Running Title: Predictors of financial irresponsibility

A champagne lifestyle on a beer income:

More personality predictors of fiscal irresponsibility.

Paul Irwing, David John Hughes, Tom Booth

Psychometrics at Work research group,

Manchester Business School, University of Manchester

Word Count:

Abstract

Using self-report data (N=348), we investigate whether Fiscal Irresponsibility is correlated with the personality variables of Deferred-Gratification, Impulsivity, Risk-Taking, Self-Regulation and Consideration of Future Consequences. A new Fiscal Irresponsibility scale was developed using exploratory and confirmatory factor analysis. The scale was shown to consist of two underlying factors interpreted as "*irresponsible spending*" and "*financial planning*" that were adequately accounted for by a global Fiscal Irresponsibility factor. Next, an iterative series of stepwise regressions, with Fiscal Irresponsibility, as the dependent variable were estimated using Structural Equation Modeling in M*plus* 6.0. Each of the variables were significantly correlated (ranging from *r* .354 – *r* -.850) with Fiscal Irresponsibility. Deferred-Gratification showed the largest correlation with Fiscal Irresponsibility (69.6% shared variance), whilst the combination of Deferred-Gratification and Self-Regulation accounted for the largest proportion of variance in Fiscal Irresponsibility (76.6%). These findings add to the growing body of evidence suggesting that the expression and suppression of impulses is implicated in irresponsible financial behavior.

Keywords: Deferred-Gratification, Impulsivity, Self-Regulation, Fiscal Irresponsibility, Mplus

1.0 Introduction

"Far too many people aspire to a champagne lifestyle on a beer income."
(Brian Walden, former Labour MP)

Explanations of individual level financial behavior have until recently focused upon factors external to the individual. For instance, Elliot (2005) argues that the gradual relaxation of credit constraints has created an environment for irresponsible borrowing, whilst Watson (2003) suggests that increasing levels of borrowing and consumption are a result of materialistic trends. Economic and social climates often provide the environment, within which most individuals operate and as such have general influence over behavior; however, individuals exhibit variation in financial behavior regardless of economic and social trends. Indeed, all persons may be less frugal when economic conditions are positive and more frugal when they are not. However, individuals still differ in their degree of frugality or indeed in any other form of financial behavior: Such variation points to the likelihood that some underlying individual differences influence financial behavior (Furnham & Argyle, 1998). There is now a growing body of research evidence suggesting that these decisions are influenced by a combination of personality characteristics (e.g. Hughes, Irwing, Booth, Shawcross & Portelli, 2011, Wang, Lu & Maholta, 2011).

In the current study, we seek to explore the personality predictors of financially irresponsible behavior. Fiscal Irresponsibility is thought to manifest itself behaviorally in inadequate financial planning and saving, reckless consumption and a lack of financial awareness that ultimately results in the accumulation of unmanageable debt. Such irresponsible financial behavior is associated with both macro (e.g. decreased gross domestic product; May, Tudela & Young, 2004) and micro-economic problems (e.g. financial hardship; Valins, 2004). This is no more evident than in the latest estimates of personal indebtedness

within the UK. As of March 2011, total personal debt stood at £1,453 billion. Average household debt in the UK is £29,843 or 128% of average annual earnings, whilst the average level of unsecured debt is £8,144. This figure increases to £15,661 when the average is based only on households who have unsecured credit (Credit Action, 2011). These figures illustrate the astonishingly high levels of personal indebtedness in the UK. Alongside financial hardship, sustained indebtedness can result in decreased well-being (Brown, Taylor & Price, 2005), self-esteem (Dawson, 2003) and mental and physical health (Valins, 2004). The astonishingly high levels of personal indebtedness in the UK and the resultant consequences highlight the need to understand the antecedents of the individual fiscally irresponsible behavior.

Some previous research has focused attention on identification of the antecedents of the 'darker side' of consumer behavior (Hirschman, 1991). However, there remains little consensus in the field regarding the variables that regulate financially irresponsible behavior. The current absence of a definitive model provides the impetus for the current research.

The current study focuses on Impulsivity, Deferred-Gratification, Risk-Taking, Self-Regulation and Consideration of Future Consequences as antecedents of Fiscal Irresponsibility. These constructs have been shown to have well established associations with irresponsible behaviors, such as gambling (e.g. Parke, Griffiths & Irwing, 2004), risky driving styles (e.g. Caspi, et al., 1997) and irresponsible financial behavior (e.g. Hughes, et al., 2011).

Impulsivity has been found to play a significant role in several aspects of financial behavior. Empirical studies have reported negative relationships with money management (Baumeister, 2002), money retention (Hayhoe, Leach & Turner, 1999) and saving for future outcomes (Wärneryd, 1995). Whilst positive correlations have been observed between Impulsivity and compulsive buying (e.g. Billieux, Rochat, Rebetez & Van Der Linden, 2008),

credit card misuse (e.g. Pirog III & Roberts, 2007; Wang, et al., 2011) and credit card debt (Mansfield, Pinto & Parente, 2003). Moreover, Impulsivity has been implicated in the decision to take out a credit card in the first place, often to receive a free gift or special offer (Bianco & Bosco, 2002). Further, Impulsivity was shown to be a key predictor of self-reported Fiscal Irresponsibility, accounting for over 50% of the variance in two European samples (Hughes *et al.*, 2011).

Deferred-Gratification, defined by the extent to which one is able to *"wait for a more appropriate time and place to engage in a tempting act or obtain a desired object"* (Beck, 2003, p.504) is closely related to Impulsivity (e.g. Ainslie, 1992). Indeed, Deferred-Gratification is often considered a sub-facet of general impulsivity (e.g. Ainslie, 1992) and experimental measures of deferred-gratification have been used as proxies for impulsivity (e.g. Cherek, Moeller, Dougherty & Rhoades, 1997). A recent meta-analysis has shown experimental measures of delay-of-gratification to be significantly correlated with self-reported (r = .15) and informant reported (r = .21) impulse control (Duckworth & Kern, 2011).

Deferred-Gratification was previously shown, in two European samples, to account for significant variance (29.6 and 85%) in Fiscal Irresponsibility (Hughes et al., 2011). Further, Deferred-Gratification has been implicated in consumers' underestimation of future borrowing: in that individuals lower in Deferred-Gratification tend to borrow on credit cards despite initial intentions not to (Bar-gill, 2004). Bar-gill's findings highlight the phenomenon that despite best intentions, individuals who are unable to defer gratification often get 'sucked in' to the buy now, pay later mentality. This supposition is further supported by the finding that Deferred-Gratification considered alongside non-dispositional predictors such as "financial knowledge" and "number of credit cards" has been identified as a significant predictor of credit card debt (Norvilitis, Merwin, Osberg, Roehling, Young & Kamas, 2006).

Given the link between Deferred-Gratification and Impulsivity, and the subsequent link between those traits and the uptake of credit (Bianco & Bosco, 2002), underestimation of future borrowing (Bar-gill, 2004), higher debt (Norvilitis *et ai*, 2006; Mansfield *et al.*, 2003) and lack of financial planning (Wärneryd, 1995), it appears likely that individuals' high in Impulsivity, who fail to Defer-Gratification will behave in a fiscally irresponsible manner: accruing debts whilst neglecting savings.

Another trait related to impulse-control, hypothesized to impact upon Fiscal Irresponsibility is Self-Regulation which is generally defined as the ability to control, modify, and adapt one's emotions, impulses or desires (Murtagh & Todd, 2004). Those who score highly on measures of compulsive buying report having irresistible urges to buy and a sense of lost control over their consumption, continuing to buy in spite of adverse consequences to their financial well-being, mental health, and personal relationships (Dittmar, 2004; O'Guinn & Faber, 1989). Indeed, as Rose (2007, p576) argues "*compulsive buying is fundamentally a self-regulatory problem.*" In accordance with such views, individuals in debt have also been found to display lower levels of self-control over their finances (Livingstone & Lunt, 1992). Vohs and Faber (2007) conducted three studies that considered the effect of impulsive spending on self-regulatory resources, the results of which imply that reduced regulatory resources can lead to increased levels of impulsive spending. This suggests that managing spending and saving habits requires significant, voluntary Self-Regulation, whilst an inability or unwillingness to self-regulate emotions and impulses may result in the expression of fiscally irresponsible behavior.

The fourth trait proposed as a potential predictor of fiscal irresponsibility is that of Risk-Taking. Risk-taking has received much research attention from psychologists and has been found to influence a wide range of irresponsible behaviors including, drug use (Cherpitel, 1999), risky sexual activities (Yeh, 2002), as well as financial behavior (Grable,

2000). Financial risk tolerance is described as *"the maximum amount of uncertainty that someone is willing to accept when making a financial decision"* (Grable, 2000, p. 625). Individuals who are found to be risk-averse have been suggested to have a greater tendency to save, to engage in higher levels of financial planning, and to show greater interest in financial matters (Fank, 1994). It was also observed that those with risk-seeking tendencies had lower self-control over their credit card spending (Adams & Moore, 2007). Furthermore it has been found that low risk-takers tend to have a lower burden of debt and more money in the bank than more risk-oriented individuals (Dahlback, 1991).

The final trait proposed to influence Fiscal Irresponsibility in the current study is Consideration of Future Consequences. Individual differences in Consideration of Future Consequences reflect *"the extent to which people consider the potential distant outcomes of their current behaviours and the extent to which they are influenced by these potential outcomes"* (Strathman, Gleicher, Boninger, & Edwards, 1994, p.743). Research suggests that those who score highly in Consideration of Future Consequences have a tendency to act responsibly across a variety of domains such as environmental behavior (Lindsay & Strathman, 1997) and practicing safe sex (Dorr, Krueckeberg, Strathman, & Wood, 1999). Consideration of Future Consequences has previously been associated with financial decision-making: Joireman, Sprott and Spangenberg (2005) found that lower levels of Consideration of Future Consequences were associated with higher cognitive impulsive buying tendencies and that when faced with a hypothetical choice of investment options, those lower in Consideration of Future Consequences were more inclined to direct investment toward a purchase rather than savings. Further, Joireman, Kees and Sprott (2010) showed Consideration of Future Consequences to be correlated with indebted students' compulsive buying tendencies ($\beta = .34$, $p < .01$) and credit card debt ($\beta = .36$, $p < .01$).

Given the current review of the available literature, we hypothesize that personality

characteristics will explain significant proportions of variance in Fiscal Irresponsibility. More specifically, higher scores on the Fiscal Irresponsibility scale will be related to low scores on Deferred-Gratification, Self-Regulation and Consideration of Future Consequences, and high scores on Impulsivity and Risk-Taking.

2.0 Method

2.1 Participants

A general population sample numbering 348 (166 males, 47.2%; 181 females, 53.8%) was gathered using snowball sampling. Participants' ages ranged from 18 to 76 (M = 30.52 SD = 22). Ninety-three (26.8%) participants were educated until the age of 16, 46 (13.2%) had undertaken non-university further education, whilst 209 (60.1%) had received university level education. In all, 228 (65%) participants were employed (full-time, part-time or self employed), 107 (31.3%) were students, 9 (2.7%) were unemployed and 3 were retired (1%). In relation to UK population estimates, the sample contains more females, is slightly younger (average UK age 39.5) and better educated (across population, 29% have degrees).

2.2 Measures

Five existing personality scales, a newly developed scale measuring Fiscal Irresponsibility and demographic questions concerning age, sex, education, and employment status were collated into a single online questionnaire. Online measures have been shown to attract samples that are diverse with regard to age, gender, geographic region and socio-economic status (Gosling, Vazire, Srivasta & John, 2004, p102). With the exception of Deferred-Gratification, all scales used a common response format with individuals choosing from five options: Very Inaccurate', 'Moderately Inaccurate', 'Neither Inaccurate nor Accurate', 'Moderately Accurate' and 'Very Accurate'.

Fiscal Irresponsibility, was measured using a newly developed scale. A review of 27 questions derived from two previous Fiscal Irresponsibility scales (Hughes *et al.*, 2011) was

conducted. Nine items were selected from this pool based on the magnitude of factor loadings and to ensure adequate sampling of the domain. A further five items were created to ensure breadth of content. Thus, a total of 14 items were used in order to form the current Fiscal Irresponsibility scale (see Table 1).

Deferred-Gratification, was measured using Ray and Najman's (1986) Deferment of Gratification Scale (DGS). This self-report measure consists of twelve items which measure the repondent's tendency to delay gratification. Example items include: "*Do you enjoy a thing all the more because you have had to wait for it and plan for it?*". The Deferred-Gratification scale used three response options: *'Yes'*, *'No'* or *'Unsure'* (scored one for yes, two for unsure and three for no). Ray and Najman (1986) report an alpha reliability of 0.72 for the DGS.

Risk-taking, was measured using the International Personality Item Pool (IPIP; Goldberg, 1999) scale of Risk-taking Behavior which was developed to be similar to that in the Jackson Personality Inventory [JPI-R] (Jackson, 1994). This instrument consists of ten items, each assessing individuals' propensity towards taking risks, which is reflected in items such as *'I take risks'* and *'I would never make a high risk investment'*. Goldberg (1999) reports a Cronbach's alpha of 0.78.

Impulsivity, was assessed using the IPIP (Goldberg, 1999) scale of Impulse control. This instrument consists of ten items, each assessing individuals' preparedness to control their impulses. An example item from this scale is *'I easily resist temptations'.* A Cronbach's alpha value of 0.78 was reported by Goldberg, for this scale (1999).

Self regulation, was also measured using a scale developed from the IPIP (Goldberg, 1999). The Self-Regulation Scale is composed of ten items, such as '*I can always say 'enough is enough'*.". For this scale,Goldberg (1999) reported an acceptable internal consistency coefficient of 0.75.

Consideration of future consequences, is a relatively new construct and there is currently only one available measure devised by Strathman et al., (1994). This 12-item scale consists of general statements regarding a person's orientation towards likely future consequences, for example "*I only act to satisfy immediate concerns, figuring the future will take care of itself."* The scale possess good convergent validity. For instance, individuals who score highly on the Consideration of Future Consequences scale also score highly on General Future Time Orientation and Delay of Gratification (Strathman et al., 1994). The authors report Cronbach's alphas of between .80 and .85 for the scale (Strathman et al., 1994).

2.3 Missing data

Missing data accounted for 3.7% of responses. The utilization of techniques such as list-wise deletion or mean replacement to address all cases of missing data can lead to a significant reduction in sample and underestimated or spuriously inflated correlations respectively (Schafer & Graham, 2002). Thus, missing responses were imputed using the expectation-maximization method of estimation within SPSS 16 (Schafer & Graham, 2002).

3.0 Results

To assess the relationship between Personality and Fiscal Irresponsibility, we first sought to identify reliable structures for each of the variables. Using the identified structures, we proceeded to build regression models between the personality variables and Fiscal Irresponsibility, in a stepwise fashion. All analyses were conducted using Mplus 6.0 (Muthen & Muthen, 2010).

3.1 Exploratory Factor Analysis (EFA)

First, an exploratory factor analysis (EFA) was conducted on the fourteen Fiscal Irresponsibility items using the Weighted Least Squares Means and Variances (WLSMV) method of estimation. Commonly, Likert-type data are considered close approximations to

continuous measurement and analyzed using maximum likelihood. In reality however, Likert-type data is ordinal and as such is theoretically suited to WLSMV which makes no assumptions regarding distribution or levels of measurement (Browne, 1974). It was expected that should multiple factors be identified, they would be correlated and that factor indicators may meaningfully cross load. Thus, the oblique Geomin rotation was selected as it has been shown to perform well in such instances (Muthen & Muthen, 2010, p.537).

The EFA revealed Fiscal Irresponsibility to consist of two factors correlated at -.56 ($p<.001$). We interpret the first factor as being concerned with irresponsible spending as indicated by the highest loading items: *"I sometimes buy things I can't really afford"* and *"I often spend money now and worry about the consequences later"*. The second factor was interpreted as indicating the extent of financial planning and saving since it was loaded most highly by the items "*I make plans to ensure I will have enough money in the future*" and *"When it comes to my finances I plan for the future"*. The solution accounted for 59% of the total variance and retained 13 of the 14 items, with item 5 being removed due to its loading below 0.3.

3.2 Confirmatory Factor Analysis (CFA)

Next, confirmatory factor analyses (CFA) were conducted to test the adequacy of the exploratory Fiscal Irresponsibility structure and author proposed single factor solutions, for the personality scales. Item level models were estimated using WLSMV.

When assessing model fit, three of the more accurate and reliable fit indices (Hu & Bentler 1998, 1999) were consulted, namely, the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI). The Standardized Root Mean Square Residual (SRMR) was also examined, in the case when parcels comprised the indicators. The SRMR is only calculable with continuous data; and parceled indicators provide more scale points and thus more closely approximate continuous

data (Coffman, & MacCallum, 2005). Models were considered to adequately approximate the data at values of ≤ .08 for the SRMR (Spence, 1997) and the RMSEA (Browne & Cudeck, 1993), and ≥ .90 for the CFI and TLI, (Bentler & Bonnett, 1980) with values above .95 preferred (Hu and Bentler, 1999).

A CFA examining the fit of the two factor structure of Financial Irresponsibility derived from EFA was estimated. The model provided adequate fit to the data (X^2= 235.48, *df* = 62, CFI = .956, TLI = .954, RMSEA = .090). The correlation between the two latent factors of Fiscal Irresponsibility was estimated at -0.883 and so it was decided to test a single factor model of Fiscal Irresponsibility. The initial single factor model showed slightly worsened fit (X^2= 302.26, *df* = 54, CFI = .918, TLI = .900, RMSEA = .106). The modification indices suggested that the inclusion of two correlated error terms (item 9 with 13 and item 3 with 6) would improve the level of fit. When these correlated error terms were included, the single factor model achieved acceptable levels of fit (X^2= 218.16, *df* = 52, CFI = .956, TLI = .954, RMSEA = .079). Thus, based on the high correlation between the two Fiscal Irresponsibility factors and model parsimony, the single Fiscal Irresponsibility factor was used in all subsequent analyses.

[Insert Table 1 about here]

Personality: Five of the personality items (Deferred-Gratification items 1, 3, 5, 9[1] and Self-Regulation item 9) had content related specifically to financial behavior (e.g.*"Are you good at saving money rather than spending it straight away"*). The inclusion of such items may thus have biased the estimates of the correlations between predictor and outcome variables, consequently these items were removed. Next, Deferred-Gratification, Impulse Control, Risk-Taking, Self-Regulation, and Consideration of Future Consequences were each subject to individual, item level CFAs that aimed to test single factor structures. As can be seen from the results in Table 2, all models achieved poor fit. Nine items (Deferred-

Gratification items 8, 11; Risk-Taking items 3, 6, 7, 10; Self-Regulation items 1; Consideration of Future Consequences items 5, 12) were observed to load at below the conventionally acceptable level of 0.4. These items were removed and the models re-estimated. All the revised scales showed increased and acceptable levels of model fit.

[Insert Table 2 about here]

3.3 The Measurement Model

Next, item parcels were created for each variable. Items were parcelled based on the procedure recommended by Little, Cunningham, Shahar and Widaman (2002). A minimum of three parcels per factor were created, satisfying the minimum requirement for model identification and ensuring that the ratio of *known to be identified* and *unknown* parameters was great enough that unique values could be estimated for the unknown parameters (Bollen, 1989, p. 88–89). All analyses using parceled variables were conducted using Maximum-Likelihood estimation since the use of item parcels provides an approximation to continuous measurement.

In order to assess the appropriateness of the parcels, a measurement model was estimated which included all of the personality variables and Fiscal Irresponsibility. The initial measurement model showed poor fit (X^2= 742.23, *df* = 173, CFI = .885, TLI = .841, RMSEA = .098, SRMR = .076). The M*plus* solution indicated a strong dependency between two of the latent variables, namely Impulse Control and Self-Regulation (r = 0.916). Also, several large modification indices (ranging from 29.1 – 44.7) were related to each of the three Impulse Control parcels. It was concluded that Impulse Control and Self-regulation are measures of an identical construct. Consequently, we chose to remove the measure of Impulse Control from the measurement model given. Further, a single item parcel was removed from the Consideration of Future Consequences latent variables since its loading was below 0.4. Following the removal of the problematic parcels and after the inclusion of

three within factor correlated error terms, the measurement model demonstrated adequate fit (X^2= 201.23, *df* = 108 CFI = .951, TLI = .937, RMSEA = .068, SRMR = .055).

3.4 Correlational Analysis

Next, Fiscal Irresponsibility was analyzed in terms of its correlations with each of the latent variables. All correlations are shown in Table 3. As can be seen from Table 3, each of the personality variables was significantly correlated with both the global Fiscal Irresponsibility factor and its sub-facets and also with each other. Deferred-Gratification has the largest correlation with overall Fiscal Irresponsibility and Irresponsible Spending, whilst Consideration of Future Consequences has the largest correlation with Financial Planning.

[Insert Table 3 about here]

3.5 Stepwise regression models using Structural Equation Modeling

Finally, an iterative series of stepwise regressions in SEM, based on the revised measurement model were estimated. Each variable was regressed individually against Fiscal Irresponsibility. Each of the personality variables accounted for a significant proportion of the variance in Fiscal Irresponsibility (ranging from 9.5 to 69.6%), with Deferred-Gratification showing the strongest correlation (see Table 4, models A-D). Deferred-Gratification was included in a series of regression models in which it was paired successively with each of the remaining personality factors. Self-Regulation was the only personality variable to account for significant variance over and above Deferred-Gratification (see Table 4, Model F). A series of further models were tested incorporating the demographic variables of age, sex, employment status and educational attainment, none of which accounted for further significant variance. The final model, as displayed in Figure 1, explained 76.6% of the variance in Fiscal irresponsibility and represented good fit (see Table 4, Model F).

[Insert Table 4 about here]

[Insert Figure 1 about here]

5.0 Discussion

The principal aim of this study was to investigate whether the personality variables of Impulse Control, Deferred-Gratification, Risk-Taking, Self-Regulation and Consideration of Future Consequences were correlated with Fiscal Irresponsibility. Each of the personality variables accounted for significant variance (ranging from 9.5-69.6%, see Table 4, models A-D). The model which accounted for the greatest proportion of unique variance (76.6%) consisted of Deferred-Gratification and Self-Regulation (Table 4, Model F). The results reveal Fiscal Irresponsibility to be closely related to personality and adds to the growing body of evidence that has revealed the importance of personality characteristics related to regulatory control that allow for the ability to wait in order to fulfill a desire in the governance of consumers' financial responsibility. The second aim of the study was to investigate the psychometric and structural properties of the newly developed Fiscal Irresponsibility scale.

5.1 Fiscal Irresponsibility

Fourteen items derived from a total pool of 27 identified during the construction of two previous Fiscal Irresponsibility scales (Hughes, et al., 2011) were chosen to create the current Fiscal Irresponsibility scale. Exploratory factor analysis revealed the scale to consist of two factors: one concerned with irresponsible spending and the second with financial planning. Confirmatory Factor analyses showed the two-factor solution to be robust and each of the scales to be reliable (.91-.96). Further, CFA revealed both scales to be adequately represented by a single, global Fiscal Irresponsibility factor. These analyses show considerable overlap with the results obtained by Hughes et al. (2011) in a cross-cultural study of personality and Fiscal Irresponsibility. The results reveal Fiscal Irresponsibility to be a substantive and measurable individual difference which is substantially correlated with

personality. The psychometric properties of the fiscal irresponsibility scale (large balanced factor loadings, high reliabilities and good fitting CFA) suggest its utility for future research. However, further research may also seek to confirm these properties in larger, more population representative samples, and to investigate relationships with objective measures of financial behaviour, such as consumers' levels of debt and savings.

5.2 Personality Variables

Deferred-Gratification was shown to be negatively related to Fiscal Irresponsibility (r = -0.85) and of all of the variables examined, accounted for the largest proportion of variance (69.6%). This result replicates previous work that links Deferred-Gratification to financial behavior and as such contributes to the growing body of evidence that reveals the importance of delaying gratification in facilitating responsible consumption at the individual level (e.g. Bar-gill, 2004; Norvilitis et al., 2006; Hughes et al., 2011; Wang et al., 2011).

The second most influential personality variable was Self-Regulation which was the only variable examined that accounted for significant variance beyond that accounted for by Deferred-Gratification. This relationship again shows Fiscal Irresponsibility to be associated with the ability and, or willingness to control impulses (Murtagh & Todd, 2004). This supposition is further supported when we consider that Self-Regulation was shown to be very closely related to the Impulse Control scale (r = .916). Future research concerning irresponsible consumer behavior might benefit by considering the expression and suppression of impulses as distinct processes (e.g. Duckworth & Kern, 2011). Measures of which might offer differential predictive validity.

The current findings provide evidence of mullticollinearity between the measures of Impulse Control, Self-Regulation, Deferred-Gratification and Consideration of Future Consequences. Firstly, Impulse Control was removed from the analysis as it was deemed to be identical to Self-Regulation due to a linear dependency (r = .916). Secondly, the factor

indicators of Impulse Control showed significant cross loadings with the indicators of each of the other constructs (average modification index = 37.3). Finally, in the regression analyses only Deferred-Gratification and Self-Regulation explained unique variance in Fiscal Irresponsibility. In totality, the results indicate significant overlap in the item content and predictive validity of each of the constructs, and further emphasize the importance of research which looks to differentiate the varying aspects of Impulsivity and personality traits relating to impulse control (e.g. Duckworth & Kern, 2011).

The measure of Self-Regulation used here has a single factor structure, yet the Self-Regulation construct can be broken down into two sub-categories of emotion and cognitive regulation. Emotion regulation relates to the control of affect, whilst cognitive regulation relates to the control of thoughts and actions responsible for planning and the ability to weight reward and make hypothetical decisions (e.g. Magar, Phillips & Hosie, 2008). The distinction between these two sub-facets of Self-Regulation may prove fruitful when attempting to understand financial behavior. For example, cognitive regulation might be more involved in financial planning, whereas emotion regulation may be more closely related to emotive, fiscally irresponsible behaviors such as impulsive/compulsive spending.

Neither Consideration of Future Consequences nor Risk-Taking accounted for significant variance when considered alongside Deferred-Gratification and Self-Regulation, yet both were significantly correlated with Fiscal Irresponsibility. Indeed, within the individual regression models Consideration of Future Consequences was shown to account for the second largest proportion of variance in Fiscal Irresponsibility (45.4%, Table 4 Model D). When considered alongside the Fiscal Irresponsibility sub-facets, Consideration of Future Consequences shows a larger correlation with Financial Planning (r = -.782) than with Irresponsible spending (r = -.599, see Table 3). This finding is not entirely surprising given that those high in Consideration of Future Consequences will place emphasis on the long-

term outcomes of current behavior and are thus, likely to engage in financial planning and commit to saving. The present research contributes to a growing body of empirical research relating Consideration of Future Consequences to a variety of consumer behaviors and financial outcomes such as impulsive and compulsive buying tendencies (Joireman et al., 2005; 2010) and students' self-reported credit card debt (Joireman et al., 2010).

Of all of the variables examined, Risk-Taking demonstrated the weakest relationship with Fiscal Irresponsibility ($r = 0.354$; $p<0.001$). Previous research has reported similar small effects on Fiscal Irresponsibility (Hughes et al., 2011) and other everyday financial matters (Wong & Carducci, 1991), including, financial planning (Fank, 1994), high-risk credit behavior (Adams & Moore, 2007) and debt accumulation (Dahlback, 1991). Thus, Risk-Taking can be considered a correlate of irresponsible financial behavior, but not a key antecedent of Fiscal Irresponsibility.

When interpreting the observed relationships it must be considered that the use of self-report measures for both the predictor and outcome variables may have resulted in method bias, serving to inflate model parameter estimates. The magnitude of the correlations observed here and and the consistency between these and previous research (Hughes, et al., 2011) however would suggest, that the relationships are reliable and meaningful. Nevertheless, to counteract the effects of method bias, future research should aim to collect objective measures of Fiscal Irresponsibility.

5.3 Implications

The models produced and the relationships observed are of relevance to several practical domains. For instance, personality scales that assess the ability and/or willingness to defer-gratification, resist impulses, consider future outcomes of current behavior and self-regulate can be used as screening devices to identify consumers who are more likely to behave in a fiscally irresponsible manor. The ability to identify at risk consumers offers

several further applications. First, financial educators may use this information to aid the design of educational materials and strategies to improve impulse control. Further, within education sessions, participants' responses may be used to help increase clients' self-awareness, which will hopefully result in better impulse control and more responsible and sustainable financial behavior.

The results also have implications for relationships between consumers and financial institution. Since the economic downturn, increasing scrutiny has been placed upon irresponsible financial behavior. The spotlight has focused upon irresponsible lending at the institutional level and irresponsible borrowing and spending at consumer level. There is now, a consensus that irresponsible, unsustainable financial behavior must be replaced by responsible and sustainable financial strategies. Financial institutions are now applying more stringent criteria to assess whether a potential customer poses an unacceptable level of financial risk. At present such discriminations are based on demographic characteristics (e.g. age, occupation) and are influenced heavily by the 'credit rating' system. Demographic measures do not fully account for variation in individual's financial behavior (e.g. Wang, et al., 2011). Equally, credit ratings have numerous flaws (e.g. Treacy & Carey, 2000), uppermost amongst them, is that those without substantial credit history are disadvantaged. First time borrowers are often forced to pay greater levels of interest regardless of whether they are fiscally responsible or not in order to build a 'good' credit rating. The models generated here suggest that by considering behavioral indicators such as personality, financial institutions might be able to create fairer risk assessment practices when deciding upon the allocation of financial products.

5.4 Conclusion

Considered both in isolation and alongside prior research, the current results suggest that in order to remain fiscally responsible, one must actively engage in or be predisposed to

defer-gratification, resist impulses and generally weight long-term 'outcomes' equally, if not more heavily than the satisfaction of immediate desires.

6.0 References

Adams, T., & Moore, M.S. (2007). High-risk health and credit behaviour among 18- to 25-year old college students. *Journal of American College Health, 56*(2), 101-108.

Ainslie, G. (1992). *Picoeconomics: The strategic interaction of successive motivational states within the person*. Cambridge: Cambridge University Press.

Bar-Gill, O. (2004). Seduction by plastic. *Northwestern University Law Review, 98*(4), 1373−1434.

Baumeister, R. F. (2002). Yielding to temptation: Self-control failure, impulsive purchasing and consumer behaviour. *Journal of Consumer Research, 28*, 670–676.

Beck, L.E. (2003). *Child development* (6th ed.). Boston: Allyn & Bacon.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness-of-fit in the analysis of covariance structures. *Psychological Bulletin, 88,* 588-600.

Bianco, C. A., & Bosco, S. M. (2002). Issues in Credit Card Solicitation of College Students-The Responsibilities of Credit Card Issuers, Higher Education, and Students. *Teaching Business Ethics, 6* (1), 45-6

Billieux, J., Rochat, L., Rebetez, M.M.L., & Van der Linden, M. (2008). Are all facets of impulsivity related to self-reported compulsive buying behavior? Personality and Individual Differences, 44, 1432-1442.

Bollen, K. A. (1989). Structural Equations with Latent Variables. Wiley Series in Probability and Mathematical Statistics. New York: Wiley, 514 pages

Brown, S., Taylor, K., & Price, S. W. (2005). Debt and distress: Evaluating the psychological loss of credit. *Journal of Economic Psychology, 26*, 642-663.

Browne, M. W. (1974). Generalized least squares estimators in the analysis of covariance

structures. *South African Statistical Journal, 8, 1-24*.

Browne, M. W. & Cudeck, R. (1993). Alternative ways of assessing model fit. In: Bollen, K. A. & Long, J. S. (Eds.) *Testing Structural Equation Models*. pp. 136–162. Beverly Hills, CA: Sage

Caspi, A., Begg, D., Dickson, N., Harrington, H. L., Langley, J., Moffitt, T. E., & Silva, P. A. (1997). Personality traits predict health-risk behaviors. *Journal of Personality and Social Psychology, 73,* 1052–1063

Cherek, D. R., Moeller, F. G., Dougherty, D. M., & Rhoades, H. (1997). Studies of violent and non-violent male parolees: Laboratory and psychometric measures of impulsivity. *Biological Psychiatry, 41*, 523–529.

Cherpitel, C. J. (1999). Substance use, injury, and risk-taking dispositions in the general population. *Alcoholism: Clinical and Experimental Research, 23*(1), 121–126.

Coffman, D.L., & MacCallum, R.C. (2005). Using Parcels to Convert Path Analysis Models Into Latent Variable Models, *Multivariate Behavioral Research, 40(2), 235–259*

Credit Action. 2011. *UK Debt Statistics from Credit Action*. [ONLINE] Available at: http://www.creditaction.org.uk/helpful-resources/debt-statistics.html. [Accessed 12 May 2011].

Dahlbäck, O. (1991). Saving and risk-taking. *Journal of Economic Psychology, 12,* 479–500.

Dawson, J. (2003). *Debt: A barrier to people who experience mental illness*. Wellington: Kites.

Dittmar, H. (2004). Understanding and diagnosing compulsive buying**.** *Handbook of addictive disorders*, pp. 411-450.

Dorr, N., Krueckeberg, S., Strathman, A., & Wood, M.D. (1999). Psychosocial correlates of voluntary HIV antibody testing in students. *AIDS education and prevention, 11,* 14-27.

Duckworth, A.L., & Kern, M.L. (2011). A meta-analysis of the convergent validity of self-

control measures, *Journal of Research in Personality,* 45, 259–268

Elliot, A. (2005). *Not waving but drowning: Over-indebtedness by misjudgement*. London: Centre for the Study on Financial Innovation (CSFI).

Fank, M. (1994). The development of a money-handling inventory. *Personality and Individual Differences, 17*(1), 147–152.

Furnham, A., & Argyle, M. (1998). *The psychology of money.* London: Routledge.

Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. In I. Mervielde, I. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality Psychology in Europe, Volume 7* (pp. 7-28). Tilburg, The Netherlands: Tilburg University Press.

Gosling, S.D., Vazire, S., Srivasta, S., & John, O.P. (2004). Should we trust Web-based studies? A comparative analysis of six preconceptions about internet questionnaires. *American Psychologist, 59,* 93-104.

Grable, J. E. (2000). Financial risk tolerance and additional factors that affect risk-taking in everyday money matters. *Journal of Business and Psychology, 14*(4), 625-630.

Hayhoe, C. R., Leach, L. J., & Turner, P. R. (1999). Discriminating the number of credit cards held by college students using credit and money attitudes. *Journal of Economic Psychology, 20*, 643-656

Hirschman, E. C. (1991). Secular morality and the dark side of consumer behaviour: Or how semiotics saved my life. *Advances in Consumer Research*, *18*, 1–4.

Hu, L., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods, 3,* 424–453.

Hu, L., & Bentler, P.M. (1999). Cut-off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modelling, 6*(1), 1-55.

Hughes, D.J., Irwing, P., Booth, T., Shawcross, M., & Portelli, D. Who buys now and pays later: Personality predictors of fiscal irresponsibility, *Manuscript submitted for publication.*

Jackson, D. N. (1994). *Jackson personality inventory - Revised manual.* Port Huron, MI: Sigma Assessment Systems, Inc.

Joireman, J., Sprott, D.E., & Spangenberg, E.R. (2005). Fiscal responsibility and the consideration of future consequences. *Personality and Individual Differences, 39*(6), 1159-1168.

Joireman, J., Kees, J., & Sprott, D.E. (2010). Concern with Immediate Consequences Magnifies the Impact of Compulsive Buying Tendencies on College Students Credit Card Debt, *The Journal of Consumer Affairs, 44 (1), 155-178*

Lindsay, J.J., Strathman, A. (1997). Predictors of recycling behavior: An application of a modified health belief model**.** *Journal of Applied Social Psychology*, 27 (20), 1799-1823.

Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002) To parcel or not to parcel: Exploring the question and weighing the merits. *Structural Equation Modeling, 9*, 151-173.

Livingstone, S. M., & Lunt, P. K. (1992). Predicting personal debt and debt repayment: Psychological, social, and economic determinants. *Journal of Economic Psychology, 13,* 111-134.

Magar, E.C.E., Phillips, L.H., & Hosie, J.A. (2008). Self-regulation and risk-taking *Personality and Individual Differences* 45, 2, 153-159.

Mansfield, P. M., Pinto, M. B., & Parente, D. H. (2003). Self-control and credit card use among college students. *Psychological Reports, 3*(2), 1067-1078.

May, O., Tudela, M., & Young, G. (2004). British household indebtedness and financial stress: A household level picture. *Bank of England Quarterly Bulletin*, Winter, 414–428.

Murtagh, A.M. & Todd, S.A. (2004). Self-regulation: A challenge to the strength model, *Journal of Articles in Support of the Null Hypothesis* 3, 19–51.

Muthén, L.K. and Muthén, B.O. (1998-2010). Mplus User's Guide. Sixth Edition. Los

Angeles, CA: Muthén & Muthén

Norvilitis, J.M., Merwin, M.M., Osberg, T.M., Roehling, P.V., Young, P. & Kamas, M.M. (2006). Personality factors, money attitudes, financial knowledge, and credit-card debt in college students. *Journal of Applied Social Psychology,36 (6), 1396 - 1413*

O'Guinn, T.C., Faber, R.J. (1989). Compulsive Buying: A Phenomenological Exploration. *The Journal of Consumer Research*, 16 (2), pp. 147-157.

Parke, A., Griffiths, M., & Irwing, P. (2004). Personality traits in pathological gambling: Sensation seeking, deferment of gratification and competitiveness as risk factors. *Addiction Research and Theory, 12*(3), 201–212.

Pirog III, Stephen F. and Roberts James A. (2007), "Personality and Credit Card Misuse Among College Students: The Mediating Role of Impulsiveness", *Journal of Marketing Theory and Practice*, 15, 1, 65-73.

Ray, J. J., & Najman, J. M. (1986). The generalizability of deferment of gratification. *Journal of Social Psychology, 126*(1), 117-119.

Rose, P. (2007). Mediators of the association between narcissism and compulsive buying: The roles of materialism and impulse control. *Psychology of Addictive Behaviors, 21 (4), 576–581*

Schafer. J. L. & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, 7 (2), 147-177.

Strathman, A., Gleicher, F., Boninger, D.S., & Edwards, C.S., (1994) The consideration of future consequences: Weighing immediate and distant outcomes of behavior, *Journal of Personality and Social Psychology 66, 742–752.*

Treacy, W.F., & Carey, M.S. (2000) Credit Risk Rating System at Large U.S. Banks, *Journal of Banking & Finance*, Volume 24, Issues 1-2, 167-201.

Valins, O. (2004). *When debt becomes a problem: A literature study*. Wellington: Ministry of Social Development.

Vohs, K. D., & Faber, R. J. (2004). To buy or not to buy? Self-control and self-regulatory

failure in purchase behaviour. In R. F. Baumeister, & K. D. Vohs (Eds.), *Handbook of self-regulation: Research, theory, and applications* (pp. 509–524). New York: Guilford Press.

Wang, L., Lu, L., & Maholtra, N.K. (2011). Demographics, attitude, personality and credit card features correlate with credit card debt: A view from China. *Journal of Economic Psychology* 32 (2011) 179–193

Wärneryd, K. E. (1995). *The study of saving behaviour towards the end of the life-cycle*. Tilburg, The Netherlands: Centre for Economic Research.

Watson, J. J. (2003). The relationship of materialism to spending tendencies, saving and debt. *Journal of Economic Psychology, 24*, 723–739.

Wong, A., & Carducci, B. J. (1991). Sensation seeking and financial risk taking in everyday money matters. *Journal of Business and Psychology*, *5*(4), 525-530.

Footnote

1. Item numbers reported conform to those reported by scale authors. For Deferred-Gratification see Ray & Najma (1986); for Impulsivity, Risk-Taking and Self-Regulation see Goldberg (1999); For Consideration of Future Consequences (see Strathman, Gleicher, Boninger, & Edwards, 1994).

Table 1.

Two factor confirmatory model of Fiscal Irresponsibility (standardized solution)

	Item	Factor 1	Factor 2
1	More often than not I spend all that I earn	**.792**	
3	I often spend money now and worry about the consequences later	**.753**	
7	If I had to lose my Income I know I have enough saved to get me by	**-.703**	
6	I have often gone over credit/overdraft limits	**.661**	
11	I prefer to use credit to buy things rather than save up	**.659**	
8	I sometimes buy things I cant really afford	**.656**	
12	I try to pay my debts and balances off each month	**-.652**	
9	I make plans to ensure I will have enough money in the future		**.805**
13	When it comes to my finances I plan for the future		**.774**
2	I regularly set aside some of my income as savings		**.748**
4	I put a lot of thought into managing my money effectively		**.640**
10	I try to ignore my financial situation		**-.588**
14	I try as much as possible to limit my spending according to my income		**.504**

Table 2

Item level Confirmatory Factor Analysis of all personality variables

Scale		X^2	*df*	CFI	TLI	RMSEA
Deferred Gratification		1256.125	66	.610	.685	.219
	Revised	302.396	15	.978	.952	.051
Impulse Control		1568.751	45	.660	.563	.209
	Revised	645.671	15	.987	.972	.070
Risk-Taking		178.496	45	.686	.596	.212
	Revised	100.958	15	.940	.900	.118
Self-Regulation		863.913	45	.836	.789	.137
	Revised	261.612	28	.943	.940	.080
CFC		244.373	55	.793	.720	.244
	Revised	185.373	36	.961	.940	.096

Table 3

Correlations between Fiscal Irresponsibility and the personality scales from the standardized measurement model.

	1	2	3	4	6	7	8
1 Fiscal Irresponsibility	(.91)						
2 Irresponsible Spending	-	(.95)					
3 Financial Planning	-	-.835**	(.96)				
4 Deferred-Gratification	-.850**	.808**	-.741**	(.86)			
6 Risk-Taking	.354**	.385**	-.393**	.422**	(.93)		
7 Self-Regulation	-.623**	-.632**	.560**	-.488**	-.491**	(.93)	
8 Consideration of Future Consequences	-.544**	.599**	-.782**	-.604**	-.222*	.473**	(.94)

Note: * < .05; ** < .001; Numbers in diagonal denote scale reliability as calculated using equations from Fornell and Larcker (1981)

Table 4

Fit statistics for latent variable regression models

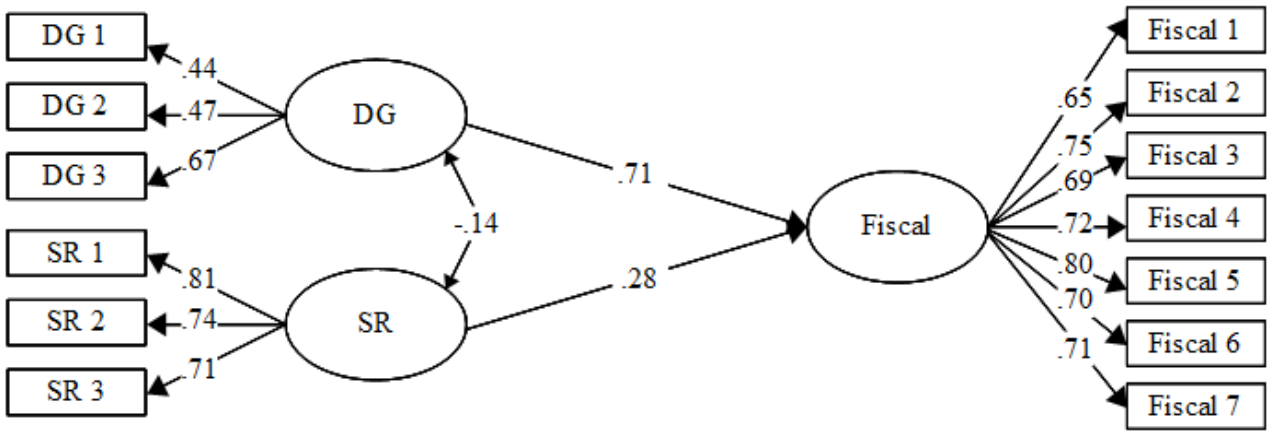
Model	R	B	X^2	CFI	TLI	RMSEA	SRMR
A: Deferred Gratification	69.6	-.834**	62.799	0.966	0.950	0.068	0.034
B: Risk-Taking	9.5	.308**	69.180	0.951	0.927	0.083	0.057
C: Self-Regulation	36.9	-.607**	69.496	0.965	0.949	0.074	0.038
D: Consideration of Future Consequences	45.4	-.674**	112.103	0.936	0.910	0.085	0.048
E: DG &	70.1	-.829**	163.109	0.922	0.894	0.082	0.057
Risk-Taking		-.230					
F: DG &	76.6	-.710**	117.394	0.950	0.932	0.061	0.042
Self-Regulation		.275**					
G: DG &	70.4	-.704**	204.097	0.927	0.926	0.076	0.050
Consideration of Future Consequences		-.178					

Note: * < .05; ** < .001

Figure Caption

Figure 1. Regression model of Fiscal Irresponsibility upon Deferred-Gratification and Self-Regulation Model F. (DG = Deferred-Gratification, SR = Self-Regulation, Fiscal = Fiscal Irresponsibility).

Figure 1


DG 1
DG 2
DG 3
SR 1
SR 2
SR 3
.44
.47
.67
.81
.74
.71
DG
SR
-.14
.71
.28
Fiscal
.65
.75
.69
.72
.80
.70
.71
Fiscal 1
Fiscal 2
Fiscal 3
Fiscal 4
Fiscal 5
Fiscal 6
Fiscal 7