGFI=.92, NNFI =.97).

We focused on two established scales that will form the basis for our main statistical tests of the PFM's unique predictive power. In particular, we used Lynch et al. (2009)'s propensity to plan for money scale (PPM) as a dependent variable. The scale consists of items such as "I set financial goals for the next few days for what I want to achieve with my money." PPM includes 6 items focused on planning over the following "few days" and 6 items focused on "1-2 months." Consistent with Lynch et al.'s observation of high correlations between the shorter- versus longer-term time horizon items, we find that all 12 items hang together very well (α = 0.97). Hence, we report the overall PPM score, averaged across both the few-day and 1-2 month items; our results are identical for both the few-day and the 1-2 month subscales. Lynch et al. conceptualize the propensity to plan in part as reflecting the frequency of forming planning goals

and the preference to form such goals. We believe that high-PFM individuals will tend to recognize the links across purchase decisions due to budgetary constraints, encouraging a tendency to form financial planning goals allowing for balance across discrete spending opportunities over time.

We used Lastovicka et al.'s (1999) 8-item *Frugality* scale as a second dependent variable. Example items include "I believe in being careful in how I spend my money" and "There are things I resist buying today so I can save for tomorrow" ($\alpha = .86$). Following the same logic we used for the Lynch et al. measure, we expect that the PFM is associated with greater frugality, which reflects the tendency to balance purchases across different occasions. *Frugality* also seems likely to be related to the PPM, in that long-term resource-maximizing outcomes over time generally require planning. In fact, the *Frugality* and PPM scales are significantly correlated in this sample ($r = 0.47$, $p < .0001$, $N = 239$).[10]

Results and Discussion

Propensity-to-Plan for Money. Because the PPM scale is continuous, we analyze it in a SAS vs. 9.4 GLM regression model, with age and income entered into each model as covariates. We use Type 1, or ordered sums-of-squares (SS) in all models, such that the predictive effect of each variable is tested while controlling for effects of all earlier (but not later) variables in the model. Each model tests age, then income, and then our predictors as specified below (Table 5). When entering each as a third and final predictor variable, we find significant effects on PPM for PFM ($F(1,235) = 20.90$, $p < .0001$) and for AHS-CON ($F(1,235) = 27.05$, $p < .0001$). By contrast, NTE does not significantly predict PPM ($F(1, 235) = 1.0$, *NS*).

To test whether PFM has unique predictive ability over and above AHS-CON, we entered PFM into the model after AHS-CON, continuing to use sequential sums of squares for the most

[10] Because PFM correlated with the *Materialism* trait, again to ensure validity, we also conducted ancillary analyses of its effect over and above *Materialism*. However, in the interests of brevity, we do not report these analyses above and in full. In brief, in a model with (only) age and income, *Materialism* is negatively related to *Frugality* ($F(1, 235) = 20.96$, $p < .0001$) but not PPM ($F(1, 235) = .55$, *NS*). In a model that controls for *Materialism*, PFM continues to provide significant explanatory power ($F(1, 234) = 28.97$, $p < .0001$), suggesting that PFM is not redundant with *Materialism* for predicting *Frugality*.

conservative test of PFM's predictive ability; see Table 5A for summary statistics. In this model, we again find a significant effect for AHS-CON ($F(1, 234) = 28.03$, $p < .0001$), but also find a significant effect for PFM even after controlling for AHS-CON ($F(1, 234) = 9.50$, $p < .002$). This finding suggests that the PFM scale adds unique explanatory power.

Frugality. Our approach to analyzing the *Frugality* dependent variable is the same as our approach to PPM (see Table 5B). In sequential models using Type 1 SS and controlling for age and income, we find significant effects for PFM ($F(1, 235) = 38.60$, $p < .0001$) and AHS-CON ($F(1, 235) = 14.75$, $p < .0002$); see Table 5B. NTE again does not have a significant predictive effect ($F(1, 235) = .18$, *NS*). When we test both PFM and AHS-CON in the same model, we find an effect of AHS-CON, ($F(1, 234) = 16.38$, $p < .0001$), but also a significant effect of PFM controlling for AHS-CON ($F(1, 234) = 26.84$, $p < .0001$). This finding suggests, again, that PFM has unique explanatory power.

In summary, PFM predicts PPM and *Frugality* even after controlling for AHS-CON, thus providing further evidence of the PFM's validity. This finding implies that AHS-CON and PFM influence financial prudence through distinct pathways. Although NTE is correlated with PFM, it fails to predict PPM or *Frugality*.

Study 6: Moderation and Real World Online Reviewing Behavior

In our exponentially-growing digital economy, online reviews are an important source of information for consumers. For nearly twenty years, marketing researchers have studied the impact of online customer reviews on a firm's reputation and revenues (e.g., Chevalier and Mayzlin 2006). Recently, they have begun to study the impact of consumer-specific characteristics on reviewing behavior, including personality traits such as the Big Five (for discussion, see Picazo-Vela, Chou, Melcher, and Pearson 2010). The purpose of Study 6 is to examine the influence of PFM on the types of online reviews people write and post, and on the (star) ratings they assign. Importantly, we sample records of actual past behavior in a natural online environment. We then analyze both the content of online reviews and their corresponding ratings. We predict high-PFM individuals would provide less extreme reviews and ratings.

Method

We recruited participants from Amazon Mechanic Turk who had posted at least one online review in the past six months (e.g., Amazon, Yelp, etc.). Participants (N = 80) answered a survey in which they copied and pasted up to five reviews they had written in the past six months. Participants indicated the product, review site, their star rating, and copied and pasted the content of each review. They also supplied the URL address for their reviews. We went to each URL address and compared the review posted on the site with the review participants copied-and-pasted for the study. Thus, we were able to verify the real world existence of the reviews: Sixty-four participants copied-and-pasted five reviews; two copied-and-pasted four reviews; thirteen copied-and-pasted three reviews; one copied-and-pasted one review. Last, participants completed the PFM (M = 5.06; SD = 1.27; α = .92; fit for the one-factor CFA model: SRMR = .05, CFI = .96, GFI=.90, AGFI=.82, NNFI =.96).

Results and Discussion

We created measures related to the content of the reviews. Two independent coders evaluated the content of each review. The inter-coder reliability was 0.81, and inter-coder differences were resolved through discussion. In particular, the coders gave each review an "tradeoff score." They rated each review along a scale of 0 to 5, where "0" means the review did not mention any tradeoff at all, and "5" means the review mentioned tradeoffs extensively. A review was defined as low in tradeoffs when a participant mentioned only positive or only negative aspects of a product or service, and the review received a "tradeoff score" of "0". A review was defined as high in tradeoffs when a person mentioned both pros and cons. Examples of tradeoff-making in a review include: "Although I have not observed that the eye cream can remove dark circles as it claims, it does moisturize the skins around my eyes" and "Pros are…. Cons are…" For each participant, we averaged the tradeoff scores among all his/her reviews to create a participant specific "tradeoff-making" score. An OLS regression with "tradeoff-making score" as the dependent variable and the PFM as the independent variable reveals a significant positive effect of PFM (β = .14, SE = .06, $t(78) = 2.18$, $p < .04$). High-PFM participants

mentioned more tradeoffs in their reviews.

The coders gave each review an "extremeness score." The coders rated each review along a scale of 0 to 5, where "0" means the review did not mention any extreme words at all, such as "best", "worst", "super", and "5" means the review mentioned many extreme words. The scores were averaged across all the reviews participants provided. An OLS regression with the "extremeness score" as the dependent variable and the PFM as the independent variable reveals a significant negative effect of PFM (β = -.18, *SE* = .07, $t(78) = 2.62$, $p < .02$). High-PFM participants are significantly less likely to give extreme reviews.

Ratings. We also examined the ratings participants gave their reviews (1 to 5 stars). We predicted that high-PFM participants tend to give less extreme ratings and instead give ratings toward the scale midpoint of 3 stars. We calculated the average deviation from the scale midpoint. That is, for each review, we subtracted participants' rating from 3 and took the absolute value. An OLS regression with "average deviation from the middle point" as the dependent variable and PFM as the independent variable reveals a significant negative effect of the PFM (β = -.0, SE = .030, $t(78) = -1.78$, $p = .04$, one-tailed test). High-PFM participants tended to give ratings toward the middle.[11]

In summary, across these measures, we find that higher PFM predicts more balanced online reviews. Study 6 also provides evidence that PFM predicts real world, and not merely hypothetical or self-report, consumer behavior.

Study 7: Moderation and Voting Behavior in the 2018 U.S. Midterm Elections

In addition to viewing moderation (and immoderation) from the vantages of psychology

[11] As an ancillary analysis, we examined participants' tendency to alternate their ratings among their reviews. We predicted that high-PFM participants would be more likely to alternate their ratings from occasion to occasion (e.g., giving a high rating for one review and then a low rating for the next). We counted the proportion of unique ratings participants gave. If a participant gave the same rating for all his/her 5 reviews, his/her "alternation tendency score" would be "1/5", whereas if a participant gave different ratings for each of his/her 5 reviews, his/her alternation tendency score would be "5/5". One participant only provided one review, and thus we were not able to calculate his/her alternation tendency, leaving 79 participants for analysis. An OLS regression with alternation tendency as the dependent variable and the PFM as independent variable revealed a positive effect of PFM such that high-PFM participants are more likely to use a mix of ratings values, β = .19, SE = .10, $t(77) = 1.99$, $p < .04$.

and philosophy, one can view moderation from the vantage of politics. Indeed, moderation is of equal interest to one's political life as one's consumer life. A noticeable theme in political science is whether a balanced, "centrist" government is possible absent adherence to the principle of moderation (Clor 2008). Accordingly, in Study 7, we extended our examination of PFM to the realm of political choice. Straight-ticket voting is the practice of voting for every candidate that a political party (e.g. Democratic or Republican) has on a general election ballot, whereas split-ticket voting is the practice of voting for candidates that represent a mix of political parties. Study 7 represents a simple, straightforward test of the predictive value of the PFM. We predicted that high-PFM individuals would be more likely to vote split-ticket versus straight-ticket in the 2018 U.S. Congressional midterm elections. Study 7 represents a straightforward test of the predictive value of the PFM scale in a regularly-encountered voting behavior context.

Method

On November 5, 2018 (the day before the election) and November 6, 2018 (election day), we surveyed 290 adults from Amazon MTurk who were eligible to vote and resided in one of the eleven states which allow the explicit discrete choice between voting straight ticket or split ticket (AL, IN, KY, LA, OK, PA, SC, TX, UT, and VA). Roughly half (N = 137) reported having voted before election day versus planned to vote or did vote on election day (N = 153).[12] Participants (*gender*: 59.7% female; *age*: = 38.9, *SD* = 11.8, *range* 18-73; *ethnicity*: 8.6% African-American, 77.9% Caucasian, 3.8% Hispanic, 3.1% Asian-American, and 0.69% Native American, and 5.9% mixed race) were paid $0.50 to complete the survey.

Participants were asked whether they had voted or planned to vote straight or split-ticket in the midterm elections. Participants who indicated that they had voted or would vote straight ticket were asked which party they had voted or would vote for: Democratic, Republican, or other (e.g., Green Party). Participants then indicated whether they were registered members of any political party. Last, after completing unrelated filler items, participants completed the PFM

[12] We followed up with participants who reported they planned to vote to confirm their voting behavior. With few exceptions, participants reported voting the way in which they intended.

Scale (M = 5.22, SD = .96, α = .86; SRMR = .09, CFI = .93, GFI=.94, AGFI=.88, NNFI =.94) and answered demographic questions, including questions about education (less than high school, high school degree, some college, college degree, professional degree or more) and income ($0-$250,000+).

Results and Discussion

To analyze the data, we fit a generalized logistic regression model (PROC CATMOD; SAS vs. 9.4) with Maximum-Likelihood parameter estimates. The dependent variable is whether the participant voted split-ticket or straight-ticket. Participants higher (vs. lower) in PFM were significantly more likely to vote split ticket ($\chi^2(1, df = 290) = 4.01$, $p < .05$; $\beta = .27$, $SE = .14$). For description, note that pooling across political parties and independents, interquartile split on PFM, shows: Low Split ticket (lowest 25% PFM scores) =40.3 vs. High Split ticket (highest 25% PFM scores) = 65.8.

Whether participants indicated that they had voted before or on election day did not affect this result, nor did controlling for party membership or any of the sociodemographic variables (gender, age, education, income, and ethnicity). Apart from PFM, the only other significant covariate is white ethnicity, which had a negative effect on split-ticket voting ($\chi^2(1, df = 290) = 6.23$, $p < .01$; $\beta = -.40$, $SE = .16$.).

Study 7's demonstration is especially significant in the context of well-documented declines in the proportion of voters splitting their presidential and congressional tickets, with rates of ticket-splitting in the middle of the 2010s reaching its lowest levels in six decades. (American National Election Studies 2012). Dwindling split-ticket voting reflects the growing distinctiveness of partisan, ideological, and policy opinions of American voters (Jacobson 2013). Its consequences include the decline of shared constituencies between presidents and opposite party-members of Congress which is a major driver of gridlocked government (Fiorina and Abrams 2008). Study 7's results could have implications for elections in that it is often possible to predict specific ballots where split voting will be particularly important. For example, in the 2020 U.S. Congressional elections, both U.S. Senate seats in Georgia will open, giving

Democrats two opportunities to flip a traditionally Republican seat. These results indicate that high-PFM Georgian voters will be more likely to split-ticket vote to select two candidates from different political parties, by voting for at least one Democratic candidate. Hence, weakly Republican-leaning, but high PFM voters may comprise a particularly important target for Democrats as this group may be more easily convinced to split allegiance while lower PFM groups seem more likely to need to be convinced to completely change party preference.

GENERAL DISCUSSION

Our main objective in this paper is to develop and validate the PFM scale. We conceptualize PFM as an individual difference that reflects a general preference to pursue an overarching goal of moderation in choice, resulting in a higher propensity to choose alternatives closer to (middle) position in terms of salient attributes or characteristics. To develop the scale, we identified a wide range of self-descriptive items and refined the inventory of items using preliminary ratings and factor analysis. We demonstrate the construct validity of PFM in several ways, initially by investigating its relation to a wide range of individual-difference measures. Further, we demonstrate that PFM is associated with certain sociodemographic characteristics, specifically East-Asian (vs. European-American) cultural background. Last, we document several important relationships between the PFM scale and behavioral variables. We find that PFM can predict numerous hypothetical and real-world behaviors in many important consumer contexts (e.g., financial-planning, online reviewing, and voting).

Contributions and Implications

Studies 1-2 find that individuals high in PFM prefer compromise alternatives (e.g., options nearer the middle of a price-quality continuum) and balanced alternatives versus alternatives that represent extremes (e.g. using a highlighting strategy). Study 3 finds that high-PFM individuals are more likely to violate normative probability assessment principles by relying on the representativeness heuristic, thereby overestimating the probabilities of

conjunction events. Taken together, these findings suggest that the PFM scale can help answer practical questions, such as how likely a particular individual will respond to global aspects of decision context by preferring alternatives in the middle of a salient multi-attribute space. Given the considerable resources that marketing managers and public-policy makers expend to create decision contexts (e.g., in persuasive appeals and menu displays), we believe this scale represents a useful tool for consumer research.

Furthermore, the studies in this paper provide correlational evidence that consequential everyday behaviors are linked to PFM scores. For example, the PFM predicts hypothetical responses to compromise dilemmas (Study 1), and past research shows that these hypothetical responses reliably predict choices between real (not hypothetical) options (Kivetz, Netzer, & Srinivasan, 2004; Simonson & Tversky, 1992). In addition, the PFM predicts self-reports of specific financial behaviors (Studies 4-5), real-world (and observable) online-reviewing behavior (Study 6), and real-world voting behavior (Study 7). Specifically, individuals high (vs. low) in PFM: 1) report engaging in more responsible saving, spending, and borrowing habits; 2) write and post more balanced online reviews and exhibit moderation in their use of star ratings (i.e., rate closer to the midpoint of the star scale); and 3) were more likely to vote split (vs. straight) ticket.

Finally, we believe there is value in conceptualizing the PFM as a general decision-making orientation, given that relatively few individual-difference scales relate to general preferences across decisions or to decision-processing styles. We also believe there is a need in consumer research for individual-difference scales that focus on choice as a level of analysis. In terms of level of analysis, the PFM scale is similar to the Need for Consistency (NCON) scale (Cialdini et al. 1995) inasmuch as both scales relate to how individuals integrate information. However, the PFM is distinct from NCON in terms of its role within a nomological network. For example, NCON does not predict reliance on choice of a compromise option on a discrete choice occasion.

Limitations and Future Research

We believe that the PFM will prove useful for understanding, predicting, and influencing consumer and other decisions. As demonstrated above, PFM predicts hypothetical consumer choice, self-reported financial and voting behavior, actual consumer reviews, and even a classic person-perception task. We believe the PFM scale will prove most useful when marketers or policy makers wish to determine what individuals or populations will be most susceptible to the impact of context. For instance, high-PFM consumers should be relatively more influenced by retail displays that highlight certain alternatives as middle or compromise. Similarly, high-PFM individuals may be a more promising target political interventions seeking to soften consistently partisan stances, as those interventions are likely to require greater acceptance of tradeoffs or inconsistencies across a suite of votes or other political actions. The ultimate utility of the scale will be determined by studies addressing these and other individual decisions. As we discuss next, the current paper also suggests at least two questions regarding PFM validation, specifically whether PFM relates to single-attribute preference and how PFM relates to the DOSPERT scale.

In this paper, we have demonstrated effects of PFM on consumer preferences among multiple-attribute but not single-attribute alternatives. For example, high-PFM individuals may tend to prefer moderate levels of a specific attribute, such as sweetness or size. Indeed, decision-makers often possess 'ideal point' preferences on many fundamental experiential dimensions, where a middle level of an attribute (e.g., sugar, fat, temperature, etc.) is the most preferred. Is PFM derived from repeated experiences where we prefer values of single attributes at intermediate levels? Perhaps, as Tversky and Simonson (1993) suggest, when making comparisons within choice sets, we usually find that the items in the middle 'feel the best' because when we struggle with value trade-offs due to loss aversion. Items at both extremes in a multi-attribute choice set include heavily-weighted "losses". It may be then that an habitual preference for middle options is an eventual side effect of making comparative choices. This raises a more general question as to whether moderation is best defined in terms of seeking the middle level on a particular attribute versus seeking an alternative that possesses the maximum

possible number of mid-range attributes. Our initial evidence points to the latter. However, we did not explicitly study the role of PFM in single-attribute preferences, which is a viable avenue for future study. For example, future research might assess the role of PFM as it relates to Chernev's (2004) attribute balance effects.

We have considered the plausible possibility that PFM influences scale usage, which could add noise to its psychometric assessment. Specifically, it may be that high-PFM individuals tend to over-use scale midpoints, all else being equal. For an illustrative investigation of how PFM may relate to scale usage, we re-analyzed data from Study 5, as that study had a relatively large sample size and a wide range of variables. We first identified a range of scale values with differing (positive, non-significant, and negative) correlations with PFM. We recalculated each scale value as the absolute value of the distance from the scale midpoint; for example, for the 7-point scales, a value of 4 is coded as zero, and a value of either 7 or 1 is coded as 3. We recoded each variable to reflect response extremity versus moderation (midpoint). As all of the relevant traits are conceptualized as unidimensional constructs, these recoded items should no longer reflect intended scale content, but instead reflect a tendency to deviate from middle scale values.

Table 6 displays the correlations between PFM and the transformed scale values for AHS, NTE, *Materialism, Impulsivity*, and trait *Promotion Focus*. For three of the variables (AHS, *Impulsivity* and *Materialism*), the correlations between the PFM and the transformed scale values are opposite of the negative correlation we would expect if PFM spurred a greater tendency to mark scale midpoints. For the two variables NTE and *Promotion Focus*, the correlations are non-significant. It is difficult to interpret the transformed variables, as the relevant relationships may be influenced by specific psychometric scale properties. However, it seems clear that a tendency for high PFM individuals to choose scale midpoints is not driving the significant correlations we observe. This suggests that the effects of PFM do not extend to a preference for middle scale usage *per se*.

Because PFM partly reflects the endorsement of compensatory choice strategies, we

predict that it has implications for the evaluation of choices themselves and in turn how satisfied consumers are with their choices. In an ancillary study (N = 357), we tested for an influence of PFM on individuals' retrospective evaluations of their own choices. Moderation itself is difficult to define without knowledge of a specific choice set. Thus, we asked participants to report one purchase choice they made within the last year involving a commercial product or service. Participants were asked to describe what they chose and why, and to rate how well the choice turned out. In general, participants evaluated decisions more positively when they were made in a more focused, lexicographic manner. This relationship is unsurprising inasmuch as choices that lend themselves to lexicographic strategies might tend to be simpler and involve clearer preference orderings. More importantly, we find that the general benefits of lexicographic choice (in retrospective evaluation) lessen as PFM increases. We believe this occurs because lexicographic processes, while conferring several benefits, are fundamentally at odds with high-PFM individuals' beliefs about how decisions should be made, which then colors their sense as to whether the outcome is positive or negative.

Further, as with any scale validation, a central and continued concern is whether the PFM is unique. Our current efforts, summarized in Tables 2-3, evaluate PFM's relationship to more than 20 existing constructs. As Table 3 in particular shows, CFA model testing suggests that PFM is distinct from (does not load with) all tested constructs except the general DOSPERT scale for risk attitude. Specifically, as reported in Table 3, the full DOSPERT, created by averaging 30 items, itself has an AVE below the squared inter-construct correlation between DOSPERT and PFM. We view this lack of discriminability as less of a source of concern, as most work that applies risk measures to decision making (e.g., Weber et al. 2002) finds that domain-specific (versus general) risk is more likely to relate to decision behavior, and the PFM model tests show discrimination against all 5 DOSPERT domain subscales. We note that the subscales themselves have higher AVEs than the full DOSPERT measure, further suggesting that risk attitude measures are more useful at the level of substantive domain. Still, the lack of discrimination between the overall DOSPERT and PFM is a limitation of the current work and

an opportunity for future research.

Conclusion

The initial thought that spurred us to develop the PFM scale is that individuals might differ reliably from one another in their affection for and adherence to the principle of moderation, perhaps even deliberately and consciously. The PFM is a unique predictor of decision behavior. Having made the case for the usefulness of the principle, and provided an effective measurement tool, we look forward to further applications in other domains of everyday life, such as physical and mental health.

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TABLE 1

PFM Scale Items Simple Statistics (*N* = 358)

Items*	**Mean (Std. Dev.)**
1. Avoid excess. Let moderation be your guide.	5.39 (1.30)
2. Too much of a good thing is a bad thing.	4.95 (1.44)
3. Moderation in all things is ideal.	5.13 (1.44)
4. Too fast is as bad as too slow.	4.97 (1.40)
5. If one oversteps the bounds of moderation, the greatest pleasures cease to please.	4.76 (1.28)
6. Even a good thing can become destructive if taken to excess.	5.54 (1.14)
7. A person of moderation is a person of character and of wisdom.	4.87 (1.28)
8. The road to health for everyone is through moderation.	4.89 (1.36)

*All items are on 1 (Strongly Disagree) – 7 (Strongly Agree) scales.

TABLE 2

PFM Correlations with Other Scales and Reliability Estimates

Category	Other Scales	# of Items	Sample	N	Cronbach α	Correlation w/PFM; *r* (p)
Initial Validity Tests	Anxiety (Trait)	16	5	239	.93	.02 (NS)
	Big Five Inventory	10	2[13]	531	-	
	Extraversion	2			*r* = .51	–.05 (NS)
	Agreeableness	2			*r* = .17	**.12 (.006)**
	Conscientiousness	2			*r* = .46	**.13 (.003)**
	Neuroticism	2			*r* = .53	.05 (NS)
	Openness	2			*r* = .30	–.04 (NS)
	Chronic Indecisiveness	24	1	60	.70	.20 (NS)
	DOSPERT	30	1	65	.71	**–.30 (.02)**
	Global Self-Esteem	9	6	63	.82	-.10 (NS)
	Impulsiveness	7	5	239	.85	.03 (NS)
	Maximize-Satisfice	18	1	94	.76	.17 (.11)
	Materialism	18	5	239	.88	**-.20 (.002)**
	Moral Reasoning Style	19	2	496	.78	**.47 (.0001)**
	Narcissism	13	6	63	.85	-.14 (NS)
	Need for Cognition	18	1	193	.87	.04 (NS)
	Need for Consistency	18	1	358	.89	**.15 (.04)**
	Need for Uniqueness	32	1	177	.84	–.13 (.09)
	Negative well-being	4	1	163	.67	**–.16 (.05)**
	Positive well-being	5	1	163	.81	–.07 (NS)
	Psychological Entitlement	9	6	63	.74	.08 (NS)
	Regulatory Focus Promotion Prevention	11	5A	239	.63 .60 .61	.10 (.14) .03 (NS) **.13 (.04)**
	Religiosity	9	1	67	.72	.12 (NS)
	Self-control (Trait)	36	1	92	.89	–.06 (NS)
	Social Desirable Responding	13	7	240	.61	–.06 (NS)
Convergent and Discriminant Validity	Analysis-Holism Scale Attributional Causality Attitude toward Contradiction Perception of Change Locus of Attention	24	4 + 5	716	.76 .88 .74 .78 .78	**.35 (.0001)** **.27 (.0001)** **.40 (.0001)** **-.12 (.002)** **.23 (.0001)**
	Need to Evaluate	16	5A+5B	656	.86	**-.10 (.008)**
Consequence: Approach To Resource Use	Propensity to Plan for Money Shorter term Longer term	12	5A	239	.97 .94 .96	**.30 (.0001)** **.29 (.0001)** **.29 (.0001)**
	Frugality	8	5A + 1	337	.86	**.21 (.0001)**

[13] N=531 (vs. 543) due to missing values.

TABLE 3

Discriminant Validity Tests Conducted on Significant Pairwise Correlations of PFM

	Covariance Estimates Unconstrained model[1]			Chi-square model compare. test value[2]	Test for AVE > Squared Covariance Estimate[3]		
	Lower	Estimate	Upper		AVE PFM	AVE Scale 2	Covar Est ^ 2
Need for Consistency	.03	.19	.35	271.27	.30	.34	.04
Prevention	.00	.16	.32	161.74	.41	.26	.03
DOSPERT Overall[4]	.21	.47	.73	65.05	.35	*.09*	.22
DOSPERT- Ethical	-.62	-.28	.06	23.11	.35	.21	.08
DOSPERT- Financial	-.29	.03	.35	69.68	.34	.34	.001
DOSPERT - Health/Safety	-.44	-.08	.28	16.03	.35	.20	.01
DOSPERT – Recreational	-.64	-.36	-.08	73.26	.34	.38	.13
DOSPERT – Social	-.62	-.30	.02	27.18	.35	.23	.09
Negative Well-Being	-.42	-.22	-.02	81.04	.29	.33	.05
Materialism	-.30	-.16	-.02	535.06	.41	.30	.03
Big 5 – Agreeableness	.00	.14	.28	58.05	.35	.28	.02
Big 5 – Conscientiousness	.02	.14	.26	152.21	.35	.48	.02
Analysis-Holism Scale overall	.37	.45	.53	1184.91	.42	.21	.20
AHS - Attributional Causality	.22	.30	.38	1153.51	.42	.55	.09
AHS - Attitude toward Contradiction	.45	.53	.61	422.90	.42	.32	.28
AHS – Perception of Change	-.29	-.21	-.13	1090.93	.42	.40	.04
AHS - Locus of Attention	.17	.25	.33	1056.47	.42	.40	.06
Need to Evaluate	-.20	-.12	-.04	1661.39	.42	.27	.01
Propensity to Plan for Money	.21	.33	.45	504.38	.41	.73	.11
Frugality	.30	.42	.54	399.22	.41	.47	.18

Table notes:

1. Table 3 shows 95% confidence interval lower bound, estimate from unconstrained model, and 95% confidence estimate upper bound. Unconstrained model covariance estimates should not contain 1.0.
2. Chi-square model test for unconstrained model versus model where factors are constrained to a correlation of 1.0 should be significant. All chi-square critical values are 1 *df* tests and above the p =.001 chi-square critical value of 10.83.
3. Table 3 contains PFM AVE, comparison variable AVE, and squared covariance estimate. AVE for each factor should be greater than the square of the covariance estimate for the two factors from the unconstrained model;
4. All tests are passed with the sole exception of full-scale DOSPERT. All of the scales reported in Table 3 also pass this test for discriminant validity from the PFM with the exception of the full DOSPERT scale which has an AVE below the squared inter-construct correlation ((AVE = .09) < (CR^2=.22). However, the overall scale combines scores across five content domains, as listed. This likely results in a low AVE estimate for the full DOSPERT scale. Note that we pass all discriminant validity tests for the DOSPERT sub-scales. More generally, given that we are not rotating factors or choosing subscales to maximize model fit and instead are focused on tests of discriminant validity, many AVE scores themselves are below the general guideline of .5. However, note too that the key test for discriminant validity involves comparing the AVE to the squared inter-construct correlation rather than assessing AVE in isolation. According to Anderson and Gerbing (1988), relevant models should "be performed for one pair of factors at a time" (p. 416). Thus, we tested each subscale against the PFM, focusing on discriminant validity, rather than building higher-dimension models focused on optimizing factor scores.

TABLE 4

Study 4 Financial Behavior Items by PFM Interquartile Split (% No/Yes Response)*

Items	**PFM**	
	<25%	**>75%**
1. Is more than 15 percent of your income going to pay debts? **NO**	84.1	82.6
2. Are you borrowing money or using credit cards to pay for items you used to pay for with cash? **NO**	81.2	81.2
3. Are you dipping into your savings to pay current bills? **NO**	66.7	73.9
4. Are you paying bills with money intended for something else? **NO**	81.2	84.1
5. Can you usually only make the minimum payment on your credit cards? **NO**	72.5	76.8
6. Do you take out a new loan before the old one is paid off or take out a new one to pay off an existing loan? **NO**	88.4	94.2
7. Do you habitually pay your bills late? **NO**	98.5	98.5
8. Do you use a cash advance on one credit card to make payments on other credit cards? **YES**	100	98.5
9. Has a collection agency called recently about an overdue bill? **NO**	98.5	97.1
10. Are you threatened with repossession of your car, cancellation of your credit cards, or other legal action? **NO**	100	100
11. Do you save regularly for long-term financial goals, such as education for my children, a house, or retirement? **YES**	36.2	53.6
12. Do you usually comparison shop for major purchases by checking at least three sources? **YES**	58.0	73.9
13. Do you avoid impulse purchases and never use shopping as a form of recreation? **YES**	29.0	58.0

* Higher values indicate more fiscal responsibility.

TABLE 5*

A. Model Tests for Propensity to Plan for Money (PPM)

	Model 1 $F(3,235) = 16.01$ $p < .0001$ $R^2 = .17$	**Model 2** $F(3,235) = 18.27$ $p < .0001$ $R^2 = .19$	**Model 3** $F(3,235) = 8.70$ $p < .0001$ $R^2 = .10$	**Model 4** $F(4,234) = 15.68$ $p < .0001$ $R^2 = .22$
Age	$F = 25.26$, $p < .0001$	$F = 26.29$, $p < .0001$	$F = 23.30$, $p < .0001$	$F = 26.80$, $p < .0001$
Income	$F = 1.85$, *NS*	$F = 1.93$, *NS*	$F = 1.71$, NS	$F = 1.97$, *NS*
AHS-CON**	--	$F = 27.05$, $p < .0001$	--	$F = 28.03$, $p < .0001$
NTE	--	--	$F = 1.0$, NS	--
PFM	$F = 20.90$, $p < .0001$	--	--	$F = 9.50$, $p < .002$

B. Model Tests for Frugality

	Model 1 $F(3,235) = 13.51$ $p < .0001$ $R^2 = .15$	**Model 2** $F(3,235) = 5.51$ $p < .001$ $R^2 = .07$	**Model 3** $F(3,235) = .61$ *NS* $R^2 = .01$	**Model 4** $F(4,234) = 11.25$ $p < .0001$ $R^2 = .16$
Age	$F = .09$, *NS*	$F = .08$, *NS*	$F = .08$, *NS*	$F = .09$, *NS*
Income	$F = 1.84$, *NS*	$F = 1.68$, *NS*	$F = 1.58$, *NS*	$F = 1.87$, *NS*
AHS-CON	--	$F = 14.75$, $p < .0002$	--	$F = 16.38$, $p < .0001$
NTE	--	--	$F = .18$, *NS*	--
PFM	$F = 38.60$, $p < .0001$	--	--	$F = 26.84$, $p < .0001$

* Overall model test statistics are given at top of column. All independent variable tests have 1 *df*, and all models use type 1 (ordered) sums of squares in SAS PROC GLM with variables entered into the model in row order (e.g., age first).

**AHS-CON = Analysis-Holism Attitude toward Contradictions subscale.

TABLE 6

Correlations between PFM and Use of the Response Scale Midpoints

	PFM & Raw scale values	**PFM & 'Absolute' scale values** (i.e., midpoint – raw value)
Analysis-Holism	.33 (.0001)	.22 (.0001)
Need-to-Evaluate	-.14 (.03)	-.01 (*NS*)
Materialism	-.20 (.001)	.30 (.0001)
Impulsivity	-.06 (*NS*)	.28 (.0001)
Promotion Focus	.03 (*NS*)	.04 (*NS*)

WEB APPENDIX A

Potential Scale Items

1. “A treat every once in a while is a good idea.” AG*
2. “Avoid excess. Let moderation be your guide.” Cicero*
3. “Too much of a good thing is a bad thing.” William Shakespeare*
4. “Moderation in all things is ideal.” Cleobulus*
5. “Too fast is as bad as too slow.” William Shakespeare*
6. “If one oversteps the bounds of moderation, the greatest pleasures cease to please.” Epictetus*
7. “Moderation is an excuse for under-exertion.” AG (R)*
8. “Even a good thing can become destructive if taken to excess.” Brandon Sanderson*
9. “A person of moderation is a person of character and wisdom.” Plato*
10. “The road to health for everyone is through moderation.” Jostein Gaarder*
11. “Moderation is failure. Nothing succeeds like success.” AG (R)*
12. “A thing moderately good is not as good as it ought to be.” Thomas Paine (R)*
13. “The choicest pleasures of life lie within the ring of moderation.” Martin Farquhar Tupper*
14. “Moderation is a companion of wisdom but is a complete stranger to genius.” Charles Caleb Colton (R)*
15. “Moderation is the result of indecision.” AG (R)*
16. “There are mainly advantages to ‘average’.” AG*
17. “Moderation is deprivation.” AG (R)*
18. “Actions give life strength, but moderation gives life charm.” Jean Paul*
19. “Highs and lows are better than an even keel.” Jenny Sinclair (R)*
20. “Moderation is the secret of long-term survival.” Manly Hall*
21. “In all our conduct, it is the mean that is to be commended.” Aristotle*
22. “Moderation leads to mediocrity.” AG (R)*
23. “It is best to travel the middle road, even if it takes longer to get you where you want to go.” AG*
24. “The key to long-lasting love is to love in moderation.” William Shakespeare*
25. “In politics, the middle way is none at all.” John Adams (R)*
26. “Moderation is good for you – mentally, physically, and spiritually.” AG*
27. “When shopping, it is often best to buy the middle option and then commit fully to liking it.” AG*
28. “Total abstinence may be much easier than moderation.” Saint Augustine (R)*
29. “Exhilaration is fueled only by excess.” AG (R)*
30. “The middle path is the way to wisdom.” Mevlana Runi*
31. “Being average means you are as close to the bottom as you are to the top.” John Wooden (R)*
32. “Everything in moderation.” English proverb
33. “Virtue is a habit of the mind, consistent with nature and moderation and reason.” Cicero
34. “The middle path is the safe path.” German proverb

35. “To plunge on the one hand into the sensual excesses and pleasures of the ordinary worldly life is mean and useless. On the other hand, extravagant asceticism is also evil and useless.” Buddhist teaching
36. “Excessive and insufficient exercise destroy one's strength, and both eating and drinking too much or too little destroy health, whereas the right quantity produces, increases or preserves it.” Aristotle
37. “Throw moderation to the winds and the greatest pleasures bring the greatest pains.” Democritus
38. “Be moderate in order to taste the joys of life in abundance.” Epicurus
39. “Many things which cannot be overcome when they are together yield themselves up when taken little by little.” Plutarch
40. “The heart is great which shows moderation in the midst of prosperity.” Seneca
41. “Candor and generosity, unless tempered by due moderation, leads to ruin.” Tacitus
42. “Replace anger with peace, moderation and clear argumentation. It hurts more the other side!” Dionisis Agelakis
43. “The human mind, if it is to keep its sanity, must maintain the nicest balance between unity and plurality.” Irving Babbit
44. “Excess makes the heart grow fonder.” John Balance (R)
45. “Moderation is the key of lasting enjoyment.” Hosea Ballou
46. “Moderation: a median with no means, praised by those with no misfortunes, practiced by those with no merits.” Bauvard (R)
47. “Excessive sorrow laughs. Excessive joy weeps.” William Blake
48. “The road of excess leads to the palace of wisdom.” William Blake (R)
49. “There has to be a cut-off somewhere between the freedom of expression and a graphically explicit free-for-all.” E.A. Bucchianeri
50. “One must not permit oneself excesses, except with persons whom one wishes soon to leave.” Pierre Choderlos de Laclos
51. “There is nothing wrong with sobriety in moderation.” John Ciardi
52. “Too much of anything could destroy you… Too much darkness could kill, but too much light could blind.” Cassandra Clare
53. “Exceed not thy actions, but limit not thy mind.” Gary Davis
54. “Moderation has been called a virtue to limit the ambition of great men, and to console undistinguished people for their want of fortune and their lack of merit.” Benjamin Disraeli (R)
55. “Moderation is the center wherein all philosophies, both human and divine, meet.” Benjamin Disraeli (R)
56. “Moderation in all things, especially moderation.” Ralph Waldo Emerson
57. “Exactness and neatness in moderation is a virtue, but carried to extremes narrows the mind.” Francois Fenelon
58. “Moderates always seem to deal in hopes rather than in facts.” Ken Follet (R)
59. “The difference between moderation and discipline is moderation is practiced for others.” Tony G (R)
60. “Extremism in the defense of liberty is no vice. And moderation in the pursuit of justice is no virtue.” Barry Goldwater (R)
61. “Moderation is the silken string running through the pearl chain of all virtues.” Joseph Hall

62. “When the sword is once drawn, the passions of men observe no bounds of moderation.” Alexander Hamilton
63. “I am a fan of overdoing something, but not running it into the ground. They are complete opposites with only a fine line separating them.” Criss Jami
64. “Grace is in garments, in movements, in manners; beauty in the nude, and in forms. This is true of bodies; but when we speak of feelings, beauty is in their spirituality, and grace in their moderation.” Joseph Joubert
65. “If moderation is a fault, then indifference is a crime.” Jack Kerouac
66. “Moderation is a virtue only in those who are thought to have an alternative.” Henry A. Kissinger (R)
67. “Too much faith never brings anything good.” Milan Kundera
68. “Moderation is the feebleness and sloth of the soul, whereas ambition is the warmth and activity of it.” Francois de La Rochefoucauld (R)
69. “The moderation of people in prosperity is the effect of a smooth and composed temper, owing to the calm of their good fortune.” Francois de La Rochefoucauld
70. “We must remember balance and moderation. Patience can be spiritually enriching and virtuous… but when taken in excess, it turns to procrastination, the poison of inaction.” Steve Maraboli
71. “Excess on occasion is exhilarating. It prevents moderation from acquiring the deadening effect of a habit.” W. Somerset Maugham (R)
72. “The bigger the better; in everything.” Freddie Mercury (R)
73. “Happiness is not a matter of intensity but of balance, order, rhythm and harmony.” Thomas Merton
74. “Here's to responsibility, twice a week.” Stephenie Meyer
75. “The best reply to unseemly behavior is patience and moderation.” Moliere
76. “This is what I think is very essential... moderation can be good for you.” Robert Mondavi
77. “In moderation, wine is good for you, mentally, physically, and spiritually.” Robert Mondavi
78. “The spirit of moderation should also be the spirit of the lawgiver.” Charles de Montesquieu
79. “The mother of excess is not joy but joylessness.” Friedrich Nietzsche
80. “Moderation sees itself as beautiful; it is unaware that in the eye of the immoderate it appears black and sober and consequently ugly-looking” Friedrich Nietzsche
81. “Something is always born of excess: great art was born of great terror, great loneliness, great inhibitions, instabilities, and it always balances them.” Anais Nin (R)
82. “Moderation is an extremely difficult thing to get in this country.” Flan O’Brien
83. “Moderation in temper is always a virtue.” Thomas Paine
84. “Moderation in principle is always a vice.” Thomas Paine (R)
85. “Moderation is a wiser policy than zealotry” Christopher Paolini
86. “If it's worth doing, it's worth overdoing.” Ayn Rand (R)
87. “Too much censorship is just as bad as having none at all.” Zoe Saldana
88. “In order to grow old, you have to experience everything, but in moderation.” Compay Segundo
89. “Love moderately. Long love doth so.” William Shakespeare
90. “Too swift arrives as tardy as too slow.” William Shakespeare
91. “Moderation is never something I’ve been good at.” Jenny Sinclair (R)

92. “Perfect is the enemy of good.” Voltaire
93. “It is only through extremes that men can arrive at the middle path of wisdom and virtue.” Wilhelm Von Humboldt (R)
94. “Too much of a good thing can be wonderful!” Mae West (R)
95. “Moderation is a fatal thing. Nothing succeeds like excess.” Oscar Wilde (R)
96. “It is better to burn out than fade away.” Neil Young (R)
97. “There are advantages to being good enough.” AG
98. “More or less than one glass of wine or beer a day is not a good idea.” AG
99. “Context matters.” AG
100. “The point of eating in moderation is that sometimes you don't eat in moderation.” AG
101. “It's important to have balance in your life between work and play.” AG
102. “At the end of the day you have to find a balance with what's really important.” AG

AG indicates author generated item.
R indicates reverse-scale item.
* indicates scale item included in exploratory factor analysis (1-31).

WEB APPENDIX B

Factor Structure For 12-item Scale

As briefly discussed in the main body of the paper, factor analyses support a two-factor solution for the 12 items. Considering **Sample 1B**, a confirmatory factor analysis (SAS PROC CALIS) supports a two-factor solution; LISREL produced the same results as PROC CALIS. Following Iacobucci (2009, 2010), we relied on the correlation matrices for the confirmatory factor analysis. The two-factor model fit the data well ($\chi^2(1, df = 51) = 143.39, p < .0001$), perhaps due to the large sample. However, the Chi-square adjusted for (divided by) the 51 degrees of freedom is 2.81, which satisfies Kline's (2004) recommendation that the ratio be less than 3. The standardized root mean square residual (SRMSR) = 0.075 which is below the suggested cut-off of 0.09 (Hu and Bentler, 1999). Bentler's Comparative Fit Index (CFI) is 0.84 which is less than Hu and Bentler's (1999, p. 27) criterion of 0.95. The *t*-statistics associated with the equations are all large and highly significant (*t*s range from 7.41-15.04, *p*s < .001). The standardized parameter (ϕ) estimate associated with Factor 1 and Factor 2 is .540 (SE = .077; t = 7.02, $p < .001$).

A three-factor model also fit the data reasonably well ($\chi^2(1, df = 48) = 107.33, p < .0001$) but less well than the two-factor solution. The Chi-square adjusted for the 48 degrees of freedom is 2.24, satisfying Kline's (2004) recommendation that the ratio be less than 3. The standardized root mean square residual (SRMSR) is 0.07 which is below the suggested cut-off of 0.09 (Hu and Bentler, 1999). Bentler's CFI is 0.90, which is less than Hu and Bentler's (1999, p. 27) criterion of 0.95. The t-statistics associated with the equations are all large and highly significant (*t*s range from 4.99 - 19.22, *p*s < .01). The standardized parameter (ϕ) estimate associated with Factor 1 and Factor 2 is .69 (SE = .06; t = 11.32), Factor 1 and Factor 3 is .41 (SE = .091; t = 4.47), and with Factor 2 and factor 3 is .68 (SE = .07; t = 9.18). Further, the standardized root mean square residual (SRMR) is 0.07, which is below the suggested cut-off of 0.09 (Hu and Bentler, 1999). The three factor model scores higher than the two-factor model in terms of Bentler's CFI (= 0.90). Although overall the fits are comparable, the two-factor model is more parsimonious.

A single factor model exceeds the Kline (2004) recommendation; the ratio equaled 3.78. Also, the standardized root mean square residual (SRMR) is 0.095, above Hu and Bentler's (1999) suggested cut-off of 0.09. Last, the single factor model scores lower than the two-factor model in terms of Bentler's CFI (= 0.75).

For *Sample 1A* and *1B* combined, all factor-loading estimates were significant (*p*s < .05). It is worth noting that we get a very similar factor analysis result for validation **Sample 2**. The proportion criterion indicated a two-factor structure, as well as the eigenvalues and scree plot. The same eight items as in **Sample 1** loaded on the first factor and the same four items loaded on the second factor. We note that the factor loading for item 4 in Factor 1 was .48, just shy of the .50 cut-off but did not significantly cross-load on Factor 2.

WEB APPENDIX B TABLE

Items	Factor 1	Factor 2
1. Avoid excess. Let moderation be your guide. F1	.61	–.11
2. Too much of a good thing is a bad thing. F1	.62	–.11
3. Moderation in all things is ideal. F1	.72	–.01
4. Too fast is as bad as too slow. F1	.58	.00
5. If one oversteps the bounds of moderation, the greatest pleasures cease to please. F1	.59	.06
6. Even a good thing can become destructive if taken to excess. F1	.68	–.15
7. A person of moderation is a person of character and of wisdom. F1	.63	.26
8. The road to health for everyone is through moderation. F1	.58	.25
9. It is best to travel the middle road, even if it takes longer to get you where you want to go. F2	–.00	.54
10. The key to long-lasting love is to love in moderation. F2	.02	.53
11. When shopping, it is often best to buy the middle option and then commit fully to liking it. F2	–.21	.65
12. The middle path is the way to wisdom. F2	.08	.68

WEB APPENDIX C

Moral Reasoning Scale (ad hoc)

To test the proposition that moderation is related to the quality of moral judgments, we extracted an ad hoc moral reasoning scale from Kohlberg's measures of moral development (Kohlberg, Levine, and Hewer 1983; Kohlberg and Lickona 1976). Some items were adapted from Skisland, Bjornestad, and Soderhamn's (2012) scale for ethical nurse behavior.

Items	**Kohlberg Stage**
1. An act is morally wrong if the person who committed it is punished.	1A
2. Right behavior is defined by whatever is in the individual's best interest.	1B
3. Respect and gratitude are the most important values in a community.	2A
4. Different perspectives on values and rights should be mutually respected.	2A
5. A necessary condition for an action to be good is that it was intended to be good.	2A
6. Regardless of whether an act has good or bad consequences, it is important to consider what motivated it.	2A
7. Meeting the expectations of others has inherent value.	2B
8. "Right" behavior consists of doing one's duties.	2B
9. A person's conduct is immoral if it breaks established laws and rules.	2B
10. Treating authorities with respect has value in and of itself.	2B
11. In moral issues, it is important to listen to what other people think.	3A
12. The majority is seldom wrong.	3A
13. It makes sense to listen to what most people think is right or wrong.	3A
14. It is usually possible to reach consensus in moral issues.	3A
15. Laws that do not promote the general welfare should be changed when necessary to meet the greatest good for the greatest number of people.	3A
16. A good value holds for all people.	3B
17. Good moral rules must be able to be put into a context.	3B
18. Rules are not absolute dictates that must be obeyed without question.	3B
19. An individual should act because it is right, even when its expected consequences might make people worse off on balance.	3B

WEB APPENDIX D

Follow-Up Study: Predictive Validity of PFM from Marlowe-Crowne Scale

Method

Participants (N = 240) were recruited via Amazon Mechanical Turk (**Sample 7**). In terms of demographics, 52.1% participants are female with a mean age of 40 (SD = 12.8, *range* 20-76). Among participants, 10.8% are African-American, 76.7% European-American, 4.2% Hispanic, 4.6% Asian-American, 0.8% Native American, and 2.9% mixed race. Further, 10.3% of participants report a household income of under $20,000, 24.6% between $20,001 and $40,000, 28.8% between $40,001 and $60,000, 15.4% between $60,001 and $80,000, 10% between $80,001 and $100,000, 8.3% between $100,001 and $150,000, and 2% at $150,001 or above. Participants completed the set of four hypothetical consumer choices from Study 1 (grill, tickets to baseball game, ice cream, and dental insurance) and the 13-item financial well-being index from Study 4 (see Appendix A for items) in addition to the PFM (α = .87) and Marlowe-Crowne (MC; $\alpha^{\text{KR-20}}$ = .61) scales. Filler items were interspersed between measures. Participants answered demographic questions last. There were no manipulations in the study.

Results and Discussion

Choice Questions

The correlation between PFM and MC was not significant (r = -.06, *NS*). We analyzed choice patterns using SAS PROC CATMOD to calculate logistic regressions of categorical dependent variables using both categorical and continuous predictors. For each of the four choices, our dependent variable was coded as 1 if a participant choice the middle option and 0 otherwise. All models included three dichotomous product-class dummies. When both PFM and MC are included in the model, we find a significant positive effect of PFM on middle choice ($\chi^2(1) = 5.09$, $p < .02$; N = 960). To illustrate, participants with a high PFM (top 25%: PFM > 6.00) chose more compromise options compared to consumers with a low PFM (bottom 25% < 4.50) (40.2% vs. 34.32%). We did not find a significant effect of MC on compromise choice

($\chi^2(1) = .45$, $p < .50$; $N = 960$). This pattern of results is unchanged when we test each scale in a separate model: PFM predicts compromise choice while MC does not.

Financial Well-being

Higher scores on the financial well-being index (see Study 4 and Appendix A) is associated with increased fiscal well-being. OLS regression analysis revealed highly significant independent negative effects on the financial well-being index of income ($t(240) = -2.52$, $p < .001$, standardized $\beta = -.14$), MC ($t(240) = -2.56$, $p < .01$, standardized $\beta = -.16$), and PFM ($t(240) = -2.02$, $p < .04$, standardized $\beta = -.31$). Given the financial index questions (e.g., "Are you threatened with repossession of your car, cancellation of your credit cards, or other legal action?"), it makes sense that a scale of socially desirable responding would be negatively associated with the index. However, the analysis shows that PFM predicts financial well-being above and beyond MC (and income).

In summary, the results of this follow-up study support our conclusion that PFM is a distinct variable.

WEB APPENDIX E: STUDY 5 ITEMS

Opinion Survey (*Need to Evaluate Scale*)

Please respond to the following questions. Scale: 1 (Disagree) to 5 (Agree)

Items:

1. I form opinions about everything.
2. I prefer to avoid taking extreme positions.
3. It is very important to me to hold strong opinions.
4. I want to know exactly what is good and bad about everything.
5. I often prefer to remain neutral about complex issues.
6. If something does not affect me, I do not usually determine if it is good or bad.
7. I enjoy strongly liking and disliking new things.
8. There are many things for which I do not have a preference.
9. It bothers me to remain neutral.
10. I like to have strong opinions even when I am not personally involved.
11. I have many more opinions than the average person.
12. I would rather have a strong opinion than no opinion at all.
13. I pay a lot of attention to whether things are good or bad.
14. I only form strong opinions when I have to.
15. I like to decide that new things are really good or really bad.
16. I am pretty much indifferent to many important issues

Attitude Survey (*Regulatory Focus Scale*)

For these items, please press the key that corresponds to the answer most appropriate for you. Scale: Items: Definitely untrue (1), Not true (2), Probably not true (3), Neither true nor untrue (4), Probably true (5), True (6), Definitely true (7).

Items:

1. I prefer to work without instruction from others.
2. Rules and regulations are helpful and necessary for me.
3. For me, it is very important to carry out the obligations placed on me.
4. I generally solve problems creatively.
5. I'm not bothered about reviewing or checking things really closely.
6. I like to do things in a new way.
7. I always try to make my work as accurate and error-free as possible.
8. I like trying out lots of different things, and am often successful in doing so.
9. It is important to me that my achievements are recognized and valued by other people.
10. I often think about what other people expect of me.

Opinion Survey (*Materialism Scale*)

For these items, please press the key that corresponds to the answer most appropriate for you. Scale: Definitely untrue (1), Not true (2), Probably not true (3), Neither true nor untrue (4), Probably true (5), True (6), Definitely true (7)

Items:

1. I admire people who own expensive homes, cars, and clothes.
2. Some of the most important achievements in life include acquiring material possessions.
3. I don't place much emphasis on the amount of material objects people own as a sign of success.
4. The things I own say a lot about how well I'm doing in life.
5. I like to own things that impress people.
6. I don't pay much attention to the material objects other people own.
7. I usually buy only the things I need.
8. I try to keep my life simple, as far as possessions are concerned.
9. The things I own aren't all that important to me.
10. I enjoy spending money on things that aren't practical.
11. I put less emphasis on material things than most people I know.
12. I have all the things I really need to enjoy life.
13. My life would be better if I owned certain things I don't have.
14. I wouldn't be any happier if I owned nicer things.
15. I'd be happier if I could afford to buy more things.
16. It sometimes bothers me quite a bit that I can't afford to buy all the things I'd like.

Opinion Survey (*Preference for Moderation*)

Please rate the extent to which you agree with the following statements. Scale: 1 (Disagree) to 7 (Agree).

Items:

1. Avoid excess. Let moderation be your guide.
2. Too much of a good thing is a bad thing.
3. Moderation in all things is ideal.
4. Too fast is as bad as too slow.
5. If one oversteps the bounds of moderation, the greatest pleasures cease to please.
6. Even a good thing can become destructive if taken to excess.
7. A person of moderation is a person of character and of wisdom.
8. The road to health for everyone is through moderation.
9. It is best to travel the middle road, even if it takes longer to get you where you want to go.
10. The key to long-lasting love is to love in moderation.
11. When shopping, it is often best to buy the middle option and then commit fully to liking it.
12. The middle path is the way to wisdom.

Opinion Survey (*Propensity to Plan for Money*)

Please rate the extent to which you agree with the following statements. Scale: 1 (*Disagree*) to 6 (*Agree*).

Items:

1. I set financial goals for the next few days for what I want to achieve with my money.
2. I decide beforehand how my money will be used in the next few days.
3. I actively consider the steps I need to take to stick to my budget in the next few days.
4. I consult my budget to see how much money I have left for the next few days.
5. I like to look to my budget for the next 1-2 months in order to get a better view of my spending in the future.
6. It makes me feel better to have my finances planned out in the next few days.
7. I set financial goals for the next 1-2 months for what I want to achieve with my money.
8. I decide beforehand how my money will be used in the next 1-2 months.
9. I actively consider the steps I need to take to stick to my budget in the next 1-2 months.
10. I consult my budget to see how much money I have left for the next 1-2 months.
11. I like to look to my budget for the next 1-2 months in order to get a better view of my spending in the future.
12. It makes me feel better to have my finances planned out in the next 1-2 days.

Attitude Survey (*Analysis-Holisism*)

Please rate the extent to which you agree with the following statements. Scale: 1 (*Disagree*) to 7 (*Agree*).

Items:

1. Everything in the universe is somehow related to each other.
2. Nothing is unrelated.
3. Everything in the world is intertwined in a causal relationship.
4. Even a small change in any element of the universe can lead to significant alterations in other elements.
5. Any phenomenon has numerous numbers of causes, although some of the causes are not known.
6. Any phenomenon entails a numerous number of consequences, although some of them may not be known.
7. It is more desirable to take the middle ground than go to extremes.
8. When disagreement exists among people, they should search for ways to compromise and embrace everyone’s opinions.
9. It is more important to find a point of compromise than to debate who is right/wrong, when one’s opinions conflict with other’s opinions.
10. It is desirable to be in harmony, rather than in discord, with others of different opinions than one’s own.
11. Choosing a middle ground in an argument should be avoided.
12. We should avoid going to extremes.
13. Every phenomenon in the world moves in predictable directions.
14. A person who is currently living a successful life will continue to stay successful.

15. An individual who is currently honest will stay honest in the future.
16. If an event is moving toward a certain direction, it will continue to move toward that direction.
17. Current situations can change at any time.
18. Future events are predictable based on present situations.
19. The whole, rather than its parts, should be considered in order to understand a phenomenon.
20. It is more important to pay attention to the whole than its parts.
21. The whole is greater than the sum of its parts.
22. It is more important to pay attention to the whole context rather than the details.
23. It is not possible to understand the parts without considering the whole picture.
24. We should consider the situation a person is faced with, as well as his/her personality, in order to understand one's behavior.

Pairs (*Narcissistic Personality Index*)

This inventory consists of a number of pairs of statements with which you may or may not identify. Consider this example:

A. I like having authority over people *B. I don't mind following orders*

Which of these two statements is closer to your own feelings about yourself? If you identify more with "liking to have authority over people" than with "not minding following orders", then you would choose option A. You may identify with both A and B. In this case you should choose the statement which seems closer to yourself. Or, if you do not identify with either statement, select the one which is least objectionable or remote. In other words, read each pair of statements and then choose the one that is closer to your own feelings. Please do not skip any items. Choose A (1) or B (2) for each pair of items.

Items:

1. I have a natural talent for influencing people. (1) I am not good at influencing people. (2)
2. Modesty doesn't become me. (1) I am essentially a modest person. (2)
3. When people compliment me I sometimes get embarrassed. (1) I know that I am good because everybody keeps telling me so. (2)
4. The thought of ruling the world frightens the hell out of me. (1) If I ruled the world it would be a better place. (2)
5. I can usually talk my way out of anything.(1) I try to accept the consequences of my behavior. (2)
6. I prefer to blend in with the crowd. (1) I like to be the center of attention. (2)
7. I will be a success. (1) I am not too concerned about success. (2)
8. I am no better or worse than most people. (1) I think I am a special person. (2)
9. I am assertive. (1) I wish I were more assertive. (2)
10. I find it easy to manipulate people. (1) I don't like it when I find myself manipulating people. (2)
11. I insist upon getting the respect that is due me. (1) I usually get the respect that I deserve. (2)
12. I don't particularly like to show off my body. (1) I like to show off my body. (2)
13. I try not to be a show off. (1) I will usually show off if I get the chance. (2)

14. I sometimes depend on people to get things done. (1) I rarely depend on anyone else to get things done. (2)
15. Sometimes I tell good stories. (1) Everybody likes to hear my stories. (2)
16. I expect a great deal from other people. (1) I like to do things for other people. (2)
17. Compliments embarrass me. (1) I like to be complimented. (2)
18. I have a strong will to power. (1) Power for its own sake doesn't interest me. (2)
19. I like to look at myself in the mirror. (1) I am not particularly interested in looking at myself in the mirror. (2)
20. Being an authority doesn't mean that much to me. (1) People always seem to recognize my authority. (2)
21. I would prefer to be a leader. (1) It makes little difference to me whether I am a leader or not. (2)
22. I wish somebody would someday write my biography. (1) I don't like people to pry into my life for any reason. (2)
23. I get upset when people don't notice how I look when I go out in public. (1) I don't mind blending into the crowd when I go out in public. (2)
24. I am much like everybody else. (1) I am an extraordinary person. (2)

Attitude Survey (*Frugality*)

Please rate the extent to which you agree with the following statements. Scale: 1 (*Not at all*) to 7 (*Absolutely*).

Items:

1. If you take good care of your possessions, you will definitely save money in the long run.
2. There are many things that are normally thrown away that are still quite useful.
3. Making better use of my resources makes me feel good.
4. If you can re-use an item you already have, there’s no sense in buying something new.
5. I believe in being careful in how I spend my money.
6. I discipline myself to get the most from my money.
7. I am willing to wait on a purchase I want so that I can save money.
8. There are things I resist buying today so I can save for tomorrow.

Attitude Survey (*Impulsiveness*)

Please rate the extent to which you agree with the following statements. Scale: 1 (*Disagree*) to 7 (*Agree*).

Items:

1. I act “on impulse”.
2. I act on the spur of the moment.
3. I buy things on impulse.
4. I make-up my mind quickly.
5. I do things without thinking.
6. I spend or charge more than I earn.

7. I am happy-go-lucky.

Survey of General Feelings (*Trait Anxiety*)

Please rate the extent to which you agree with the following statements. Scale: 1 (*Disagree*) to 7 (*Agree*).

Items:
1. I feel secure.
2. I worry too much over something that really doesn't matter.
3. I feel nervous and restless.
4. I get in a state of tension or turmoil as I think over my recent concerns and interests.
5. I am calm, cool, and collected.
6. I am inclined to take things hard.
7. I make decisions easily.
8. I lack self-confidence.
9. I feel that difficulties are piling up so that I cannot overcome them.
10. I am content.
11. I feel like a failure.
12. I feel blue.
13. I feel like crying.
14. I take disappointments so keenly that I can't put them out of my mind.
15. I am happy.
16. I wish I could be as happy as others seem to be.

Scenario Study (Poor psychometric qualities so did not analyze}

Some people have trouble limiting their spending: They often spend money – for example on clothes, meals, vacations -- when they would do better not to. Other people have trouble spending money, perhaps because spending money makes them anxious, they often don't spend on things they should spend it on. Scale for all items: Never (1) Rarely (2) Sometimes (3) Often (4) Always (5)

Items:
1. How well does the first description fit you? That is, do you have trouble limiting your spending?
2. How well does the second description fit you? That is, do you have trouble spending money?

Following is a scenario describing the behavior of two shoppers. After reading about each shopper, please answer the question that follows. Scale for the item: Mr. A (1) (2) About the same or neither (3) (4) Mr. B (5).

- Mr. A is accompanying a good friend who is on a shopping spree at a local mall. When they enter a large department store, Mr. A sees that the store has a "one-day-only-sale" where everything is priced 10-60% off. He realizes he doesn't need anything, yet can't resist and ends up spending almost $100 on stuff.

- Mr. B is accompanying a good friend who is on a shopping spree at a local mall. When they enter a large department store, Mr. B sees that the store has a "one-day-only-sale" where everything is priced 10-60% off. He figures he can get great deals on many items that he needs, yet the thought of spending the money keeps him from buying the stuff.

Item:
In terms of your own behavior, who are you more similar to, Mr. A or Mr. B?

Choice Items

Portable Barbeque Grill

Imagine that you would like to buy a portable barbeque grill. The brands of the grills that you are considering differ in terms of their cooking area (in square inches) and weight (in pounds).

	Brand A	Brand B	Brand C
Cooking Area	350 sq. in.	450 sq. in.	550 sq. in.
Weight	9lbs.	12lbs.	15lbs.
Which of these options would you choose?	A	B	C

Tickets to a Baseball Game

Imagine you and a companion would like to go to a baseball game. The seats that you are considering differ in terms of their location and price.

	Option A	Option B	Option C
Row Number (lower numbers are better)	5	45	125
Price (for one ticket)	$65	$40	$15
Which of these options would you choose?	A	B	C

Dental Insurance

Imagine you have decided to join a dental insurance plan that is subsidized by your employer. The available plans described below differ in terms of the annual premium that you should pay and the percent of coverage you get (the portion of each dental bill that the insurance would pay).

	Plan A	Plan B	Plan C
Annual Premium	$350	$525	$700
Coverage	60%	70%	80%
Which of these options would you choose?	A	B	C

Ice Cream

Imagine you would like to buy a half-gallon pack of ice-cream. The ice-cream brands that you are considering differ in terms of their average taste rating, as evaluated by 200 consumers in a blind taste test conducted by *Consumer Reports*, and the amount of fat they contain. Usually

tastier ice-cream has more fat.

	Brand A	Brand B	Brand C
Taste Rating (0-100 point scale)	69	78	87
Amount of Fat (grams per serving)	0 grams	5 grams	10 grams
Which of these options would you choose?	A	B	C

Demographic Questions

- How would you characterize your educational background? Scale: No formal education (1) Graduated from elementary school (2) Some high school (3) High school diploma (4) Some college (5) Associates degree (6) College degree (Bachelor's) (7) Some graduate school (8) Graduate degree (e.g. JD, MBA, Ph.D.) (9)

- What is your annual family income (in U.S. dollars)? Scale:0–24,999 (1) 25,000–49,999 (2) 50,000–74,999 (3) 75,000–99,999 (4) 100,000–149,999 (5) 150,000–199,999 (6) 200,000 or MORE (7) Not sure (8)

- Age

- Ethnicity (Choose one): Asian; Asian-American (please specify) (1), Black; African-American (2), Hispanic; Latino-American (please specify) (3), Native American (4), Native Pacific Islander (5), White; Caucasian-American (6), Other (please specify) (7)

- Place of Birth

- Gender: Male (1), Female (2)